Remedial Investigation Report
Phase II

Port Jervis Manufactured Gas Plant Site
Port Jervis, New York

NYSDEC Site No. 03-36-049P
Index #: D03-0001-99-01

Prepared by:

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RETEC Project Number: ORAN2-18420

Prepared for:

Orange and Rockland Utilities
390 West Route 59
Spring Valley, New York 10977

October 25, 2005

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October 25, 2005

Executive Summary

A Remedial Investigation (RI) was performed at the manufactured gas plant (MGP) site located at 16 Pike Street in the City of Port Jervis, New York, under the terms of an Order on Consent between Orange and Rockland Utilities, Inc. (O&R) and the New York State Department of Environmental Conservation (NYSDEC).

The MGP site is located on the western side of the City of Port Jervis, approximately 160 feet from the Delaware River. The site consists of almost an entire city block, measuring approximately 1.2 acres. The majority of the block is owned by O&R, and is used as an operations center. Structures present at the center include a one-story office and equipment storage building with an attached garage area, a smaller building housing communications equipment, and a radio tower. The rest of the site is a paved yard that is used to store equipment and supplies for gas and electric repair crews. A lot at the southwestern corner of the block is also owned by O&R, which contains a vacant two-story apartment building. Only a lot at the southeastern corner of the block is not owned by O&R. A restaurant and apartment building is present at this location.

MGP production took place at the site from 1861 through 1937. After 1938, when natural gas was introduced to the area, until its final closure, the facility was used for peak shaving to augment the supply of natural gas. It is unknown at what date the plant was decommissioned. Most of the above-ground portions of the gas production structures were demolished by 1959 to make way for the construction of the current operations center building.

Five stratigraphic units were identified during the subsurface investigation performed at the site. A layer of historic fill material is present near the ground surface in most areas. A fine-grained alluvial unit comprised of sand underlies the fill. Beneath the fine-grained alluvial unit is a coarse-grained alluvial unit comprised of sand, gravel and cobbles. Beneath the coarse-grained alluvium is a glacial outwash sand. A bedrock unit underlies the unconsolidated materials at a depth of approximately 150 feet below the ground surface (bgs). The unconsolidated gravel and sand alluvial materials comprise a water-bearing unit.

The investigation found that subsurface structures from the MGP are still present at the site, including a below-grade gas holder pit foundation, an oil tank containment pit, and a tar separator foundation. The lower portion of the gas holder pit contains 6 feet of non-aqueous phase liquid (NAPL) mixed with fill material. The base of the separator was found to contain three feet of soil mixed with NAPL. Subsurface soil associated with these structures, as well as soil in the footprint of other former above-ground structures, has varying amounts of hydrocarbon impacts ranging from odors to NAPL-saturated soil. The maximum depth of observed impact was found to be 70 feet bgs beneath the site.

The groundwater table in the investigation area is found at a depth ranging from 16 to 22 feet bgs. The flow direction for site groundwater is from the northeast to the southwest. Monitoring wells installed down gradient of the subsurface structures containing residuals have been observed to accumulate NAPL. The area of the dissolved groundwater plume roughly corresponds to the footprint of the former MGP process area and extends off site to a limited area of Pike Street, to a residential/commercial property, and then to the Delaware River area. The zone of groundwater impacted by site-related constituents consists of an approximate 120-foot long stretch of shoreline. The depth of the groundwater impact in this zone is limited to approximately 20 feet bgs.

Soil gas, indoor air and outdoor air sampling was performed to evaluate the potential vapor intrusion pathway from known areas of impact at the site to both on-site and off-site areas with occupied buildings. The volatile organic compounds (VOCs) that are possibly related to MGP residuals were within the range expected of typical background values for indoor air for all areas sampled. Evidence for the intrusion of MGP vapors from impacted media at the site to the indoor air was not identified at the locations sampled.

Sediment probing and sampling was performed in five areas of the Delaware River to the west and southwest of the site. A Fish and Wildlife Impact Assessment was performed to evaluate the potential risk from site-related residuals to off-site ecological receptors in the river area. Sediment samples collected adjacent to the area where the site-related dissolved groundwater plume meets the river contained PAH compounds in low-level concentrations. The presence of the PAH compounds in sediments in this area may be related to the MGP site, or may be related to discharge from an upstream urban storm water outfall. Since the concentrations of PAHs in sediments in this area are low, the potential for adverse affects for benthic-related organisms is not believed to be significant.

A qualitative human health risk assessment was completed for the RI study area to identify potential exposures associated with impacted media. The assessment found that exposure pathways may exist for some potential human receptor groups. On-site utility workers who perform subsurface work on the O&R property may be exposed to residuals in soil and groundwater. Off-site outdoor workers at the adjacent restaurant property to the southeast of the site may be exposed to elevated concentrations of constituents in surface soil. Off-site utility workers who conduct subsurface work in roadways north, west, and south of the site could be exposed to residuals when completing subsurface work in these areas. A potential exposure pathway could exist for individuals at residential and commercial properties down gradient of the site if the residents come into contact with impacted subsurface soil or groundwater; however, since the impacted zone is deep in these areas, exposure is not likely.

The sampling performed during the investigation has delineated the extent of the MGP-related residuals at the site and the off-site areas surrounding the site. Following approval of this report by the NYSDEC, a Feasibility Study evaluation will be performed to assess response actions that may be instituted to manage the impacted media. The evaluation will review potential remedial options for both the on-site and off-site areas. Media included in the evaluation will be soil gas, indoor air, surface soil, subsurface soil, groundwater, and sediments.

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List of Acronyms

AOC... Administrative Order on Consent
ARARs .... Applicable or Relevant and Appropriate Requirements
AST .... Aboveground Storage Tank
ATL ....Air Toxics LTD.
BCFs.. Bioconcentration Factors
bgs ....Below Ground Surface
Browns Directory. ....Browns Directory of American Gas Companies
BTEX..Benzene, Ethylbenzene, Toluene, and Xylene
CERCLA .. Comprehensive Environmental Response, Compensation, and Liability Act of 1980
cm/sec ....Centimeters per Second
COC...Constituents of Concern
COI .... Constituents of Interest
DER ....Division of Environmental Remediation
DNAPL.. Dense Non-Aqueous Phase Liquid
DUSR .... Data Usability Summary Report
ECL ....New York State Environmental Conservation Law
ELAP .... Environmental Laboratory Approval Program
Federal Superfund .... Superfund Amendments and Reauthorization Act of 1986
FEMA .... Federal Emergency Management Agency
FS...Feasibility Study
HASP...Health and Safety Plan
HSA ....Hollow Stem Augers
I.D.. Inner Diameter
IRM .... Interim Remedial Measure
LNAPL ....Light Non-Aqueous Phase Liquid
MS ....Matrix Spike
MSD .... Matrix Spike Duplicate
mg/Kg ....Milligram/kilogram
MGP ....Manufactured Gas Plant
ml/min ....Milliliters/minute
MSL...Mean Sea Level
NAPL... Non-Aqueous Phase Liquid

List of Acronyms

NCP .... National Contingency Plan
NGVD .... National Geodetic Vertical Datum 1988
NTUs .... Nephelometric Turbidity Units
NYSASP .... New York State Analytical Services Protocol
NYSDOH .... New York State Department of Health
NYSDEC .... New York State Department of Environmental Conservation
NYSWQS .... New York State Water Quality Standards
O&R. .... Orange & Rockland Utilities, Inc.
O.D. .... Outer Diameter
Order .... Order on Consent
PAH .... Polycyclic Aromatic Hydrocarbon
PCBs .... Polychlorinated Biphenyls
PID .... Photo-ionization Detector
ppb .... Parts per Billion
PPE .... Personal Protective Equipment
ppm .... Parts per Million
PSA .... Preliminary Site Assessment
PVC .... Polyvinyl Chloride
QAPP .... Quality Assurance Project Plan
RBCA .... Risk Based Corrective Action
RCRA .... Resource Conservation and Recovery Act
RETEC ..... The RETEC Group, Inc., formerly ThermoRetec Consulting Corporation, Inc.
RI .... Remedial Investigation
RI/FS .... Remedial Investigation/Feasibility Study
RSCOs .... Recommended Soil Cleanup Objectives
Sanborn .... Sanborn Fire Insurance Map
SCGs .... Standards, Criteria and Guidance
SOPs .... Standard Operating Procedures
SVOCs .... Semi-Volatile Organic Compounds
TAGM .... Technical and Administrative Guidance Memorandum
TAL .... Target Analyte List
TCLP .... Toxicity Characteristic Leaching Procedure
TIC .... Tentatively Identified Compounds

List of Acronyms

Ug/L .... Micrograms per Liter
U.S. EPA .... United States Environmental Protection Agency
USGS .... United States Geological Survey
UST .... Underground Storage Tank
VOCs .... Volatile Organic Compounds

1 Introduction

This Remedial Investigation (RI) Report has been prepared for Orange and Rockland Utilities, Inc. (O&R) by The RETEC Group, Inc. (RETEC) to present the findings of a Remedial Investigation (RI) of environmental conditions at the manufactured gas plant (MGP) site located at 16 Pike Street in the City of Port Jervis, Orange County, New York.

The RI was conducted in accordance with the New York State Department of Environmental Conservation (NYSDEC) Order on Consent (Order) #D03-0001-99-01 executed between O&R and the NYSDEC on March 11, 1999. The RI was carried out in general accordance with the most recent and applicable guidelines of the NYSDEC, the United States Environmental Protection Agency (U.S. EPA), as well as the National Contingency Plan (NCP).

This report incorporates the findings of several phases of environmental investigation work performed at the site. A Preliminary Site Investigation (PSA) was completed by GEI Consultants, Inc. (GEI) in 1998, which identified the presence of MGP-related constituents in concentrations greater than regulatory criteria in the site's subsurface soil and groundwater. An investigation (designated a Phase I RI) was performed by RETEC in 2000, with the results presented in the Phase I RI Report, dated June 18, 2001 [RETEC, 2001]. Supplemental Remedial Investigation (SRI) fieldwork was performed by RETEC in 2001, 2004 and 2005, and by Langan Engineering and Environmental Sciences, Inc. (Langan) in 2002 and 2003. The results of all of the phases of the investigation work performed at the site are presented in this report.

1.1 Purpose of Report

The overall goal of the RI was to collect sufficient environmental data to facilitate an evaluation of the following:

- The nature and extent of MGP-related constituents that are present at the site and off-site areas;

- To identify potential routes of off-site migration from on-site sources of site-related residuals;

- To perform an exposure assessment to evaluate the pathways by which a human receptor (either on-site or off-site) may be exposed to a site-related residual;

- Whether an interim remedial measure (IRM) may be appropriate to mitigate an ongoing impact or migration of impacted media; and

- To obtain sufficient data to complete a Feasibility Study (FS) of potential remedial actions for the site.

1.2 Scope of Work

The scope of work for this RI, as defined in the NYSDEC-approved Work Plans, included the following field tasks:

- Surface soil sampling;
- Test pit excavation;
- Direct-push, hollow stem auger, and rotosonic drill rig soil borings and subsurface soil sampling;
- Monitoring well installation;
- Temporary well point installation;
- Well development;
- Water level measurement;
- Groundwater sampling;
- Single well pump tests;
- Non-aqueous phase liquids (NAPL) monitoring and collection;
- Sediment probing and sampling;
- Soil gas and indoor air sampling;
- Site surveying; and
- Investigation-derived residuals management.

1.3 Report Organization

This report is organized into eight sections following this introduction.

- **Section 2** - provides a description of the site and off-site areas, historical ownership, and operational information.
- **Section 3** - describes the field investigation activities performed at the site and off-site areas.
- **Section 4** - provides a summary of the results of the observations made during the field investigation, including a description of site

topography, geology, hydrology, site features, and observations regarding the extent of observed MGP residuals.

- **Section 5** - provides a summary of the analytical results for environmental media sampled during the investigation.
- **Section 6** - presents a qualitative evaluation of the risk associated with MGP constituents for the on-site and off-site areas.
- **Section 7** - presents a set of conclusions for the investigation.
- **Section 8** - presents recommendations for additional actions.
- **Section 9** - provides the list of references cited in the report.

Tables and figures are included in sections that immediately follow the text of the report.

Appendices to the report include the following:

- **Appendix A** - Test pit, soil boring, and well completion logs are included in Appendix A.
- **Appendix B** - New York State Department of Health (NYSDOH) Indoor Air Sampling and Chemical Inventory Forms are included in Appendix B.
- **Appendix C** - A Data Usability Summary Report (DUSR), and the laboratory Form I report sheets and chain-of-custody records for Phase I RI samples collected from 1999-2001 are included as Appendix C (previously submitted to the agencies with the Phase I RI Report, dated June 18, 2001).
- **Appendix D** - The full NYSDEC Analytical Services Protocol (ASP) Category B data deliverable package for the Phase I RI samples collected from 1998-2001 is included as Appendix D (previously submitted to the agencies with the Phase I RI Report dated June 18, 2001).
- **Appendix E** - A Fish and Wildlife Impact Assessment is included as Appendix E.
- **Appendix F** - The DUSR and the laboratory Form I report sheets and chain-of-custody records for the Phase II RI samples collected from 2002-2005 are included in Appendix F (provided only to the NYSDEC).

- **Appendix G** - The full NYSDEC ASP Category B deliverable data package for the Phase II RI samples collected from 2002-2005 is included in Appendix G (provided only to the NYSDEC).

2 Site Description and History

This section presents a description of the MGP site and the off-site areas, and summary information regarding historical land use for the site from the period of MGP operations to the present.

2.1 Site Description

The Port Jervis MGP site is located at 16 Pike Street in the western portion of the City of Port Jervis, Orange County, New York. The location of the site is shown on Figure 2-1. The property is 1.2 acres in size, and covers most of a single city block of land. The City Tax Assessors office lists the property as Section 18, Block 16, Lot 2. The site is zoned for commercial and industrial purposes.

The site is roughly rectangular in shape, and is bounded by Pike Street to the southeast, King Street to the northeast, Brown Street to the northwest, and Water Street to the southwest. Small commercial and residential properties are present on the properties bounding the MGP site in all directions. The Delaware River is located approximately 160 feet to the southwest of the site, on the opposite side of Water Street. The Delaware River is classified by NYSDEC as a Class A river in the area adjacent to the site. The site layout and current features are shown on Figure 2-2.

A vacant two-story apartment building is present on a lot at the southwest corner of the block which was purchased by O&R in 1999. A partial basement is present beneath the northeastern portion of the building. The only portion of the block not owned by O&R is the property at 28 Pike Street, located in the southeast corner of the block. A three-story building is present at this location. The basement and first floor of the building is a restaurant. The second and third floors of the building are apartment units. The balance of the block is currently used by O&R as office space and as an operations center for electrical and gas service crews.

The site is completely paved with the exception of grassy strips southwest of the O&R apartment and along Pike Street. The O&R operations center is comprised of a brick single-story building with offices, a store room, a garage bay area, and two loading docks. The building is constructed on grade and does not have a basement. A large diameter (5-foot) storm sewer culvert is present beneath the site which carries storm water flow from the northern portions of the City of Port Jervis east of the site, to an outfall pipe and seasonal pool located adjacent to the Delaware River to the west of the site.

A second brick building at the operations center contains communications equipment and is also used for storage. A microwave tower is present immediately to the west of the communications building. A fenced gas regulator station is present in the west-central portion of the site. The operations center portion of the property is enclosed by an 8-foot high, chain-link fence topped with barbed wire, and access is restricted to O&R employees.

2.2 Site History

This section provides a brief history of the ownership and MGP operations conducted at the Port Jervis MGP site. The information is based on a review of the following records:

- City of Port Jervis property records;
- The 1853, 1875, and 1903 Orange County Atlas;
- The Browns Directory of American Gas Companies;
- Sanborn Fire Insurance maps for 1888, 1894, 1900, 1905, 1912, 1921, 1931, 1945, and 1961;
- A 1936 Eastern Underwriters Inspection Bureau facility map;
- A 1995 O&R facility map;
- O&R facility records; and
- Historical aerial photographs (1968, 1974, 1976, 1987, and 1995).

2.2.1 Site Ownership

The majority of the footprint of the MGP site is currently owned by O&R. Information regarding historical site ownership, as determined from the sources listed above, is summarized in Table 2-1.

2.2.2 Site Operational History

The Port Jervis MGP had a long history of operation with gas production facilities present from 1861 until 1959 when the plant was demolished to make room for the current O&R operations center building. During its history, the MGP was modified a number of times as the gas production facilities were upgraded and enlarged. Table 2-2 provides summary information for the operational history of the MGP. Information obtained from the Browns Directory of American Gas Companies is presented in Table 2-3.

Background studies completed during preparation of the project Work Plans identified various former site features which represent potential source areas for MGP residuals, and thereby pose potential areas of environmental concern for the site. These features include: tar wells, a tar extractor tank and tar separator, above ground petroleum storage tanks (ASTs), underground petroleum storage tanks (USTs), gas holder foundations and pipes, purifier areas, and MGP process areas.

Table 2-4 provides summary information for each feature investigated during the RI including: an RI designation assigned to each feature, the approximate date of service, and comments regarding each features' use. The location of each feature which comprised the MGP is shown on Figure 2-3.

2.3 Previous Investigation and Remedial Work

Three previous investigations and/or remedial actions have been performed at the site. The first two investigations and subsequent cleanup work were related to the decommissioning and removal of two USTs which had been installed and operated in the period following cessation of MGP operations. A PSA was completed to determine if MGP-related residuals were present at the site.

2.3.1 UST Removal - Ira D. Conklin & Sons, Inc.

Ira D. Conklin & Sons (IDC) was retained by O&R to remove a diesel fuel UST and petroleum-impacted soil from the site in June, 1996 (NYSDEC Spill Number 95-04682). The tank was removed following a tank pressure test failure. The results of the removal and cleanup work are summarized in the report entitled "*Site Assessment/Tank Closure Summary Report for the Property located at Orange & Rockland Utilities, Pike Street New York*" [IDC, 1996].

Until the time of the removal, the UST was active and was used by O&R to fuel company automobiles and trucks from a fuel island at the eastern side of the site. The tank has been designated Diesel UST N and its location is shown on Figure 2-3. An O&R site plan (October, 1995) shows that the tank had a capacity of 4,000 gallons.

Following the decommissioning and removal of the UST, soil surrounding the UST was screened for the presence of organic vapors with a photo-ionization detector (PID). Based on the screening, 229.55 tons of petroleum-impacted soil were removed from the tank pit and properly disposed of at an off-site permitted facility. According to the IDC report, the petroleum-impacted soil was believed to be the result of piping failure and spills related to port overfills.

Soil samples for chemical analyses were collected from the tank pit walls and excavation floor. The samples were sent to the laboratory for Toxicity Characteristic Leaching Procedure (TCLP) extraction followed by analysis for volatile organic compounds (VOCs) by U.S. EPA Method 8021S. Petroleum constituents were not detected in concentrations greater than the method reporting limits for the side wall samples. Five VOCs in the excavation floor sample exceeded their NYSDEC TCLP Extraction Guidance Values [NYSDEC, 1992] for petroleum sites including: total xylene (33 ug/L), npropylbenzene (6.1 ug/L), 1,3,5-trimethylbenzene (20 ug/L), 1,2,4-trimethylbenzene (39 ug/L), and n-butylbenzene (50 ug/L). The laboratory results sheets for the analyses are provided in Appendix C.

2.3.2 UST Removal - Metro-Tank, Inc.

Metro-Tank, Inc. (MTI) was retained by O&R to remove a 1,000 gallon UST from the site in April, 1998. The results of the cleanup work are summarized in the report entitled "*Underground Storage Tank Site Assessment Report – Port Jervis Satellite Building, Port Jervis, New York*" [MTI, 1998]. The location of the former UST (Gasoline UST M) is shown on Figure 2-3. The UST was originally installed to store and dispense gasoline for O&R company automobiles and trucks. According to statements made by O&R employees, the UST was later used to store and dispense diesel fuel.

Following removal of the UST from the tank pit, MTI screened soil surrounding the UST with a PID and, based on the results of the screening, excavated approximately 110 cubic yards of petroleum-impacted soil from the tank pit. Soil samples for chemical analyses were then collected from each end wall and from beneath the fill pipe and composited, and from the excavation bottom. The samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), and TCLP metals analyses. The results of the analyses found that the concentrations of all detected compounds were below the regulatory levels. The result sheet for the analyses is included in Appendix F.

2.3.3 PSA - GEI Consultants, Inc.

A preliminary site investigation (PSA) was completed by GEI Consultants, Inc. (GEI) in September 1998, in accordance with NYSDEC Order on Consent #D03-0002-9412. The investigation included surface soil sampling, subsurface soil sampling via test pits and soil borings, sediment sampling, installation of monitoring wells, and groundwater sampling. The investigation found that MGP residuals were present at the site in concentrations exceeding regulatory criteria, and that a remedial investigation was warranted to further characterize environmental conditions. The findings of the investigation are provided in the report entitled "*Preliminary Site Assessment Report – Port Jervis Former MGP Site, Port Jervis, New York"* [GEI, 1998]. The findings of the PSA have been included in this report in the discussion of the results of the field investigation (Section 4) and in the discussion of the extent of MGP residuals found in soil and groundwater at the site (Section 5).

3 RI Field Activities

This section provides a description of the methodologies used for conducting the field investigation of the Port Jervis MGP site. The investigation fieldwork was performed during the period of 1998 to 2005, and included the following mobilizations:

RI Phase I

- **1998 PSA** - The PSA sampling was performed by GEI in 1998.
- **2000 - RI** - RETEC completed investigation work at the site in 1999 and 2000 according to the Standard Operating Procedures (SOPs) presented in the Investigation Work Plan prepared by GEI [GEI, 2000a]. The results of the sampling were provided to the NYSDEC in a report entitled "*Remedial Investigation Report, Former Manufactured Gas Plant Site, Port Jervis, New York*," June 18, 2001 [RETEC, 2001].

RI Phase II

- **2001** - RETEC performed sub-floor soil gas sampling at the O&R operations building prior to remodeling of the office areas.
- **2002 - 2003** - SRI work was performed by Langan Environmental Services, Inc. (Langan) according to a work scope letter from O&R to the NYSDEC, dated April 23, 2002, and the document entitled "*Supplemental Remedial Investigation Work Plan, Pike Street Former MGP Site, Port Jervis, New York, Site No. 03-36-049P*," April 2003 [Langan, 2003].
- **2004 - 2005** - SRI fieldwork that focused on the Delaware River Area was performed by RETEC in 2004 and 2005. The scope of work for this phase of the project was provided to, and approved by the NYSDEC in a SRI Work Plan, dated July 29, 2004 [RETEC, 2004]. Separate Work Plans were prepared by RETEC, and approved by the NYSDEC and NYSDOH, for the off-site soil gas and indoor sampling tasks. These included a sampling plan for the O&R operations building and the restaurant/apartment building at 28 Pike Street, dated June 10, 2004, and for the residential and commercial property located at 9 Pike Street, dated October 13, 2004.

Representatives of the NYSDEC, Remedial Bureau C, Division of Environmental Remediation of Albany, NY, were on site to observe the majority of the soil borings, the well installations, soil gas and indoor air sampling, and the sediment probing and sampling activities.

Descriptions of the field activities performed during the RI are included by field task or environmental media in the following sections. The location of each sampling point and important site features are shown on Figure 3-1.

3.1 Surface Soil Sampling

3.1.1 On-site Surface Soil Samples

A total of seven on-site surface soil samples were collected to assess the potential for direct exposure of on-site workers or the public to MGP-related constituents. The location of each sample is shown on Figure 3-1. The sample designation, sample depth, laboratory analyses completed, and the sampling rationale for each location are presented in Table 3-1.

The sampling depth and locations for several of the samples were modified from the RI Work Plan specifications. The modifications included the following:

- All samples were collected from 0-2 inches bgs. The depth of sample collection was modified from the original Work Plan specifications of 0-1 inch bgs to ensure sampling methods met the specifications of the NYSDOH.

- The method for the collection of surface soil samples SS8, SS9, and SS10 was modified from that specified in the Work Plan. Originally, these samples were to be collected during the installation of soil borings in each area of interest. Instead the samples were collected from 0-2 inches bgs from a narrow strip of exposed soil between the asphalt pavement and sidewalk at the locations shown on Figure 3-1. The modification was discussed with, and approved by the NYSDEC prior to the sample collection.

- Surface soil sample SS4 was moved from northeast of the restaurant property at 28 Pike Street, to the grassy strip between the O&R operations building and Pike Street, since the area designated in the Work Plan was covered by concrete pavement.

Per the Work Plan specifications, the soil was screened for the presence of organic vapors to determine if the soil should be analyzed for VOCs. Samples of soil were placed into plastic bags and then screened for the presence of vapors with a PID using the “jar headspace” method of analysis. No organic vapors were detected for any of the surface soil samples; consequently the samples were not analyzed for VOCs.

3.1.2 Off-site Surface Soil Samples

Three surface soil samples (SS5, SS6, and SS7) were collected from off-site properties near the MGP site. The objective of the sampling was to investigate background concentrations of constituents of interest (COI) in the area-wide setting of the site. The location of each sample was chosen during a site meeting attended by O&R, RETEC, NYSDEC, and NYSDOH. Off-site surface soil samples SS5 and SS6 were collected from the locations shown on Figure 3-1. Off-site surface soil sample SS7 was collected from a grassy area, which is adjacent to a city park located approximately 1,000 feet southeast of the site.

3.2 Subsurface Soil Sampling

Subsurface soil samples were collected to obtain data regarding site geology and the extent of the MGP residuals. Samples were collected from the test pit excavations completed by GEI, and the direct-push, rotosonic, and hollow stem auger soil borings performed by RETEC and Langan. The location of each boring is shown on Figure 3-1. Table 3-2 presents a list of the subsurface soil samples including: the sample designation, sampling rationale, sample depth, and the laboratory analyses completed.

3.2.1 Direct-push Soil Borings

A total of 20 direct-push subsurface soil borings were completed to investigate whether subsurface structures associated with former MGP operations are still present at the site, and to further delineate the extent of MGP residuals within, or adjacent to each structure or area of interest.

RETEC contracted TerraProbe, Inc. of Easton, Pennsylvania to perform the subsurface soil sampling. TerraProbe utilized a truck-mounted, direct-push drilling rig to advance the borings. A 4-foot long sampling tube (Macro-Core) equipped with a plastic liner was used to collect the soil samples. The sampler was advanced in 4-foot depth intervals. At the completion of each interval, the tube was withdrawn from the borehole and the core was extracted and logged by the field geologist. Soil from each 2-foot depth interval was placed in plastic bags and screened with a PID using the "jar-headspace" method of analysis.

A subsurface borelog was completed by the geologist which described: 1) the type of soil encountered using the Unified Soil Classification System (USCS), 2) the presence of visible evidence of MGP residuals, 3) the presence of hydrocarbon-like odors, and 4) a description of each subsurface structure encountered. The results of the field screening are provided on the borelogs in Appendix A, and on the cross-sectional views of the site in Section 4.

Based on PID screening and the visual and olfactory observations, the most impacted depth interval encountered in each boring was selected for chemical analysis at the laboratory (with the exception that no analysis was performed on samples containing tar-like material). Analytical samples were not collected from beneath the zones of impacted soil from the direct-push borings because the direct-push borings were not advanced to the clean zones. Deeper samples were obtained at these locations from the rotosonic borings, as discussed below. The direct-push borings were abandoned by filling the boreholes with a bentonite powder.

3.2.2 Rotosonic Soil Borings

A total of 18 rotosonic soil borings were completed to further investigate the vertical and lateral extent of MGP residuals and to install monitoring wells. The location of each rotosonic boring and well installation is shown on Figure 3-1.

RETEC contracted Boart Longyear Company of Schofield, Wisconsin to complete the subsurface soil sampling. Longyear utilized a truck-mounted rotosonic drilling rig to advance the borings. The rotosonic rig used a double-cased method of drilling to both advance the boring and collect the subsurface soil samples. A 6-inch diameter OD casing was pushed and vibrated into the overburden soil in 10-foot depth intervals. A 4-inch OD diameter core sampler was used inside of the outer casing to collect soil samples as the borehole was advanced. For each 10-foot interval of drilling the core sampler was retrieved and the core sample was extruded into a 4-inch diameter plastic sleeve. The sleeves were then opened and soil samples were characterized by the geologist using the procedures described for the direct-push soil boring sampling.

The most impacted depth interval from the soil boring, and a sample from the first clean interval below the impacted zone, were selected for chemical analysis at the laboratory. Where no evidence of impact was observed, a sample was collected at the bottom of the boring or at the water table. The location of each soil sample and the results of the classification and field screening are provided on the soil boring logs in Appendix A.

Those boreholes not finished as a monitoring well were abandoned by filling the borehole with a cement and bentonite grout which was pumped into the borehole via a tremie pipe as the rotosonic casing tools were withdrawn from the borehole. The construction details for each well are provided on the well construction logs in Appendix A.

3.2.3 Hollow Stem Auger Soil Borings

Hollow stem auger (HSA) borings were completed by Langan to further delineate the extent of MGP-related impacts at the eastern property boundary of the site and at several off-site properties adjacent to Brown and Pike Streets. Langan contracted Summit Drilling of New Jersey to complete the hollow stem auger borings. Soil samples were collected with split-spoon samplers and screened using methods described above for the direct-push soil borings. The results of the soil classification and field screening are provided on the soil boring logs in Appendix A, and on the cross-sectional views of the site.

3.3 Monitoring Well Installation

The locations of the wells installed at the site are shown on Figure 3-1. Table 3-3 provides a list of the wells, the rationale for each well location, the aquifer zone monitored (shallow, intermediate, or deep), and the laboratory samples collected. Well construction details are shown on the well construction logs in Appendix A, and are summarized on Table 3-4.

3.3.1 Off-site Temporary Well Points

Two temporary well points (LTWP1 and LTWP2) were installed and sampled using hollow-stem auger drilling methods adjacent to two residences on Brown Street (12 and 16 Brown Street). Two soil samples were collected for laboratory analyses from each boring. The well points were installed according to methods specified in the SRI Work Plan [Langan, 2003]. A groundwater sample was also obtained for each temporary well point. Well construction logs for the well points are included in Appendix A.

3.4 Well Development

Each of the monitoring wells was developed using a surge-and-pump method in order to remove fine-grained sediment and fluid residue from the well and the sand pack. A surge block was used to actively surge and agitate the water column by forcing water back and forth through the well screen. Following surging, the wells were pumped with a submersible pump (on-site wells) or a peristaltic pump (river bank area wells). Pumping was continued until at least 10 well volumes of water were removed, and the wells were observed to have a clear discharge.

3.5 Groundwater Monitoring

The groundwater monitoring program consisted of the collection of depth-to-water measurements, groundwater sampling, and NAPL gauging and bail-down testing.

3.5.1 Depth-to-Water Measurements

Depth-to-water measurements were taken at each well with a depth-to-water meter to obtain groundwater elevation data. An oil-water interface probe was also used to determine whether any non-aqueous phase liquid (NAPL) was present in the wells. The measurements obtained with the oil-water interface probe were checked with clear bailers to confirm whether LNAPL was present at the water table or if DNAPL was present at the well bottom.

A reference point (staff gauge SG1) was used to collect measurements of the elevation of surface water in the Delaware River at the same time that the groundwater elevations were being collected. The reference point for measuring the elevation of surface water was established by locating a point on the Route 209 Bridge, surveying the elevation of the reference point, and then measuring the distance from the reference point to the river water with a depth-to-water meter.

The field measurements obtained from the wells and surface water data point for the sampling performed on November 5, 2005, are provided in Table 3-4, and on the groundwater flow direction map and geologic cross-sections in Section 4.

3.5.2 Groundwater Sampling

Table 3-3 presents summary information for the groundwater sampling events performed at the site including: the sample designations, the sample rationale, and the laboratory analyses performed. The methods used were consistent with the low stress methods presented in the RI and SRI Work Plans. Sampling events performed at the site include the following:

- The initial groundwater sampling event (May 1998) was completed after the PSA monitoring wells (MW1S to MW5) were installed.
- A second groundwater sampling event was completed for wells MW1S to MW11 following the investigation work performed by RETEC in 2000.
- A third groundwater sampling event was completed by Langan in November 2003 for wells MW1S to MW19S, and temporary well points LTW1 and LTW2.
- A fourth round of sampling was performed by RETEC for the river area temporary wells TW1, TW2, TW4, and TW5 to obtain samples from these locations prior to a flood event in the fall of 2004.
- The fifth round of sampling was performed by RETEC and included all the site and off-site wells including: MW1S to MW19S, and the temporary wells located at the Delaware River area (TW1 to TW5).

3.5.3 Non-aqueous Phase Liquid Testing

Three monitoring wells were found to contain either LNAPL or DNAPL during the period from the fall of 2000 to the spring of 2005. These wells include MW1S (LNAPL), MW7 (DNAPL), and MW8 (DNAPL). At the request of the NYSDEC, hydrocarbon gauging and bail-down tests were performed on these wells to gauge the potential recovery rates for the NAPL at these locations. This sampling was completed during the period between the fall of 2004 and the spring of 2005. Note that during the last round of gauging performed at the site in May 2005, a trace amount of LNAPL was observed at well MW15S. The layer of LNAPL was not thick enough to obtain a measurement with the oil-water interface probe.

3.5.4 Storm Water Sewer System Sampling

Two storm water samples were obtained from the storm water culvert that is present beneath the site. The up stream sample (SSUP) was obtained from a manhole immediately adjacent to the east side of King Street to the east of the site. The location of the manhole is shown on Figure 3-1. The down stream sample (SSDN) was obtained from the culvert pipe at the Port Jervis Outfall adjacent to the Delaware River (Figure 3-1).

Two sediment samples were planned for the storm water sewer system; however, only one sample could be obtained. The up stream sediment sample (SSSEDUP) was obtained from the manhole adjacent to King Street. A reconnaissance was performed for the pipe at the Port Jervis Outfall; however, sediment material was not present in the pipe at this location.

3.6 Delaware River Area Investigation

The investigation of the Delaware River area included the installation of soil borings along the shoreline, the collection of groundwater samples from temporary wells installed at the boring locations, the probing of sediment in outfall areas and the river, and the collection of sediment samples for laboratory analyses.

3.6.1 Sediment Direct-Push Sampling

One direct-push soil boring was completed during the sediment investigation fieldwork performed in 2000 at the location shown on Figure 3-1. The objective of the boring was to investigate sediment conditions at a deeper depth than the hand probing could accomplish. A total of six borings were attempted with the direct-push core sampler driven with an electric jackhammer. Five of the attempts met with refusal in the cobbles and boulders which comprise the river bottom. One boring (DP-12) was completed to a depth of 2 feet bgs. Sediment sample DP-12(1-2) was collected from the boring.

3.6.2 River Bank Borings

Five subsurface soil borings were completed during the fieldwork performed in the fall of 2004 along the Delaware River shoreline at the locations shown on Figure 3-1.

- **RBB1/TW1** - A boring was completed southwest of the Port Jervis Outfall. The boring was finished as a temporary well point that was screened across the water table.

- **RBB2/TW4** - A boring was completed at the shoreline area to the southwest of the apartment building located at 9 Pike Street. Note that this boring was moved from the location shown in the SRI Work Plan to a location further down stream since impacts were not observed at boring location RBB3. The boring was finished as a temporary well point that was screened across the water table.

- **RBB3/TW2** - A boring was completed at the shoreline area to the west of the residence at 9 Pike Street. The boring was finished as a temporary well point that was screened across the water table.

- **RBB4/TW3** - A boring was installed to 34 feet bgs in the predicted central axis of the dissolved groundwater plume area. Three soil samples were collected from the boring for laboratory analyses. A Solinst™ CPT multi-level well system was installed at this location and three groundwater samples were collected from the target depths of the water table, and approximately 20 and 30 feet bgs.

- **RBB5/TW5** - A boring was completed at the anticipated down stream edge of the dissolved groundwater plume area. The boring was finished as a temporary well point that was screened across the water table.

3.6.3 River Bank Boring Methods

The river bank borings were completed using a cathead mounted on a portable tripod. The borings were installed by advancing a 3-inch diameter steel casing with a 130 lb. safety hammer. Soil sampling was accomplished by collecting soil from each 2-foot interval with a split-spoon sampler. Soil samples for laboratory analyses were obtained at targeted intervals biased to elevated PID readings and soils showing visual, and/or olfactory indications of impact. Where olfactory or visible evidence of residuals was not observed, and the results of the PID screening of soil samples were not found to be significantly elevated, two laboratory samples were collected to document soil conditions including a sample at the water table and from the bottom of the boring.

Four of the soil borings were finished as temporary well points with screens that were positioned across the water table. For the deep boring (RBB4/TW3) in the central portion of the anticipated plume area, a Solinst ™ CPT multi-level system was installed to collect groundwater samples at the water table, and approximately 20 and 30 feet bgs in the unconsolidated river channel deposits to identify the vertical distribution of MGP-related constituents. The water table wells were developed with a peristaltic pump and surge block. The multi-channel well was developed by pumping with the peristaltic pump. Well construction logs for the temporary wells are included in Appendix A.

3.6.4 Sediment Probing

Sediments in the river bank area were probed twice. The initial event was completed by RETEC in 2001 and the results presented in the Phase I RI Report [RETEC, 2001]. At the request of the NYSDEC, sediments in the study area were re-probed during the fieldwork performed in the fall of 2004.

A tape measure was used to layout locations for sediment probing transects along the Delaware River shoreline. The transects were located every 25 feet along the shoreline. At each transect, a row boat was positioned approximately 100 feet from the shoreline and secured with an anchor. A rope which was marked on 15 foot centers was then attached to the boat and the shoreline. A threaded steel rod was then used at each sampling point to probe the sediments. The rod was inserted by hand or driven with a hand sledge hammer approximately 2 to 3 feet below the riverbed at each location. The rod was then withdrawn and observations regarding the presence of hydrocarbon-like sheens were recorded.

3.6.5 Sediment Sampling

The results of the sediment probing task, and the river bank borings, were used to finalize the locations of the sediment samples collected during the investigations. The samples included the following:

- **BSD1 to BSD5** - Five background sediment samples were collected from upstream locations to determine concentrations of constituents in the area-wide setting of the site.

- **SED1** - One sediment sample was collected during the PSA at the Port Jervis Outfall area.

- **SD1 to SD3** - Three samples were collected at, or near the Port Jervis Outfall area during the sampling performed in 2000.

- **SD4** - One sample was collected from Area B by RETEC in 2000.

- **SD5 to SD17, SD36, and SD37** - These samples were collected immediately adjacent to, or at the edge of areas where sediments with hydrocarbon sheen were observed during the probing activities performed by RETEC in 2000. This area includes the area at, and immediately down stream of the Port Jervis Outfall.

- **SD18 to SD29, and SD38** - Samples collected in the area where the dissolved groundwater plume meets the Delaware River shoreline. Samples were biased for general coverage as visible evidence of hydrocarbon impacts was not observed during probing of this area.

- **SD39 to SD41** - Samples collected down stream from the site (Area B shown on Figure 4-8) to obtain additional data near SD4, a sample collected by RETEC in 2000.

- **SD30 to SD35** - Samples collected from the Lower Port Jervis Outfall (Figure 4-8) to obtain additional data regarding the concentrations of COI at a second urban storm water outfall area.

The samples were collected with a trowel from a depth of 0 to 6 inches below the sediment surface. Table 3-5 provides summary information for the sampling including: the sediment sample designation, location, sampling rationale, and the laboratory analyses performed for each sample. Table 3-6 provides summary information regarding the sediment sample locations including the sample designations and the respective GPS coordinates, which were obtained with a backpack GPS unit. The horizontal measurements are referenced to NAD83, New York State Planes, East Zone, US Foot Coordinates.

3.6.6 Sediment Hydrocarbon Identification Sampling

One sample was collected on October 12, 2000, during the sediment probing task for hydrocarbon identification. The objective of the sampling was to identify the type of hydrocarbon material present in the Port Jervis Outfall area of the river to determine whether the hydrocarbon material is present at this location as the result of MGP operations or a non-MGP related spill or release.

The sample was collected from the area of SD1, which was the most visibly impacted sediment material found during the investigation. The threaded rod was used to probe the sediments at this location. During probing a hydrocarbon-like NAPL was found to float to the surface of the water in the outfall channel. The NAPL was collected in a glass jar and sent to the laboratory for chemical analysis. The location of the sample, identified as Jervis Outfall, is shown on Figure 3-1.

3.7 Soil Gas and Indoor Air Sampling

Several soil gas and indoor air sampling events were performed at the site and adjacent off-site areas. The scope of work and methods used for the sampling for each area of interest were provided to, and approved by the NYSDEC and NYSDOH prior to completing the fieldwork. The scope of work for each area is discussed below.

3.7.1 O&R Operations Building

Four sampling events were performed to obtain soil gas and/or indoor air samples at the O&R operations building. The locations of the samples are shown on Figure 3-1. The events included the following:

- RETEC collected sub-floor soil gas samples in three areas of the O&R building in 2001. Areas sampled included the employee break room (SG1), the office area in the southeast corner of the building (SG2), and in the equipment storage area (SG3).

- Langan collected indoor air samples at these locations in 2003. In addition to the soil gas samples collected in the footprint of the building, Langan collected two soil gas samples (LSG8 – 5 and 8 feet) immediately outside of the storage area of the building to the east near the eastern loading dock.

- At the request of NYSDOH, eight additional air samples were collected by RETEC in 2004 at the locations discussed above. The work was scheduled to obtain sub-floor soil gas, indoor air, and ambient air samples during a one-day sampling event. A pre-screening reconnaissance was completed 24 hours prior to the air sampling event and a NYSDOH Indoor Air Quality Questionnaire and Chemical Inventory form was prepared. This form is included in Appendix B. A sub-floor soil gas sample (SG1) and indoor air sample (IA1) was collected in the employee break room in the western end of the building. A sub-floor soil gas sample (SG2) and indoor air sample (IA2) was collected in the hallway in the eastern end of the building. A sub-floor soil gas sample (SG3) and indoor air sample (IA3) was collected in the storage area in the northern portion of the building. Two ambient (outdoor) air samples were collected at locations shown on Figure 3-1 at upwind and downwind locations.

3.7.2 28 Pike Street – Restaurant/Apartment Property

Indoor air and soil gas samples were collected at the restaurant/apartment property at 28 Pike Street (corner of Pike and King Streets) at the locations shown on Figure 3-1. The objective of the sampling was to evaluate the potential for vapor intrusion at this location from MGP-related residuals known to be present on the O&R property. The location of each sample was selected in consultation with the NYSDEC and NYSDOH during a reconnaissance of the building. The scope of work for the air sampling included the following:

- A pre-screening reconnaissance was completed prior to the air sampling event and a NYSDOH Indoor Air Quality Questionnaire and Chemical Inventory form prepared. The form is included in Appendix B.

- A sub-floor soil gas sample (GRISG1) was collected from beneath the concrete floor in the boiler room in the eastern portion of the building's basement.

- A sub-floor soil gas sample (GRSG2) was collected in the dirt-floor area of the western portion of the building's basement.

- An indoor air sample (GRIA1) was collected in the basement.

- An indoor air sample (GRIA2) was collected in the 1st floor of the building in the restaurant area.

- Ambient air samples GRAMB1 and GRAMB2 were collected at the same time as the indoor air samples from up wind and down wind locations, respectively.

3.7.3 9 Pike Street – Residence/School Property

Indoor air and soil gas samples were collected at two buildings at the property located at 9 Pike Street including the residence and a small school building (formerly designated as a guest house) located to the southwest of the residence. The sample locations are shown on Figure 3-1. The scope of work completed on the property included the following:

- A reconnaissance of the buildings was performed to obtain information requested by the NYSDOH. The site reconnaissance and chemical inventory forms are included in Appendix B.

- Samples of outdoor air were collected from upwind (AMB1) and downwind (AMB2) locations.

- Samples collected at the residence included a sub-floor soil gas sample (SG8), an indoor air sample from the basement (RES-IA-1), and an indoor air sample from the first floor of the residence (RES-IA-2).

- An indoor air sample was collected at the adjacent school building. A sub-floor soil gas sample was planned at this location; however, the sample location was modified in the field since the school did not have a basement, and the floor of the building was completely covered by carpeting. The soil gas sample was collected outside the school approximately 10 feet from the building foundation from beneath a flagstone patio floor.

3.7.4 Additional Off-site Soil Gas Sampling

To evaluate the potential for vapor intrusion from the site to off-site areas (other than the samples at 9 and 28 Pike Street discussed above), two rounds of soil gas sampling were performed during the RI. The initial round was completed by Langan in 2003. The results of the Langan sampling indicated that elevated concentrations of toluene were present at several of the soil gas sample locations. The results of the sampling were provided to, and discussed with, the NYSDEC and the NYSDOH. It was agreed that the Langan results were questionable since the locations of the toluene detections were not consistent with known areas of contamination at the site, nor were other VOC constituents detected in elevated concentrations. To obtain additional information to evaluate and assess the previous data, RETEC re-sampled these locations in the fall of 2004. The locations of each of the soil gas samples are shown on Figure 3-1. The samples are summarized by area of interest as follows:

- **West of Water Street** – Four soil gas samples were collected by Langan at the restaurant property at 6 Pike Street, located at the corner of Water and Pike Streets, including LSG9 (5 and 12 feet deep) and LSG10 (5 and 12 feet deep).

- **North of Brown Street** – Fourteen soil gas samples were collected near four residences located to the north of Brown Street, including:
    - Eight soil gas samples were collected by Langan including LSG18 (5 and 13 feet deep) at 8 Brown Street, LSG5 (5 and 13 feet deep) at 12 Brown Street, LSG6 (5 and 13 feet deep) at 14 Brown Street, and LSG7 (5 and 13 feet deep) at 16 Brown Street.
    - Confirmation samples were collected by RETEC including SG7S (5 feet) and SG7D (12 feet) at 8 Brown Street, SG6S (5 feet) and SG6D (12 feet) at 12 Brown Street, and SG5S (5 feet) and SG5D (12 feet) at 16 Brown Street.
- **South of Pike Street –** Fourteen soil gas samples were collected in the residential and commercial areas southwest of the site on Pike Street. The samples included the following:
    - Twelve soil gas samples were collected by Langan, including LSG14 (5 and 12 feet deep) at 15/17 Pike Street, LSG13 (5 and 11.5 feet deep) at 13 Pike Street, LSG12 (5 and 12 feet deep) at 11 Pike Street, and LSG11 (5 and 13 feet deep), LSG15 (5 and 13 feet deep), LSG16 (5 and 13 feet deep) at 9 Pike Street.
    - Two samples were collected by RETEC including SG4S (5 feet) and SG4D (12 feet) at 15/17 Pike Street.

3.7.5 NAPL Volatilization Air Sample

A volatilization study was performed using a sample of NAPL collected from well MW1S. The NAPL sample was submitted to Air Toxics Ltd. (ATL) of Folsom, California to qualitatively analyze the volatile fraction of the MGP-impacted material (referred to as an analysis of the headspace). The objective of the analysis was to identify the suite of constituents detected in the volatile fraction of the materials, and then compare them to those compounds detected in indoor air and soil gas to further evaluate if the source of the VOCs detected in indoor air or soil gas may be MGP-related.

3.8 Site Survey

The survey of the investigation data points and site features was performed by three State of New York licensed Surveyors including: Donald Stedge PLS, of Monroe, New York, Langan Engineering PLS, of Elmwood Park, New Jersey, and Robert Murray PLS, of Middletown, New York. The horizontal location of a permanent site benchmark was established by Murray PLS with a global positioning device (GPS). The benchmark monument is a NJGCS Department of Conservation "Flood Crest" benchmark located in the sidewalk adjacent to the residence at 9 Pike Street (Figure 3-1). The horizontal measurements included in this report are referenced to NAD83, New York

State Planes, East Zone, US Foot Coordinates. Vertical measurements reported are in Mean Sea Level (MSL) - NGVD 1988.

The purpose of the surveys was to create a base map that accurately shows the investigation sample locations and physical features of the site, including building corners, fences, sidewalks, curbs, driveways, and utilities that were within the property boundary of the former MGP and key off-site areas. The location and ground surface elevation of all soil borings and monitoring wells were also surveyed. In addition, the casing elevation and top of PVC riser elevation (highest point on the riser) were surveyed on all monitoring wells. All site figures presented in this report were prepared using the survey results.

3.9 Ecological Investigation

A Step I through Step IIB ecological assessment was performed by RETEC to identify potential ecological receptors in the vicinity of the Port Jervis MGP site. The assessment was completed according to the requirements specified in the NYSDEC document entitled *"Fish and Wildlife Impact Analysis (FWIA) for Inactive Hazardous Waste Sites"* [NYSDEC, 1994b].

A reconnaissance of the site was performed to identify and verify vegetation cover types, to observe the fish and wildlife habitat and land use in the study area, and to observe any signs of environmental stress. A Step IIA (Pathway Analyses) was completed to identify potential contaminant migration pathways and pathways of exposure to fish and wildlife resources located in the area-wide setting of the site. Step IIB (Criteria Specific Analysis) was completed to identify whether COI exceeded regulatory standards, and whether a link to ecological receptors exists. The FWIA Report is presented in Appendix E.

3.10 Community Air Monitoring

Community air monitoring was performed during the invasive field tasks performed in 2002-2004 (SRI field activities). The monitoring provided real-time measurements of total VOCs, and particulate (airborne dust) concentrations in air surrounding the worksite, if any, at the downwind perimeter of each designated work area when intrusive investigation activities were in progress. Additionally, site personnel monitored any odors produced during the intrusive activities. The monitoring was designed to provide protection for the downwind community, such as residences, business, and on-site workers not directly involved with the project, from potential releases of airborne constituents resulting from the investigation activities. In addition, the monitoring results were used to document that work activities did not spread constituents off site through the air.

Total VOCs and particulates were monitored continuously with an organic vapor meter, equipped with a PID, and dust meter, respectively, located upwind and downwind of each work zone. The VOC and particulate levels at each location were recorded every 15 minutes. The action levels specified by the NYSDOH were never reached during the investigation and no response actions were required.

3.11 Investigation Residuals Management

Several types of residuals were generated during the investigation work performed at the site including: 1) decontamination wash water from the down hole drilling tools; 2) soil from the direct-push, hollow stem auger and rotosonic drilling; 3) development and pump test water; 4) groundwater sampling purge water; 5) personal protective equipment; 6) miscellaneous sampling equipment and plastic sheeting; and 7) NAPL from the bail-down testing. The residuals were segregated by media, stored in drums, and then transported off site to a permitted disposal facility for proper disposal.

4 Field Investigation Results

This section presents a summary of the field measurements and observations made during the investigation of the Port Jervis MGP site. Included is a discussion of the geology and hydrology of the site, and observations regarding the presence and condition of MGP residuals associated with former MGP structures.

4.1 Regional Geology

The site is situated in a northeast-trending valley of the Delaware and Neversink Rivers called the Port Jervis Trough. This major topographic feature extends continuously for approximately 100 miles from Kingston, New York where it intersects the Hudson Valley, southwestward to Stroudsburg, Pennsylvania. The Port Jervis Trough has been excavated by stream and glacial erosion of the weak shales and siltstones of the Middle Devonian Hamilton Group west of the Shawangunk Mountains which lie to the east of the site. The floor of the valley is relatively flat as a result of the trough being filled with glacial outwash and lake sediments following the retreat of the glaciers.

Surface soil in the vicinity of the site is mapped as the Tioga silt loam which is well-drained, with a moderate to rapid permeabilities [Olsen, 1981]. The alluvium is mapped as a mixture of stratified sands and gravels over a folded shale and siltstone bedrock.

4.2 Site Topography and Drainage

The MGP site is relatively flat, with the ground surface sloping gently to the northeast from MW7 (elevation 438 MSL) to MW6 (elevation 435 MSL). From Water Street towards the Delaware River, the topography slopes steeply with an overall drop of approximately 22 feet.

Surface water at the MGP site flows into a series of catch basins within the footprint of the site, and within the footprint of Brown, Pike, and Water Streets. The catch basins in Brown, Pike and Water Streets also receive flow from the area surrounding the site. The surface water then flows in subsurface pipes to a storm water pipe located in the former canal raceway beneath the site (Figure 2-2) with discharge to the Delaware River at the Port Jervis Outfall (Figure 2-2).

During the RI fieldwork, several storm events occurred which resulted in heavy rainfall. The field geologist observed the condition of the water which entered nearby catch basins in Port Jervis, and the water which discharged into the Delaware River via the storm sewer system. Visible hydrocarbon-like sheens were observed in the water which entered the catch basin system. These sheens were also observed at the storm sewer outfall in the Delaware

River. The hydrocarbon materials observed in the surface water during the storm events are believed to be related to urban runoff, not to the site.

4.3 Site Geology

Information concerning the site stratigraphy was obtained from the soil samples collected during the soil borings and well installations. This information was used to generate three cross-sectional views of the subsurface strata. The locations of the cross-sections are shown on Figure 4-1, and the cross-sections are presented on Figures 4-2 (A-A'), Figure 4-3 (B-B'), and Figure 4-4 (C-C'). Four unconsolidated stratigraphic units and one bedrock unit were identified during the drilling as described below:

4.3.1 Historic Fill

A historic fill unit is present across all areas of the MGP site. Fill thickness varies across the study area, with the thickest layer present in the area of boring DP6 (15 feet thick) which was completed adjacent to the former Gas Oil AST H.

The historic fill composition varies widely. Materials such as bricks, concrete, glass fragments, wood timbers, and metal debris were found at many investigation locations, usually mixed with a fine-grained sand. Evidence of varying amounts of coal gasification materials were also observed, including: ash-like material, coal fragments, cinder-like material, clinker-like material, and tar-like material.

4.3.2 Fine-grained Alluvium

Beneath the fill a fine-grained alluvial unit was observed at each of the RI boring locations. This unit was typically encountered between 4 and 15 feet bgs. The unit is comprised of well-sorted fine brown sand. The unit ranges in thickness from 5 feet thick at MW2, to 17 feet thick at MW11.

4.3.3 Coarse-grained Alluvium

Beneath the fine-grained alluvium was a coarse-grained alluvium unit which was comprised of rock fragments, rounded cobbles, pebbles and boulders, silt, and sand. This unit was typically encountered between 15 and 20 feet bgs. The unit ranged in thickness from approximately 5 feet thick at MW9D, to 15 feet thick at SB15.

4.3.4 Glacial Outwash

Underlying the coarse-grained alluvium is a thick deposit of glacial outwash. The outwash consists of medium-grained sand mixed with trace amounts of rounded gravel. Also mixed with the outwash was an occasional nodule of glacial till material which is believed to have been mixed in with the outwash during deposition. The outwash thickness was found to range between 130 feet thick at MW1D, to 145 feet thick at MW10D.

4.3.5 Bedrock

Bedrock was encountered beneath the outwash sand at MW3D, MW9D, SB17, and MW10D. The bedrock is a gray shale. Based on the four borings which encountered the bedrock unit, the bedrock surface slopes to the southwest from the site towards the Delaware River. Figure 4-7 provides a contour map of the surface of the bedrock unit beneath the footprint of the site.

4.3.6 River Sediments

The sediments in the submerged portion of the investigation area in the Delaware River are comprised of a brown, medium-grained sand, with varying amounts of a fine-grained brown silt. Only trace amounts of fine-grained sediment was observed in the riverbed in the investigation area, as most of the river bottom consists of pebbles, cobbles, and boulders. A larger percentage of fine-grained material was observed down stream from the site at Area B.

4.4 Regional Hydrogeology

A study of well records in Orange County [Frimpter, 1970 and 1972] indicates that the alluvium and outwash is mapped as an unconfined aquifer with potential yields of 10 to 100 gallons per minute [Bugliosi, 1988]. Based on the availability of groundwater, the Lower Neversink Valley aquifer is listed as a “Principal Aquifer” by NYSDEC. Such aquifers are “known to be highly productive or whose geology suggests abundant potential water supply, but which are not intensively used as sources of water supply by major municipal systems at the present time” [NYSDEC, 1990].

According to statements made by representatives of the City of Port Jervis, drinking water supply wells are not located in the immediate vicinity of the site and residents in the area of the site obtain drinking water from the municipal supply distribution system. The City supplies drinking water from three surface water reservoirs located to the northeast of Port Jervis, which is treated in a municipal treatment plant.

A United States Geological Survey (USGS) database search was performed to determine if any data regarding wells in the vicinity of the site was available. The results of the database search for a 1-mile radius of the site are shown on Figure 4-10. As shown on the figure, seven wells are present within a 1-mile radius. There are no wells mapped down gradient of the Port Jervis MGP site. The closest well is a cross gradient well (US-1952) located 2,000 feet to the east of the site. According to information obtained from the USGS, this well is 190-foot deep and located on the E. Mackey & Company property. The operational status of the well was not indicated in the USGS database.

The Delaware River in the area of the City of Port Jervis and the site frequently floods during periods of heavy rain or due to ice build-up at the base of the Route 209 Bridge. The Federal Emergency Management Agency (FEMA) has mapped the 100-year floodplain for the RI study area. The FEMA information is presented on Figure 3 of the FWIA presented in Appendix E.

4.5 Site Hydrogeology

Detailed information regarding the site hydrogeology was obtained from the soil borings and monitoring wells. The depth-to-water and direction of groundwater flow was defined by 28 monitoring wells and a surface water reference point on the Route 209 Bridge above the Delaware River.

4.5.1 Overburden Water Bearing Unit

The alluvium and the glacial outwash materials comprise a single water-bearing unit. No strata which could act as a confining unit was encountered in the soil borings. In general, the depth-to-water was measured to be approximately 16 to 23 feet bgs across the site. A map of the water table surface in the overburden unit is presented on Figure 4-6. The map shows that the water table slopes in the direction of the Delaware River to the southwest. Consequently, groundwater from the overburden unit is likely to be discharging from the site to the area between the high and low water mark of the river. As measured from MW6 to TW5, the horizontal hydraulic gradient was approximately 0.002 feet/foot.

4.5.2 Vertical Gradient

Vertical hydraulic gradient measurements are based on measurements taken at three multi-level well clusters. At well cluster MW1S and MW1D, the vertical gradient was found to be 0.06 feet. At cluster MW3S and MW3D, the gradient was found to be 0.25 feet. At cluster MW10S and MW10D, the gradient was found to be 0.01 feet. The results of the measurements show a neutral to slight downward trend from the shallow portions of the aquifer to the deeper portions. Measurements taken during both the spring and fall were similar, indicating that the gradient can be anticipated year round.

4.6 Source Area Investigation Results

The remainder of this section provides the results of the field investigation of structures or other areas of interest associated with the former MGP, and the adjacent off-site areas of interest.

Throughout the section, there are references to soil containing varying amounts of fill or organic compounds, which may range from trace amounts in slightly impacted soil, to materials such as tar-like or oil-like NAPL material. For discussion and illustrative purposes, the observations made by the field geologist have been grouped into five general categories.

- Fill material consisting of non-indigenous materials emplaced at the site that contained trace amounts of anthropogenic materials such as cinders, coal fragments, coke fragments, ashes, and varying amounts of construction debris;

- Lightly-impacted soil or fill material exhibiting a hydrocarbon-like odor or elevated PID readings (orange color on the cross-sectional views of the site);

- Moderately impacted soil or fill material exhibiting visibly identifiable hydrocarbon-like staining, sheen, and/or trace amounts of NAPL blebs (green color on the cross-sectional views of the site);

- Heavily impacted soil or fill material exhibiting an occasional lens of NAPL or hardened tar-like material mixed with soil (blue color on the cross-sectional views of the site); and

- Soil or fill material saturated with tar-like material or NAPL (purple color on the cross-sectional views of the site).

The colored illustrations are included on the cross-sectional views of the site (Figure 4-2, 4-3, and 4-4) as well as Figure 4-5, which shows the areal extent of observed MGP-site-related residuals. It is important to note that these descriptions and colored illustrations are included to provide a useful tool in representing the extent of observed residuals at the site; however, they are somewhat general in nature, and are intended to be used along with the borelogs and results of the chemical analyses to fully evaluate the nature and extent of impacts at the site.

4.6.1 Gas Holders

<u>Gas Holder A</u>

The footprint of the circular foundation is visible as outlined with cracks on the pavement. Test pit TP3 was excavated inside, and outside of the footprint of Holder A. Soil boring SB4 was completed within the footprint of the holder to the holder floor. The fieldwork found the following:

- A 35-foot diameter, buried gas holder pit foundation was found to be present at the location shown on Figure 3-1;

- The foundation wall is comprised of bricks with a wall thickness of 32 inches;

- The foundation wall extends from 0 to 10-feet bgs;

- The material found inside the holder is comprised of fill including: ash-like material, clinkers, coal fragments, and gravel mixed with sand;

- Approximately 6 feet of tar-like NAPL mixed with soil is present in the bottom of the holder;

- A soil sample obtained from within the holder foundation in boring SB4 at 8.3 feet bgs had a total PAH concentration of 19,060 mg/Kg;

- Subsurface soil outside of the base of the holder foundation in a down gradient location was observed to be heavily impacted (MW1S, MW1D, SB14, and SB17); and

- Down gradient well MW1S was found to accumulate LNAPL. Bail-down testing was performed to assess the rate at which the LNAPL re-entered the well.

Note that down gradient soil boring SB15 was also found to be impacted; however, the soils were not as heavily impacted as soil observed in SB17 or MW1D. Impacted soil at these locations may be from the holder or other sources, such as the nearby tar tank or tar separator.

Gas Holder B and Gas-Oil AST J

Two soil borings and one test pit were completed in and around the footprint of former Holder B. Following decommissioning of Holder B, Gas-Oil tank AST J was installed in the footprint of the holder. For discussion purposes, impacts observed in subsurface soil have been grouped together for these two features. The fieldwork in this area of interest found the following:

- The brick containment structure for AST J is still present in the subsurface at the location shown on Figure 3-1.

- Test pit TP1 found that the pit is filled with concrete debris, coal fragments, and bricks. Water was found inside of the pit at 9 feet bgs, indicating that the lower portion of the pit is likely to be intact.

- Soil boring DP1 found that the pit floor is present at approximately 11.5 feet bgs. Visible evidence of MGP residuals was limited to hydrocarbon-like odors in soil in the bottom of the pit.

- Test pit TP1A found that the holder foundation footer extends to 13 feet bgs. Soil boring DP2 was completed to 19.2 feet bgs and found that visible evidence of impact was limited to hydrocarbon-like odors around the outside of the pit foundation.

Gas Holder C

Four sample points were located in and around the footprint of former Holder C. Within this area of interest are several other MGP or modern features including: purifier lime boxes V and X, AST G, AST K, AST L, and Naphtha AST F. The fieldwork in this area of interest found the following:

- Holder C was an above-grade holder which was constructed with a ring foundation and a concrete slab-on-grade floor. No holder pit was found for the holder.

- Test pit TP8 was excavated along the southern edge of the holder ring foundation. No visible or olfactory evidence of impact was observed in the test pit.

- Test pit TP4 was excavated in and around the western side of the holder foundation. The test pit found that the concrete slab which formed the holder base is still present in the subsurface at this location. Visible NAPL described as "black fuel oil" by GEI during the PSA was found from 6-8 feet bgs outside of the holder ring foundation.

- The soil borings for MW5 and SB18 were completed within the footprint of the holder. Strong hydrocarbon-like odors were observed from 5 feet bgs to the water table at approximately 16 feet bgs. Visible evidence of impact (tar blebs and oil blebs) was noted from 16 feet bgs to 24 feet bgs.

- Soil samples from SB18 were collected to a total depth of 70 feet bgs. The results of the sampling indicate that visible or olfactory evidence of impact is limited to a total depth of approximately 30 feet bgs in the footprint of the holder.

Given the fact that several MGP features were located in this area of interest, the source of impacts found in soil and groundwater is difficult to assign. Both tar-like and oil-like impacts were observed. Petroleum impacts may be attributed to spills or releases from AST G (discussed below) which was an oil tank.

<u>Gas Holder D</u>

One test pit and three soil borings were completed in the footprint of former Holder D. The fieldwork found the following:

- Gas Holder D was an above-grade holder. A ring-shaped foundation and concrete holder slab are still present at the location shown on Figure 3-1. This foundation extends from the ground surface to a depth of 3.5 feet bgs. The entire footprint of the gas holder is covered by a concrete slab which is approximately 1 foot thick.

- No visible or olfactory evidence of impact was noted in TP7 which was completed along the southern edge of the Holder.

- No visible or olfactory evidence of impact was observed in the boring for MW13 completed to the northwest of the Holder.

- Two borings which were finished as wells were installed in the footprint of the Holder. Each of the borings found that heavily impacted soil is present at this location. Tar-like blebs mixed with soil was observed in the boring for MW3S and MW3D from 15 to 30 feet bgs.

- A slight hydrocarbon-like sheen was observed at MW2 from 20 to 25 feet bgs. This well is located in a down gradient location from Holder D.

- Monitoring well MW9D, also located in a down gradient location, was completed to the bedrock unit. No visible, olfactory, or PID evidence of impact was noted for this soil boring.

4.6.2 Above Ground Storage Tanks (ASTs)

Gas-Oil AST G

Gas-oil AST G was located near the current O&R operations center gate along Brown Street. One test pit and three soil borings were completed in this area of interest. Heavily impacted soil and NAPL were found in the area of the former tank.

- Four direct-push soil borings were attempted in the general area of DP7 shown on Figure 3-1. Each attempt met refusal indicating that it is likely that a concrete tank base is still present in this area.

- Boring DP7 was advanced to a depth of 24 feet bgs. Visible NAPL was observed to be mixed with soil from 19 to 20 feet and 22 to 23 feet bgs.

- Soil borings DP14 and SB19 were completed to further delineate the extent of NAPL observed at DP7. Boring DP14 found that NAPL was observed at a similar depth (23 to 24 feet) as in boring DP7. Rotosonic soil boring SB19 was completed to determine the extent of downward migration of NAPL observed in the direct-push borings. NAPL blebs were observed to a depth of 24 feet bgs. No visible or olfactory evidence of impact was observed from 24 to 70 feet bgs in the boring.

- When the presence of NAPL in this area of interest became known, additional borings were completed within, and to the northwest of, Brown Street, including DP14, DP16, DP17, DP18, and MW12.

- Borings DP15 and DP16 were completed to the southwest and northeast (Figure 3-1) of the impacts found in SB19. Each boring was completed to the depth of the coarse-grained alluvial subunit and met with refusal at approximately 19 feet bgs. No visible or olfactory evidence of impact was observed at either location.

- Borings DP17 and DP18 were completed across Brown Street from DP14 and SB19. Slight hydrocarbon-like odors were observed in soil at these locations. The impacts were observed at intervals of between 15 to 20 feet bgs which matches the likely fluctuation of the water table in this area. Samples from borings for LTW1 and LTW2, completed further to the north did not show visible evidence of impact.

- The boring for MW12 found similar results to DP17 and DP18. Impacts were limited to hydrocarbon-like staining and odors from 12 to 22 feet bgs. The boring was completed to a depth of 35 feet bgs to determine the downward extent of impacts. No visible, olfactory, or PID screening evidence of impact was observed deeper than 22 feet bgs.

Based on the borings completed in the area of AST G, it appears that spills or releases may have been associated with this tank. The impact to soil and groundwater extends to the northern edge of Brown Street. Since the impacts appear to be limited to the depth where the water table is found it is likely that constituents have migrated with the groundwater table to these locations. It is important to note that the Port Jervis area frequently floods and these flood events are likely to have reversed the flow direction of groundwater at the site. The impacts observed at the northern edge of Brown Street may be attributed to this possible reversal of groundwater flow direction.

Naphtha AST H

Naphtha AST H was initially used for naphtha storage and was later converted for use for gas-oil storage. Soil boring DP6 was completed in the footprint of the AST. The boring was completed to a depth of 22.5 feet bgs. No structures such as a tank base or tank support were found in the boring. Strong hydrocarbon-like odors and elevated PID readings (up to 700 ppm) were observed in soil samples from this location.

Naphtha AST I

The footprint of former AST I is partially or completely covered by the O&R operations building offices (Figure 3-1). One boring (DP11) was located as close as possible to the footprint of the former tank in the landscaped area outside the offices to the southwest. Six attempts were made to advance the direct-push sampling tool in this area; however, all attempts met with refusal. It is likely that a concrete tank base is still present in the subsurface at this location. A well (MW15S) was installed further to the west of the former tank location. During the most recent gauging event performed for the site wells on May 20, 2005, a trace amount of LNAPL (not measurable) was observed at this location.

Diesel AST K and Gasoline AST L

As shown on an O&R facility plan (dated October, 1995), these tanks was installed following decommissioning of the MGP and were used to fuel O&R service vehicles. The area of the tanks was investigated during sampling completed in and around Naphtha Tank F and Holder C. It is unknown whether possible spills or leaks from these tanks contributed to the impacts found in the footprint of Holder C.

4.6.3 Underground Storage Tanks (USTs)

Naphtha UST E

A total of five direct-push borings were attempted in the area of DP20 shown on Figure 3-1. Each attempt met with refusal. It is likely that the concrete tank base is still present in the subsurface area in this location. At TP10 which was completed adjacent to the former AST location, hydrocarbon-like odors were observed in soil from 1 to 10 feet bgs. Pipes were also found in the test pit which may have been connected to the tank.

Naphtha Tank F

Naphtha Tank F was located within the footprint of Holder C. It is unknown whether the tank was an AST or UST. A discussion of the condition of soil for this area of interest is included with the discussion for Holder C and AST K.

Gasoline UST M

Gasoline UST M was removed from the area shown on Figure 3-1 in April 1998. As previously discussed, the tank was also used to store diesel fuel. The tank closure report prepared by MTI indicates that impacted soil was successfully removed from this area. Post-excavation samples were found to be within the regulatory guidelines. A well (MW14S) was installed in the footprint of this former UST. Subsurface soil and groundwater are not impacted at this location in concentrations greater than regulatory guidelines.

Diesel UST N

Diesel UST N was removed from the area shown on Figure 3-1 in August 1996. Soil was also excavated from this tank pit area. Based on the laboratory samples collected for closure, impacted soil is no longer present in this area in concentrations exceeding regulatory guidelines. Note that test pit TP9 and soil boring SB1 were completed in the area of the tank removal. No visible, olfactory, or significant PID measurements were observed in soil samples collected in this area.

4.6.4 Purifiers

Purifier T

Soil boring DP19 was completed in the footprint of Purifier T. Several attempts were made to complete this boring; however, each attempt met with refusal. It is likely that the concrete base of the above-ground purifier is still present in the subsurface at this location.

Purifier U

Purifier U was the initial purifier used at the MGP. It is believed to be an above-ground iron purifier. Soil boring DP8 was completed to a depth of 14 feet bgs in the footprint of the purifier. Evidence of impact was limited to a slight hydrocarbon-like odor from 12 to 14 feet bgs.

Purifier Room V, Purifier Boxes W and X

Purifier features V and W were investigated during completion of test pit TP8. No significant odors or visible evidence of impact was noted for the test pit soil samples. Purifier Box X was investigated during completion of SB18 and MW5.

4.6.5 Tar Handling Features

Tar Separator O

One soil boring (DP5) was completed in the footprint of the tar separator. The drilling tools met with refusal at 6 feet bgs indicating that a subsurface structure is likely to still be present in the subsurface at this location. Visible hydrocarbon-like NAPL was observed to be mixed with fill materials from 4 to 6 feet bgs. A sample of the NAPL was collected and sent for a laboratory determination of the types of hydrocarbons present.

Tar Tank P

Soil boring DP4 was completed in the footprint of the former tar tank. The boring was completed in fill materials to a depth of 9 feet. No subsurface structure was found in the boring. No visible, olfactory, or PID evidence of impact was observed in the soil samples.

Tar Well Q

Two soil borings were attempted in the footprint of the former tar well at the location of DP9 shown on Figure 3-1, inside the garage area of the O&R

operations building. Both borings met with refusal at a depth of approximately 8 feet bgs. Since both borings met with refusal at approximately the same depth it is possible a subsurface structure exists at this location. No visible, olfactory, or PID evidence of impact was observed in the samples collected from the fill materials from this area.

Tar Extractor R

One soil boring (DP3) was completed in the footprint of the former tar extractor. No subsurface structure was found in this area. Hydrocarbon-like odors were observed in soil samples collected above the water table. Soil samples collected from at or below the water table (18 feet bgs) were observed to have a hydrocarbon-like sheen.

Tar Well S

The footprint of Tar Well S is covered by a portion of the O&R operations building. One hand boring (HA1) was completed in the alley between the O&R building and the adjacent restaurant to the east. One direct-push boring (DP10) was completed near the southeast corner of the O&R building. No visible evidence of impact was noted in the borings. Slight odors and PID readings up to 18.7 ppm were observed in soil samples from 4 to 6 feet bgs in DP10.

4.6.6 Miscellaneous Features

Canal Raceway

Three soil borings (MW2, MW9D, and SB1) and three test pits (TP5, TP6, and TP9) were completed in the footprint of, or adjacent to, the area of the former canal raceway. The canal appears to contain fill materials including coal gasification residuals such as coke, coal fragments, clinker-like material, ash-like material, cobbles, sand, and other miscellaneous debris. No visible or olfactory evidence of hydrocarbon impact was observed in the test pits. Impact observed in the soil borings was limited to a trace amount of hydrocarbon-like sheen in MW2 at a depth of 20 to 25 feet bgs, a depth that is below the depth of the bottom of the former raceway. It appears that the filled-in canal raceway is not a significant pathway for residuals to migrate off of the site.

Coke Storage Area

Two borings (SB20 and MW6) were completed in the coke storage area. No visible, olfactory, or PID evidence of impact was observed for any of the soil samples collected in this area.

4.6.7 Observed Conditions at Off-site Down Gradient Areas

Subsurface soil borings and monitoring wells were completed at down or cross gradient areas, including the roadways and residential and commercial properties located at 9, 11, 13, and 15/17 Pike Streets. Observations made by the field geologist regarding the extent of observed MGP residuals or historic fill materials in these areas of interest are summarized below.

Pike Street

Two monitoring wells were installed in the footprint of Pike Street (MW8 and MW11). Visible evidence of hydrocarbon-like sheen was observed during completion of both of these borings. MW8 has been observed to accumulate up to 5 feet of DNAPL during the NAPL gauging and recovery testing performed during the RI.

15/17 Pike Street

Groundwater monitoring well MW19S was completed at this property at the location shown on Figure 3-1. Visible evidence of historic fill material was not observed in the soil samples collected from this boring. Field screening or visible evidence of hydrocarbon-like impacts were not observed in the soil samples collected from the boring or in the groundwater sample collected from the well installed in this area.

13 Pike Street

Groundwater monitoring well MW16S was completed at this property at the location shown on Figure 3-1. Visible evidence of historic fill material (clinker-like material) was observed in the soil samples collected from this boring to a depth of 4 feet bgs. Field screening and visible evidence of hydrocarbon impacts were observed in the soil samples collected from the area of the water table (16 to 22 feet bgs).

9 Pike Street

Three monitoring wells (MW17S, MW17I, and MW18I) were installed at the property located at 9 Pike Street. Soil exhibiting visible evidence of hydrocarbon-like sheen was observed during the sampling performed at each of the borings locations at the property.

4.7 Sediment Investigation Results

For discussion purposes, the Delaware River area has been grouped into five areas of interest. The location of each area is shown on Figure 4-8. Sediment probing was performed in the Delaware River area at 24 transects during the fieldwork performed in 2000, and 43 transects during the fieldwork performed in 2004. The results of the probing performed in 2004 are shown on Figure 4-

9 and discussed in the following sections. The investigation areas include the following:

- Background Sediment Sample Area;
- Port Jervis Storm Water Outfall Area;
- River Area Down Gradient of the Site;
- Area B; and
- Lower Port Jervis Storm Water Outfall Area.

Background Sediment Sample Area

To obtain data regarding sediment quality at a location considered up gradient of, and not impacted by the site, five background samples were taken approximately 1,400 feet up stream of the site at the locations shown on Figure 4-9. Hydrocarbon-like materials or sheens were not observed during the sampling performed at this location.

Port Jervis Storm Water Outfall Area

Surface water collected in the City of Port Jervis east of the MGP site is piped to the Delaware River in the storm sewer pipe located in the canal raceway beneath the site. Water discharges into a seasonal pool at the mouth of the outfall culvert. Surface water then flows from the pool into a small stream, and joins the Delaware River approximately 40 feet south of the culvert (Figure 4-9). The sediment probing completed in this area found the following:

- Probing in the soft sediments in the area of the pool found that slight hydrocarbon-like sheens were produced by repeated probing with the threaded rod.
- A visible layer of LNAPL was observed to float to the surface of the surface water upon repeated probing with the rod at SD1. This sampling point was the most impacted area observed during the probing. The hydrocarbon material was analyzed for a determination of the types of hydrocarbons present.
- Direct-push boring DP12 was attempted in the area of SD1 to examine the vertical extent of NAPL. Several attempts were made to advance the direct-push sampling tools in this area. Each attempt met with refusal due to the presence of pebbles, cobbles, and boulders. Only a trace amount of soft sediments was observed in this area. Sediment sample DP12(1-2) was obtained from the boring for laboratory analysis.

- Trace amounts of hydrocarbon-like sheen were observed during probing at transects T3 to T13 at the locations shown on Figure 4-9.

The hydrocarbon materials associated with the sediments in the area of the Jervis Outfall, and in the area downstream of the outfall to RI transect T13, are believed to be the result of leaks and spills on the roadways of the urban area of the City of Port Jervis. Hydrocarbon-like sheens in surface water were observed to flow into the catch basins in the area-wide setting of the site during heavy rainfall events that occurred during the RI. A plume of hydrocarbon-like sheen was observed to flow out of the Jervis Outfall and into the Delaware River during these events.

The River Area Down Gradient of the Site

This area includes the area from RI transects T14 to T20, and roughly corresponds to the area of shoreline where the site-related dissolved groundwater plume meets the Delaware River. Probing of this area did not indicate any visible evidence of hydrocarbon sheens or NAPL. In addition, hydrocarbon impacts were not observed further downstream of this area to transect T37.

Area B

As shown on Figure 4-9, a reconnaissance and sediment probing was completed at downstream locations to approximately 1,500 feet from the site. This area is the only location where the reconnaissance found any significant amount of soft sediments to be present. A trace amount of hydrocarbon-like sheen was observed in sediments during probing performed in 2000, and sediment sample SD4 was collected at this location. A trace amount of sheen was also observed in this area in 2004, and three additional samples were collected in this area (Figure 4-9). Given the distance from the site, and the absence of visible evidence of impact at the dissolved plume area of the shoreline, the trace amounts of hydrocarbon materials at Area B are not believed to be related to the outfall discharge, not the site.

Lower Port Jervis Storm Water Outfall Area

Sediments were probed and sampled around the Lower Port Jervis Storm Water Outfall at the locations shown on Figure 4-9. Trace amounts of hydrocarbon sheen were observed in the soft sediments immediately adjacent to the outfall pipe.

4.8 NAPL Investigation Results

A measurable thickness of NAPL was found in wells MW1S, MW7, and MW8. The NAPL at these locations was measured and removed from each well during the NAPL bail-down program. The results of the bail-down testing for each well are presented in Table 4-1.

The results of the testing show that only trace amounts of LNAPL re-enters well MW1S, and a trace amount of DNAPL enters well MW7 following removal. Well MW8 consistently re-accumulates several feet of DNAPL and removal via pumping or bailing may be possible for this well. The viability of hydrocarbon recovery via bailing or pumping at this location will be addressed in the FS.

Note that, as previously discussed, a trace amount of LNAPL was observed at MW15S during gauging performed in May 2005. Due to the recent discovery of the presence of LNAPL at this well, and since the LNAPL is not present in a measurable thickness, bail-down testing was not performed at this location.

5 Analytical Results

This section presents the results of the laboratory analyses completed for the samples collected during the RI. A discussion of the results of the analyses, and a comparison to applicable NYSDEC, NYSDOH, or U.S. EPA Standards, Criteria and Guidance (SCGs) values are grouped according to environmental media in the following sections.

5.1 Analytical Program

The analytical program for the samples analyzed during the RI is presented in the following sections.

5.1.1 Soil, Sediment, and Water Chemical Analyses

The soil, sediment, and groundwater analyses were performed by Severn Trent Laboratories (STL) of Pittsburgh, Pennsylvania and North Canton, Ohio, and AccuTest Laboratories of Dayton, New Jersey. STL and AccuTest are currently listed with the NYSDOH Environmental Laboratory Accreditation Program (ELAP), and have current NYSDEC Analytical Services Protocol (ASP) certification for all the analyte categories specified in the RI analytical program [NYSDEC, 2000]. The analyses completed for these media included:

- **Volatile Organic Compounds (VOCs)** - Target Compound List (TCL) by NYSDEC Method ASP 95-1 and OLMO4.2;

- **Semi-Volatile Organic Compounds (SVOCs)** - by NYSDEC Method ASP 95-2 and OLMO4.2;

- **Target Analyte List (TAL) Metals:** aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc by ICAP EPA SW846 Methods 3050A/6010B and mercury by EPA SW846 Method 7471A and ILMO4.1;

- **Total Cyanide** - by Method CLP 4.0 and ILMO4.1.

Note that methods OLMO4.2 for organic compound analyses, and ILMO4.1 for inorganic analyses noted above, were used during the latter stages of the RI to be consistent with the most current methods specified by the NYSDEC ASP [NYSDEC, 2000].

Selected samples were also analyzed for total organic carbon (TOC) by the Lloyd Kahn Method.

5.1.2 Air Analyses

The ambient air, indoor air, and soil gas samples collected by RETEC during the investigation were analyzed for VOCs by U.S. EPA Method TO-15 by ATL. Note that the following compounds were added by RETEC and ATL to supplement the typical analyte list for U.S. EPA Method TO-15: naphthalene, indene, indan, thiophene, 2-methylpentane, isopentane, 2,3-dimethylpentane, and 2,2,4-trimethylpentane. These compounds were added to the analyses to help distinguish between MGP sources of vapors and vapors from other non-MGP-related sources.

5.1.3 TIC Analyses

To meet the requirements of the NYSDEC for the air, soil, and groundwater samples, the laboratories also provided a list of tentatively identified compounds (TICs) for the VOC and SVOC analyses completed during the Phase I RI sampling. In addition, ATL and STL provided TIC results for the air and soil gas analyses.

The TIC identifications were made by a computer comparison of the chromatograms from the site sample analyses to a large library of standards. Where the computer was able to distinguish a pattern which matches that of a compound in the reference library, a tentative identification was made. This identification is deemed as tentative since the analytical instrument and methodology is not calibrated for precise identification and quantification of compounds outside of the standard reporting list.

In the case where peaks in the chromatogram were found for which there were no matches in the library, or where interference between peaks made it impossible to differentiate and identify particular compounds, the laboratory reported that "unknown" compounds were present. It should be noted; however, that compounds which are of significance for the RI (and management of MGP site residuals) are accounted for in the standard VOC and SVOC target compound lists. The results of the TIC analyses are reported on the Form I laboratory results sheets in Appendices C and F, and are discussed in the following sections.

5.2 Quality Assurance and Quality Control

To meet the data quality objectives for this project, NYSDEC ASP were used and Category B deliverable packages were prepared by the laboratory for the analyses. The full Category B data deliverable packages for this project are included in Appendix D (samples collected from 1998 to 2000), and Appendix G (samples collected from 2001 to 2005).

5.3 DUSR Review

For quality control purposes, comprehensive data packages were produced by STL and AccuTest Laboratories for the soil, sediment, and groundwater samples, and by ATL for the air samples, in preparation for the results to be reviewed by a qualified chemist. Data Usability Summary Reports (DUSRs) were prepared by RETEC or Alpha Environmental Consultants for each soil, water, or soil gas sample delivery group. The DUSRs for this project are included in Appendices C and F.

As part of the data review process, analytical results and data qualifiers were corrected where necessary to reflect quality control issues. The Form I Report Sheets and the data summary spreadsheets have been modified to reflect the findings of the DUSR. Included on Table 5-1 is a list and explanation for each of the organic and inorganic data qualifiers included on the laboratory report sheets and the data summary tables.

Organic data quality was evaluated by reviewing the following parameters: holding times, GC/MS tuning and performance, internal standards, initial and continuing calibrations, surrogate recoveries, matrix spike/matrix spike duplicate (MS/MSD) samples, MS/MSD relative percent differences (RPDs), laboratory control standards (LCSs), laboratory blanks, field duplicates, field blanks, compound identification, and compound quantitation.

Based on the DUSR review the results of several of the volatile organic analyses were rejected. Due to poor surrogate recovery the results for sediment samples SD2 and SD3 for pentachlorophenol were rejected. Due to poor instrument recovery during the analyses of groundwater samples from wells TW1-TW5 in November 2004, the results for the compound 1,2-dibromo-3-chloropropane were rejected. These compounds are not MGP indicator compounds and the overall impact on the sampling program is not believed to be significant. With these exceptions, all other volatile organic data were found to be useable, with some qualifications for calibration nonconformance, and holding time exceedances. All semi-volatile organic data were found to be usable with some qualifications for calibration non-conformances and holding time exceedances.

Inorganic data quality was evaluated by reviewing the following parameters: holding times, initial and continuing calibrations, contract required detection limit (CRDL) standard recoveries, MS/MSD samples, LCSs, laboratory duplicates, ICP interference check sample results, ICP serial dilution results, laboratory blanks, field duplicates, and field blanks. All metals results are useable with some qualification. The total cyanide data were found to be usable and accepted without qualifications.

Air data quality for the VOC analyses was evaluated by reviewing the following parameters: holding times, GC/MS tuning and performance, internal standards, initial and continuing calibrations, continuing calibration verifications, surrogate recoveries, LCS, laboratory blanks, laboratory duplicates, compound identification, and compound quantitation. The VOC air data was determined to be useable with some qualifications for calibration nonconformance.

5.4 Surface Soil Results

A listing of all the surface soil samples collected and analyses completed during the investigation is provided in Table 3-1. The results of the surface soil analyses are presented in Table 5-2. The results of the TIC analyses for the surface soil samples are presented in Table 5-3. A discussion of the results is included in the following sections. The evaluation of the surface soil results is based on a comparison to the Recommended Soil Cleanup Objectives (RSCOs) concentrations listed in NYSDEC Technical Administrative Guidance Memorandum (TAGM) HWR-94-4046 - Determination of Soil Cleanup Objectives and Cleanup Levels [NYSDEC, 1994], and to the concentration of metals in the background surface soil samples (SS5-SS7).

5.4.1 Surface Soil VOC Results

None of the surface soil samples exhibited indications of volatiles during the PID field scan, therefore, none of the site samples or off-site background samples were analyzed for VOCs.

5.4.2 Surface Soil SVOC Results

Each of the samples collected during the RI contained individual PAH compounds in concentrations that exceeded RSCOs. Total PAHs in the site surface soils ranged from 8.41 mg/Kg at SS9, to 446.2 mg/Kg at SS1. PAHs were also detected in each of the background surface soil samples. Total PAHs in the background samples ranged from 3.03 mg/Kg at SS6 to 7.56 mg/Kg at SS5, reflective of the urban setting of the site and the industrial history of the area.

Note that the elevated concentration of PAHs at SS1 is significantly above all other samples, the next greatest PAH total being 81 mg/Kg at SS8 (at Holder C and Naphtha Tank F). The source of PAHs is not known; it may be related to the sample's close proximity to former MGP operations features, or due to modern waste storage associated with the restaurant.

5.4.3 Surface Soil Metals Results

A number of metals were found to have elevated concentrations, indicative of the urban site setting. When compared to the site background surface samples and to Eastern United States regional data, the following metals were found in elevated concentrations:

Metal and site background concentration* (mg/Kg)	Samples exceeding site background	Samples exceeding eastern U.S. background range	Maximum concentration (mg/Kg) and location
Aluminum (5,300)	SS1, SS2, SS8, SS9, SS10	None	9,850 (SS10)
Arsenic (7.5)	SS1, SS4, SS8	None	8.8(SS1)
Beryllium (0.32)	SS1, SS2, SS9, SS10	None	0.46 (SS10)
Cadmium (1)	SS1, SS8	SS1, SS8	2.7 (SS8)
Calcium (3,270)	SS1, SS8, SS9, SS10	None	34,000 (SS9)
Chromium (10)	SS1, SS2, SS4, SS8, SS9, SS10	SS2	41.4 (SS2)
Iron (19,600)	SS1, SS8, SS10	None	26,700 (SS10)
Lead (201)	SS1, SS3	SS1	2,020 (SS1)
Magnesium (2,190)	SS1, SS2, SS4, SS8, SS9, SS10	SS9, SS10	14,500 (SS9)
Mercury (0.2)	SS1	SS1	0.8
Nickel (21.7)	SS10	None	23.1
Potassium (827)	SS10	None	846
Sodium (61.2)	SS1, SS2, SS8, SS9	None	121 (SS1)
Zinc (207)	SS1, SS8, SS9, SS10	SS1, SS8, SS9, SS10	807 (SS1)

*Background is taken as the highest concentration in the off-site samples.

Note that for all metals except cadmium, chromium, lead, magnesium, mercury, and zinc the background exceedances are within the range of naturally occurring concentrations in eastern United States or New York soils. The maximum detections of cadmium and chromium only slightly exceed these published background ranges, and mercury and zinc were within an order of magnitude of the site background concentrations.

All lead detections were below the residential screening concentration of 400 mg/Kg except for sample SS1. Sample SS1 is also the location of the greatest mercury and zinc detections, and has the highest total PAH concentration in surface soil. As discussed above, it is unknown whether the impacts at SS1 are MGP related or due to modern site use.

5.4.4 Surface Soil Total Cyanide Results

The results of the surface soil cyanide analyses are summarized in Table 5-2. Total cyanide was above the method reporting limit (which ranged from 0.52 to 0.62 mg/Kg) in one of the 10 samples with a concentration of 0.72 mg/Kg detected at sample location SS8. TAGM 4046 does not currently list a RSCO concentration for total cyanide.

5.5 Subsurface Soil Results

A list of all the subsurface soil samples collected and the analyses performed during the investigation is provided in Table 3-2. The results of subsurface soil analyses performed for samples collected during 1998 through 2000 are presented in Table 5-4. The results of the subsurface soil analyses completed in 2003 are presented in Table 5-5. The results of the subsurface soil analyses completed in the Delaware River area in 2004 for VOCs, SVOCs, and metals and cyanide are presented in Tables 5-6, 5-7, and 5-8 respectively. Table 5-9 presents the results of the TIC analyses performed for the subsurface soil sample collected from 1998 to 2000.

The evaluation of the subsurface soil results presented below is based on a comparison to the RSCOs for subsurface soil provided in TAGM 4046. Where a result is greater than the respective RSCO concentration, the result has been highlighted or shaded on the subsurface soil data summary tables.

It should be noted that the general approach to subsurface soil sampling was to exclude "source materials" (soil containing tar or NAPL) from the analytical program. The rationale for this approach is that under NYSDEC policy these materials pose a risk to groundwater and other receptors, and therefore must be removed or otherwise remediated at the site. The observed distribution and condition of source materials are described in Section 4 of this report. Subsurface soil samples selected for laboratory analyses were: 1) to assess the concentration of MGP constituents in soil which may not be considered as source material, and 2) to document "clean" conditions below or outside of known impacted areas.

The thickness of unconsolidated soils at the Port Jervis site is relatively large due to its situation above over 150 feet of valley fill deposits. To discuss the subsurface soil conditions in the unconsolidated soils, the three zones are discussed as follows:

- A shallow soil zone which extends from the ground surface to the water table. This is the unsaturated or vadose soil zone.
- An intermediate zone which extends from the water table to approximately 70 feet bgs. This zone is extends to the lower limit of observed MGP residuals.
- A deep soil zone which extends from approximately 70 feet bgs to the top of the bedrock. Following the definition of the intermediate zone, the deep soil zone is defined as not impacted by MGP residuals.

5.5.1 Shallow Subsurface Soils

The shallow soils at the site are dominated by the presence of fill materials from the ground surface to 15 feet, with a variety of man-made materials present at various locations. All of the subsurface MGP structures encountered during the site investigations were constructed within this fill zone.

Impacts within the shallow soil zone were found to be generally within the limits of the O&R property, with most impacts found in the lower part of the unit just above the water table. For example, the direct-push borings completed on the north side of the site along Brown Street found hydrocarbon odors near the water table, but the overlying fill soils did not show evidence of impact by site residuals. Likewise, on the opposite side of the site at MW7 and the off-site properties southwest of Pike Street, the shallow soil did not exhibit any signs of impact above the water table. In the lateral directions, impacts were not found to be associated with Holder D on the west side of the site, and tank excavations along the eastern side of the site found clean conditions following tank remediation.

The lack of major occurrences of MGP residuals in the shallow soils is likely to be a result of releases occurring directly to the subsurface, through piping or foundations for structures such as Holder A or the tar separator, rather than from surface discharges.

5.5.2 Intermediate Soils

The intermediate soil zone begins at the water table, which is found either in the fine-grained or coarse-grained alluvial units described in Sections 4.3.2 and 4.3.3. The upper fine-grained alluvial unit is replaced by a coarse-grained alluvial unit composed of gravel and sand, with some cobbles locally present. This coarse-grained soil unit varies from 10 to 25 feet in thickness, with its base at depths of 30 to 40 feet bgs. The coarse alluvium is underlain primarily by sand. This unit extends to the top of bedrock and is a glacial outwash deposit.

MGP residuals were detected into this soil zone to depths of up to 70 feet bgs. Therefore, for the purposes of this report, the intermediate soil zone is defined to extend to 70 feet deep. Note, however, that MGP impacts reach this depth only at the center of the O&R property, at SB17. The maximum depth of impact varies across the on-site and off-site areas, and impacts generally extend into the outwash unit in the area of SB17 on site, and along the path of the plume extending to the south-southwest from the area of SB17.

No confining layers were observed within any of the soil units beneath the MGP site. It is likely, therefore, that the vertical migration of MGP residuals was controlled by the density and quantity of NAPL present in soils at the site. For example, in the vicinity of boring SB17 near Holder A, DNAPL migrated downwards under its own weight until it was adsorbed by the soils and could not migrate deeper as a distinct separate phase material. The limit of the observed impact in this area is shown on Figure 4-3. This downward migration was observed to have also taken place on the MGP site in the vicinity of borings SB18 and MW5, and at Purifiers W and X. In other areas of the site, such as shown along Cross Section B-B', a distinct vertical plume of MGP residuals cannot be discerned; rather, an overall zone of impact is present across the upper portion of the intermediate soil zone.

Horizontal movement of MGP impacts within the upper reaches of this soil zone has also occurred. All three cross sections presented in Section 4 of this report show impacts down gradient of the MGP operations areas. These impacts appear to be centered on the gravelly coarse-grained alluvial soil unit. This implies that most groundwater flow beneath the site is through this highly permeable unit, and that both dissolved-phase MGP constituents and small neutral buoyancy NAPL blebs have been transported by this groundwater flow. For example, monitoring wells MW3 and MW7 did not find evidence of significant shallow soil impact. At and below the water table, however, it is apparent that MGP residuals have migrated into these locations. The widest areal extent of impact associated with the site is in the intermediate soil zone, which is reflective of the transport of MGP residuals by groundwater movement. The areal distribution of observed impacts shown on Figure 4-5 is consistent with this model of groundwater control of MGP residual concentrations.

In the southwesterly, down gradient direction, MGP impacts were found at Pike Street and the residential and commercial properties further southwest of the site. Again, most of the impacts were found within the course-alluvial layer, implying that this unit controls the migration of MGP residuals in the groundwater. The vertical limits of impact at the property boundary were determined at MW7. The results of samples MW7(25-26) and MW7(43-45) indicate that soil exhibiting impacts greater than regulatory standards extends to a depth of approximately 35 feet bgs. Sample MW7(43-45) found that at this depth exceedances were limited to cadmium which was found at a concentration approximately equal to the RSCO. Similar to MW7, soil sampling at off-site well location MW11 found that impacts from MGP residuals are limited to approximately 30 to 34 feet bgs. Sample MW11(43-45) collected from below the observed impact found that concentrations of COI above RSCOs were limited to arsenic and silver, each of which was detected at concentrations close to the cleanup objective. The soil sampling completed at MW8 indicates that soil impacted with MGP residuals is limited to approximately 60 feet bgs. No exceedances were found for sample MW8(73-75) which was collected below the interval of observed impact.

The northern (up gradient) limit of impact was generally found to be within the limits of the northern City Right-of-Way (ROW) along Brown Street. Several soil borings were completed in the area of AST G and Holder C to delineate the extent of NAPL found in this area. Soil samples from MW12 along the north edge of Brown Street, SB19 near the facility gate and SB18 completed with in the footprint of the holder indicate that the vertical extent of MGP residuals in this area is limited to approximately 30 feet bgs. Soil samples MW12(34-35), SB18(39-40), SB18(68-70), and SB19(38-40) found that no constituents were detected in concentrations greater than the RSCOs.

However, some hydrocarbon impacts were encountered across Brown Street at MW12 and DP17. The occurrence of trace amounts of hydrocarbons at these locations may be associated with diffusion of constituents at the water table, or by flow reversal during extreme flood events. Further to the north at the residential properties, samples of soil from LTW1 and LTW2 were not impacted in concentrations exceeding RSCOs.

5.5.3 Deep Soils

The deep soil unit is comprised entirely of sandy glacial outwash. For the purposes of this report this zone is defined to extend from 70 feet bgs to the top of bedrock, which ranges from 150 to 175 feet bgs. Although occasional inclusions of gravel or fine-grained till were encountered in the borings, confining units were not observed anywhere within this soil zone.

Soil samples were obtained during rotosonic drilling from beneath the impacted intermediate zone for laboratory analysis to help define this deep soil unit and provide clean confirmation samples. For example, samples of subsurface soil collected below impacts at the center of the MGP site in the vicinity of Holder A, Tar Separator O, and Tar Tank P defined the vertical limits of impact: samples SB14(73-75), SB15(74-75), SB17(72-73) and SB17(151-153) were not found to contain VOC, SVOC, metals or cyanide compounds in concentrations greater than the RSCOs.

5.6 Groundwater Results

The results of the total BTEX, total PAH, and total cyanide analyses for the sampling performed in 6/98, 11/00, 11/03, and 11/04 are shown on Figure 5-1. A listing of all the groundwater samples collected and analyses completed during the investigation is provided in Table 3-3. The results of groundwater analyses performed for samples collected during 1998 through 2000 are presented in Table 5-10. The results of the groundwater analyses completed in 2003 are presented in Table 5-11. The results of the groundwater sampling performed for the site wells in November 2004 for VOCs and SVOCs is presented in Tables 5-12 and 5-13, respectively. The groundwater analyses completed for the temporary wells in the Delaware River area in 2004 for VOCs, SVOCs, and metals are presented in Tables 5-14, 5-15, and 5-16, respectively. Table 5-17 presents the results of the TIC analyses performed for the on-site monitoring wells for the Phase I sampling completed in 1998 to 2001.

The evaluation of the groundwater results presented in the tables and discussed in the following sections is based on a comparison to either guidance values or standards listed in NYSDEC - Division of Water - TOGS (1.1.1) - 6 NYCRR 703.5 [NYSDEC, 1998]. Where a result is greater than the respective groundwater standard or guidance value, the result is highlighted or shaded on the data summary tables.

Note that when LNAPL or DNAPL was observed at a well, a groundwater sample was not collected. Wells found to have NAPL present included MW1S, MW7, and MW8. Note, however, that each RI well has been sampled at least once during the investigation.

Per the RI Work Plan, PCBs were not analyzed for during the RI. PCBs were not detected during the PSA groundwater sampling.

For the purposes of this report, the groundwater at the site is described in three zones or levels:

- The shallow or water table zone incorporates the upper ten to twenty feet of groundwater (15 to 30 feet bgs), and is described based on wells which screen the water table (MW1S, MW2, MW3S, MW5, MW6, MW7, MW10S, MW11, MW12, MW14, MW15, MW16, MW17S, and MW19).

- The intermediate groundwater zone is used in this report to describe the lower reaches of impact from the MGP site. This zone ranges from approximately 30 to 70 feet bgs, and is sampled by monitoring wells screened below the water table (MW1D, MW8, MW10I, MW13, MW17I, and MW18I).

- The deep groundwater zone is that which is monitored by wells screened at the top of the bedrock, approximately 150 to 170 feet bgs (MW3D, MW9D, MW10D).

5.6.1 Groundwater VOC Results

The inferred distribution of dissolved BTEX found during the sampling performed during the RI is shown on Figure 5-2. Note that the greatest concentration detected at each well during the sampling events has been used to map the concentrations. The greatest concentrations of total BTEX were detected in the area down gradient of Holder A and further down gradient of the site, with the greatest concentration being detected at off-site well MW8 (total BTEX of 2,032 ug/L).

BTEX or other VOC compounds were not detected at up gradient wells MW6 and MW14S, or at the off-site well on Brown Street (MW12), or MW13 in the northwest corner of the site. BTEX compounds were not detected in wells installed in the deeper portions of the aquifer including: MW3D, MW9D, and MW10D. Other VOC compounds detected in these wells were limited to estimated concentrations of chloroform, acetone, and methylene chloride. The presence of these compounds is attributed to laboratory contamination.

BTEX compounds were detected in one of the three wells installed in the three-well cluster at the restaurant property at 6 Pike Street. BTEX or other VOCs were not detected in MW10S at the water table, or above bedrock in well MW10D; however, benzene and total xylenes were detected in concentrations equal to or greater than the groundwater standard for these compounds at well MW10I. This well is screened in the intermediate portion of the aquifer from a depth of between 47 and 57 feet bgs. Note that this depth range corresponds to the elevated BTEX found on site at well MW1D.

For the wells installed at the Delaware River shoreline, BTEX compounds were not detected at TW1, TW2, and TW5. BTEX compounds were detected at TW4 and at TW3 at the water table and 20 foot samples in concentrations exceeding groundwater standard values, but not in the sample obtained from TW3 at 30 feet bgs. Based on these results, the stretch of shoreline impacted by groundwater with BTEX compounds is approximately 120 feet long and the impact is limited to approximately 20 feet bgs in this zone.

5.6.2 Groundwater SVOC Results

The inferred distribution of total dissolved PAH compounds detected during the sampling performed during the RI is shown on Figures 5-3. Note that the greatest concentration detected at each well during the sampling events has been used to map the SVOC concentrations shown on the figure.

Similar to the pattern of VOC results, no PAHs or other SVOC compounds were detected at up gradient wells MW6 and MW14S, and the greatest PAH detections were found down gradient of Holder A and the tar well, both on site at MW1D (6,480 ug/L) and MW7 (2,704 ug/L), and off site at MW8 (3,991 ug/L) and MW11 (1,500 ug/L).

For off-site well MW12, located up gradient on Brown Street, compounds naphthalene, acenaphthene, fluorine, and phenanthrene were detected by the laboratory; however, each of the detections was less than the groundwater standard or guidance values for these compounds. Temporary wells further to the north did not contain SVOC compounds in concentrations greater than the method reporting limit.

Similar to the BTEX results, no PAH compounds were detected in wells installed in the deep portion of the aquifer including: MW3D, MW9D, and MW10D. Other SVOC compounds detected in these wells was limited to one detection of bis(2-Ethylhexyl)phthalate which was found in an estimated concentrations of 7 ug/L. The presence of this compound is attributed to contamination from rubber or plastic materials used during sampling or in the laboratory.

For the wells installed at the Delaware River shoreline, similar to the BTEX results, SVOC compounds were not detected at TW1, and TW5. Total PAH concentrations were 2 ug/L at TW2. PAH compounds were detected at TW4, and at TW3 at the water table and the 20 foot sample in concentrations greater than groundwater standard values, but not at TW3 at 30 feet bgs. Similar to the distribution of the BTEX compounds, the stretch of shoreline with PAH compounds exceeding regulatory criteria is approximately 120 feet long and limited to approximately 20 deep.

5.6.3 Groundwater Metals Results

With the exception of arsenic, all metals associated with MGP residuals were found to be absent or present at concentrations less than the groundwater standards. Three common metals were found to exceed groundwater standards at one or more locations including: iron, manganese, and sodium. All of these metals are naturally occurring, and all are commonly found at elevated levels in groundwater in New York State.

Arsenic was detected at concentrations of 33 ug/L at MW1D and 28 ug/L at MW11. Each of the arsenic detections was slightly greater than the groundwater standard of 25 ug/L.

5.6.4 Groundwater Cyanide Results

Total cyanide was detected in 13 wells, in concentrations ranging up to 60 ug/L at well MW2. All cyanide concentrations were below the groundwater standard of 200 ug/L.

5.7 Sediment Sample Results

The results of the sediment analyses completed during the period of 1998 through 2000 are presented in Table 5-18. The results of the background sediment sample analyses are presented in Table 5-19. The results of the sediment sampling performed in November 2004 for PAHs and TOC are presented in Table 5-20. Table 5-21 presents the results of the TIC analyses performed for the sediment samples collected from 1998 to 2000. Figure 4-9 shows each sediment sample location and the respective total PAH (TPAH) and carcinogenic PAH (CPAH) concentrations.

The results of the sampling performed in the river indicate that PAH compounds are the only significant COI present in river sediment. A discussion regarding the potential impacts at both the Port Jervis Outfall area and the river sediments adjacent to the stretch of shoreline where the dissolved groundwater plume is present are included in the FWIA in Appendix E. Included in the FWIA is a comparison to NYSDEC-recommended sediment screening criteria contained in Technical Guidance for Screening of Contaminated Sediments [NYSDEC, 1999a]. Based on the evaluation in the FWIA, significant impact to the benthic community in the RI study area is not likely under current conditions. A summary of the PAH results for each of the five areas of interest in the Delaware River area is included below.

5.7.1 Background Sediment Sample Area Results

Five sediment samples were collected from the up stream locations shown on Figure 4-9. PAH compounds were detected in four of the samples. Concentrations of total PAHs ranged from 0.1 mg/Kg to 0.7 mg/Kg.

5.7.2 Port Jervis Storm Sewer Outfall Area Results

Sediment samples were collected in the seasonal pool below the Port Jervis Outfall, in the stream channel from the pool to the river, and within the river immediately downstream of the outfall. The area below the outfall roughly corresponds to RI transect locations T1 to T14. The greatest concentrations of total PAH compounds collected during the investigation were obtained from the seasonal pool area. Total PAH concentrations ranged up to 71 mg/Kg in this area.

5.7.3 Delaware River Area Down Gradient of the Site Results

Sediment samples were collected in the river channel adjacent to where the site-related groundwater plume meets the shoreline. This area roughly corresponds to RI transect locations T15 to T20. The results of the 12 sediment samples collected in this area indicate that total PAH concentrations ranged from less than the reporting limit up to 18 mg/Kg. The PAH concentrations in samples collected immediately downstream or this area were also low.

5.7.4 Area B Results

Three sediment samples were collected around sample SD4 to further delineate PAH impacts at this location. Low-level concentrations of PAH compounds were detected in these samples ranging from 0.7 mg/Kg to 3 mg/Kg.

5.7.5 Lower Port Jervis Storm Water Outfall Area Results

Six sediment samples were collected in the area immediately adjacent to the outfall pipe for the Lower Port Jervis Outfall. The locations of the samples are shown on Figure 4-9. Concentrations of total PAHs ranged from 0.4 mg/Kg to 5 mg/Kg at this location.

5.8 Storm Sewer Sampling Results

The results of the analyses performed for samples collected from the storm sewer pipe that is present beneath the site and discharges to the seasonal pool at the Port Jervis Outfall are summarized in Table 5-30 (storm water analyses) and Table 5-31 (storm sewer sediment analyses).

5.8.1 Storm Sewer Water Results

VOC and PAH compounds were not detected in concentrations greater than the laboratory reporting limits for either the up stream or down stream storm sewer pipe water samples. Metals or cyanide concentrations for the down stream sample were not significantly elevated above concentrations detected in the up stream sample. Based on the sampling performed both up stream and down stream of the site, constituents that may be related to the site do not appear to be impacting the storm sewer water system.

5.8.2 Storm Sewer Sediment Results

As previously discussed, only one sediment sample could be obtained from the storm sewer pipe that is present beneath the site. An up gradient sample was obtained from the manhole east of King Street, however, a sample could not be obtained due to a lack of sediment material in the outfall pipe adjacent to the Port Jervis Outfall.

Only one VOC compound was detected in the sediment sample from the manhole. Toluene was detected in a low-level concentrations of 6.3 ug/Kg. With the exception of 2-methylnapthalene, all of the 17 PAH compounds were detected in the up gradient sample. Benzo(a)pyrene was detected in a concentration of 2,700 ug/Kg and the total PAH concentrations was 45,970 ug/Kg. The results of the analysis indicate that PAH compounds of interest are present in the storm sewer system sediments at a location up stream of the site. This analyses provides additional information indicating that the PAH impacts to sediments at the Port Jervis Outfall seasonal pool are likely related to the urban runoff from the City, not the site.

5.9 Air and Soil Gas Sample Results

The ambient air, indoor air, and soil gas samples collected during the investigation were analyzed for VOCs by U.S. EPA Method TO-15 by ATL. The results are summarized in data summary tables and discussed in the following sections. For the data tables for the evaluation of vapor intrusion, the VOC results are presented to the left of the tables. The two right-most columns present background indoor air values obtained from the New York State analyses of air samples from within typical residences heated with fuel oil. The background values are expressed as the 75th and 90th percentile values derived statistically from the datasets [NYSDOH, 2004].

Note that the following compounds were added by RETEC and ATL to supplement the typical analyte list for U.S. EPA Method TO-15: naphthalene, indene, indan, thiophene, 2-methylpentane, isopentane, 2,3-dimethylpentane, and 2,2,4-trimethylpentane. The 68 VOCs that were analyzed are divided into two categories in the data summary tables:

1) Compounds that could possibly be related to MGP sources, but may also be related to non-MGP sources including: benzene, naphthalene, and indene; and

2) Compounds that are certainly not related to MGP sources including: chlorinated hydrocarbons and methyl tert-butyl ether (MTBE), a gasoline additive.

5.9.1 Evaluation of Vapor Intrusion - O&R Operations Building

At the O&R operations building, the two potential concerns with regard to vapor intrusion were: 1) that MGP-related VOCs could be present in soil gas directly beneath the floor slabs of the building; and 2) that these VOCs could be impacting indoor air quality by the process of upward intrusion of the soil gas vapors through these slabs. These concerns were addressed by examining all of the relevant data collected during the multiple phases of indoor air and soil gas, including, most importantly, the most recent event where outdoor air, soil gas, and indoor air samples were collected concurrently.

The results of the soil gas sampling performed by RETEC in 2001 are presented in Table 5-22. The results of the indoor air samples collected by Langan are presented in Table 5-23. The results of the sampling performed by RETEC in 2004 are presented in Table 5-24. The results of the outdoor air, soil gas and indoor air samples collected by RETEC in 2004 are predominantly used to evaluate the potential vapor intrusion pathway at the operations building, since this was the only event to include sampling each of these media (soil gas, indoor air, and ambient air) in a one-day sampling event as requested by the NYSDOH.

The sampling performed by RETEC in 2004 consisted of the collection of three indoor samples that were collected in the break room, the corner of the hallway, and storeroom (representing areas of potential vapor intrusion). The location of the samples are shown on Figure 3-1. One sub-slab soil gas sample was collected to match each of the indoor air sampling locations for comparison purposes. Upwind and downwind ambient (outdoor) air samples were taken prior to the completion of indoor air sampling activities.

As shown on Table 5-24, the results indicated that of the 68 VOCs analyzed, most had very low concentrations or were not detectable in indoor air. All VOCs were detected at concentrations several orders of magnitude below worker guidance values. All of the VOCs that are possibly attributable to former MGP operations were detected in the indoor air samples at concentrations within the typical range of these compounds in indoor air (i.e. within the 75th percentile of NYSDOH background values).

With the exception of naphthalene, the soil gas samples did not contain any of the compounds included in the analysis that may be typically (though not uniquely) associated with MGP sources (naphthalene, indene, and indan).

In the soil gas samples, there were some compounds that could be associated with MGP operations that were present at elevated concentrations, specifically benzene and toluene in sample SG-3, collected beneath the storeroom. While it appears that there is some MGP-related contribution at SG-3 (particularly since it is located closest to known source material in the former holder), it is also possible that several other sources may be responsible for the elevated concentrations. The presence of MTBE, a common component of gasoline, in the soil gas indicates that gasoline may be one of those sources. However, MTBE was not detected in the indoor or ambient air samples, indicating no evidence for vapor intrusion. The other compounds that could be associated with MGP operations were generally detected at low concentrations in the soil gas, within or close to the range of typical background values, indicating a small potential for subsurface MGP vapor intrusion.

Two non-MGP-related VOCs were present in some of the indoor air samples at concentrations notably above the typical indoor air range. One of these VOCs was 1,4-dichlorobenzene, a compound commonly found in products such as space deodorizers and moth killers. The other VOC detected above the typical indoor range, dichlorodifluoromethane (Freon 11), a common refrigerant, was also present in the ambient air and soil gas samples.

The results of the analyses indicate that the VOCs that were possibly MGP-related were within the range of typical background values. It appears that the VOCs present in the soil gas samples collected beneath the slab of the O&R building have several sources, including gasoline and the former MGP operations. There was no evidence for the intrusion of vapors from the soil gas to the indoor air.

Note that the results of the vapor intrusion sampling for the O&R operations building have previously been provided to the NYSDEC and the NYSDOH. In a letter dated December 21, 2004 from the NYSDOH to the NYSDEC, the NYSDOH has indicated that a review of the data discussed above has been completed, and that no further action to evaluate the vapor intrusion pathway at this location is required.

5.9.2 Evaluation of Vapor Intrusion - Restaurant/Apartment at 28 Pike Street

At the restaurant/apartment building located at 28 Pike Street (corner of Pike and King Streets), the two potential concerns with regard to vapor intrusion were: 1) that MGP-related VOCs known to be present on the O&R property immediately to the west could also be present in soil gas at the adjacent restaurant property; and 2) that these VOCs could be impacting indoor air quality by the process of upward intrusion of the soil gas vapors through the concrete and dirt floors of the basement area, or the building foundation. These concerns were addressed by directly sampling soil gas (two samples), indoor air (two samples), and outdoor air (two samples) at this location during a one-day sampling event.

One indoor air sample was collected both from the basement and first floor (representing areas of potential vapor intrusion). One sub-slab soil gas sample was collected to match the basement indoor air sampling location for comparison purposes, and a second sub-slab soil gas sample was collected from the boiler room within the basement. Upwind and downwind ambient (outdoor) air samples were taken prior to the completion of indoor air sampling activities. The results of the analyses are provided in Table 5-25.

The results indicated that of the 68 VOCs analyzed, most had very low concentrations or were not detectable in indoor air. All VOCs were detected at concentrations several orders of magnitude below worker guidance values. All of the VOCs that are possibly attributable to former MGP operations were detected in the indoor air samples at concentrations within the typical range of these compounds in indoor air (i.e. within the 75th percentile of NYSDOH background values). Benzene detected in the indoor air samples was above the 75th percentile of NYSDOH background values, but below the 95th percentile background values. In addition, benzene was also detected at low levels in the ambient air samples. Isopentane, a compound with no available NYSDOH background values, was detected in all of the indoor air samples at concentrations approximately one order of magnitude above the other VOCs detected. Isopentane is commonly found in gasoline, solvents and adhesives. It is not typically associated with MGP residuals, especially at the high ratio to other VOCs as found in these indoor air samples.

The soil gas samples contained low concentrations of isopentane. The soil gas samples did not contain any of the compounds included in the analysis that may be typically (though not uniquely) associated with MGP sources. Other compounds that could be associated with MGP operations also were detected at low concentrations in the soil gas, within or close to the range of typical background values, indicating a negligible potential for subsurface MGP vapor intrusion.

The concentrations of two non-MGP-related VOCs were present in some of the indoor air samples at concentrations notably above the typical indoor air range. These compounds (the common refrigerants trichlorofluoromethane, or Freon 11, and dichlorodifluoromethane, or Freon 12) were also present in the ambient air and soil gas samples.

Based on the results of the analyses performed, the VOCs that were possibly MGP related were within the range of typical background values. It appears that the VOCs present in the soil gas samples collected beneath the basement of the restaurant building were not related to former MGP operations. Evidence for the intrusion of MGP vapors from the soil gas to the indoor air was not observed.

Note that the results of the vapor intrusion sampling for the apartment/restaurant building have previously been provided to the NYSDEC and the NYSDOH. In a letter dated December 21, 2004 from the NYSDOH to the NYSDEC, the NYSDOH has indicated that a review of the data discussed above has been completed, and that no further action to evaluate the vapor intrusion pathway is required at this location.

5.9.3 Evaluation of Vapor Intrusion - 9 Pike Street

At the residential and commercial property located at 9 Pike Street, a location down gradient from the MGP site, the two potential concerns with regard to vapor intrusion were: 1) that MGP-related VOCs known to be present on the property from soil and water analyses could also be present in soil gas at the property; and 2) that these VOCs could be impacting indoor air quality by the process of upward intrusion of the soil gas vapors through the floors and foundations of the buildings. These concerns were addressed by directly sampling the buildings at the property including the main residence and a smaller school building during a one-day sampling event.

A total of seven samples were collected from the residence at 9 Pike Street and from the adjacent school building (formerly known as the guest house). These consisted of two outdoor (ambient) samples, two sub-floor soil gas samples, two indoor air samples, and one field duplicate sample for quality assurance/quality control purposes. The results of the analyses are presented in Table 5-26.

At the residence, one indoor air sample was collected from the basement and first floor (a field duplicate was also collected on the first floor). One sub-floor soil gas sample was collected to match the basement indoor air sampling location for comparison purposes. The floor of the basement was not a conventional concrete slab, but was tightly laid flagstone with 1 to 3 inches of gravel and soil between the flagstones.

At the school building, one indoor air samples was collected from the ground floor of this single-story building. The floor of the building was carpeted and the owner directed that the sub-floor sample be collected from the flagstone patio area just north of the building.

The results indicated that of the 68 VOCs analyzed, most had very low concentrations or were not detectable in indoor air. All VOCs were detected at concentrations several orders of magnitude below worker guidance values. One VOC that is not MGP-related (chloroethane) was detected in the indoor air sample collected in the school building at a concentration above the range commonly found in the NYSDOH study homes (0.42 ug/m^3, which is above the 90th percentile value of 0.25 ug/m^3). Chloroethane is found in refrigerants and chlorinated water. The window air conditioner present in the building may have been the source of the chloroethane detected in the sample.

Two VOCs that are possibly MGP-related (m/p-xylenes and o-xylene) were present in the indoor air sample collected in the basement of the residence at concentrations above the 90th percentile (28 ug/m^3 and 9.3 ug/m^3, as compared to the 90th percentile values of 12 ug/m^3 and 7.9 ug/m^3, respectively). Xylenes are common components of solvents such as those found in the paints and solvents present in the basement, as documented in the DOH Chemical Inventory form in Appendix B.

The concentrations of the remaining VOCs detected in the indoor air samples were low and within the 90th percentile range of concentrations found in study homes.

The VOCs in the soil gas samples were detected at low concentrations, below the concentrations of VOCs detected in the indoor air and outdoor air samples. Xylenes were not detected in the soil gas samples, and were detected in the outdoor air samples at low concentrations. Other VOCs, such as indan and indene, are common to MGP wastes, but are not common to other sources. Indan and indene were not detected in any of the samples collected in the buildings.

The results of the data from this sampling event indicate that the VOCs present in the indoor air samples are at relatively low concentrations and are attributable to indoor sources. Evidence for the intrusion of MGP vapors from the soil gas to the indoor air was not observed at this location.

5.9.4 Additional Soil Gas Results

In addition to the vapor intrusion pathways evaluated above, additional soil gas samples were collected in other on-site and off-site areas. These areas include the restaurant property at 2 Pike Street (corner of Water and Pike Streets), the residential area north of Brown Street, and the residential area south of Pike Street (in addition to the vapor intrusion samples discussed above). The locations of the soil gas samples are shown on Figure 3-1.

The two potential concerns with regard to vapor intrusion in these areas were: 1) that MGP-related VOCs known to be present on the properties from soil and water analyses could also be present in soil gas; and 2) that these VOCs could be impacting indoor air quality by the process of upward intrusion of the soil gas vapors through the floors and foundations of the buildings. Additional information to address these concerns was obtained by directly sampling soil gas at these areas.

Two rounds of sampling were completed. The first round of sampling was completed by Langan in 2003. The results of the sampling are summarized in Table 5-27. Re-sampling was performed by RETEC in 2004 to obtain additional information to evaluate and assess the previous data collected in 2003. The results of the RETEC sampling are presented in Table 5-28.

With the exception of toluene, the results of the soil gas sampling indicated that of the VOCs compounds analyzed, most had very low concentrations that were within the typical range of these compounds in indoor air (i.e. within the 90th percentile of NYSDOH indoor air background values). Toluene was detected in the samples collected in 2003 in concentrations that ranged up to 6,400 ug/m^3. Re-sampling of the areas where the greatest toluene concentrations were detected did not confirm the high toluene concentrations. The concentrations of toluene detected by RETEC were all within the DOH

75th range for background indoor air values. The cause of this discrepancy is unknown and may be related to field equipment contamination for the sampling performed in 2003. It is important to note that, in addition to the re-sampling results, toluene was not detected in significant concentrations in the vapor intrusion pathway evaluations performed by RETEC, as discussed in the preceding sections.

5.9.5 NAPL Headspace Analysis Results

An LNAPL sample from well MW1S was collected during the fall of 2004 and shipped to ATL. ATL prepared and analyzed the sample in a headspace chamber under controlled laboratory conditions. The headspace vapors were then analyzed for VOC compounds using U.S. EPA Method TO-15 and the additional compounds added by RETEC for the analyses. The results of the headspace analysis are summarized in Table 5-29. The laboratory report for the analysis is included in Appendix G.

As shown on the table, the VOCs detected in the LNAPL headspace samples included 11 of the 23 VOCs categorized as possibly MGP-related. Non-MGP related VOCs were not detected in concentrations greater than the method reporting limits; however, it is important to note that a dilution, with corresponding elevated reporting limits, was performed to quantify the concentrations of target compounds. Also included on Table 5-29 are two columns that provide additional information on the compounds detected. The first column to the right of the results presents the results normalized to the compound benzene. The right-most column in the spreadsheet presents the percentage of the detected compound to the concentrations of total VOCs detected in the sample.

The NAPL headspace results indicate that naphthalene is the most prominent compound in this MGP-impacted vapor, comprising 47.2% of the total VOC content. 1,2,4-trimethylbenzene, indan, and indene were present at 10.2%, 8.7%, and 5.8% respectively. Benzene was present at a relatively low concentration, corresponding to only 0.5%. These results indicate that if soil gas or indoor air were to be substantially impacted by these NAPL vapors, a high content of naphthalene, 1,2,4-trimethylbenzene, indan, and indene would be expected relative to benzene. However a review of all of the indoor air and soil gas results shows that these compounds were present at relatively low concentrations. Indan and indene were not detected in any of the samples. This evaluation further supports the conclusion that the indoor air quality was not impacted by MGP-related sources, and that other, non-MGP sources of VOCs, including predominant indoor sources from paints, solvents and refined petroleum products account for the VOCs detected in indoor air.

5.10 Hydrocarbon Identification Results

Two samples were analyzed for hydrocarbon identification to determine the types of hydrocarbons present at on-site and off-site locations. The samples were sent to Centre Analytical Laboratories, Inc. of State College, Pennsylvania, for analysis by an infrared spectral (FT-IR) technique.

5.10.1 Sediment Sample Results

One NAPL sample (Jervis Outfall) was collected on October 12, 2000 from the most impacted sediments observed during the river area investigation. The sample was collected as a floating NAPL on the water that was produced by probing the sediments. The results of the analysis performed by Centre indicated that the hydrocarbon material is a mixture of a "heavy" petroleum oil (such as lubrication oils), fatty acids and esters (plant matter extracts), and a silicone polymer. The NAPL sample did not contain observable PAHs, such as those that may be present as a result of MGP-site related impacts.

5.10.2 Tar Separator O NAPL Results

One NAPL sample was collected in boring DP5 from the base of the former Tar Separator O. As previously discussed, it is believed that the subsurface portion of the separator is still intact. The sample was analyzed by the FT-IR technique and the results indicate that the hydrocarbon material is a mixture of PAHs and petroleum hydrocarbons. The components observed and the ratios of each were found to be consistent with a carburetted water gas (CWG) tar that has been weathered, but not extensively.

5.11 TIC Analyses Summary

As discussed above, samples analyzed for VOCs and SVOCs were subjected to a library search for tentatively identified compounds (TICs). Additional information regarding the TIC analyses performed for the Phase I samples is provided in Table 5-32. Included on the table is a list of the TIC compounds identified, the CAS number for the compound, the number of times the compound was detected in the soil or water samples, and comments regarding the use and/or possible source of the compounds.

5.12 Field Quality Control Sample Results

Field quality control samples collected during the investigation included trip blanks and equipment blanks. Table 5-33 provides a summary of the compounds detected for the quality control samples collected during Phase I sampling performed during 1998 to 2001. Acetone and methylene chloride were the only VOC compounds detected above the laboratory reporting limits. As with the soil and water samples collected during the investigation, the presence of these compounds is attributed to laboratory contamination. Two phthalate compounds were detected by the SVOC analyses. These compounds are frequently associated with plastics and rubber materials and the presence of these compounds is attributed to materials used to collect the samples in the field or laboratory contamination. Metals were also detected in the equipment blank samples. All detections were low or were estimated below the laboratory detection limits and are not a significant quality control concern.

6 Qualitative Human Health Exposure Assessment

This section assesses the potential for exposure to contaminants present in impacted soils, groundwater, and sediments. This assessment identifies the potential release and transport mechanisms for the chemicals of concern (COC), point of exposure and exposure routes, and the receptors that could be at risk. The evaluation follows guidelines specified in the "*NYSDEC DER-10 Draft Technical Guidance for Site Investigation and Remediation*" [NYSDEC, 2002].

6.1 Site Setting

The RI has focused on two general areas including the former MGP process area, which is currently the O&R operations property, and the off-site areas adjacent to, and/or hydraulically down gradient of the site. The potential for residents, workers, and others to be exposed is discussed in the following sections.

6.1.1 On-site Area

The On-Site Area is comprised of the O&R operations center area. This area includes the area formerly used for MGP process operations. Only O&R employees have regular access to the On-site Area which is a secured facility with an active company presence. Visitors and the general public only have access to the On-site area through the building entrance on Pike Street. The remainder of the property is surrounded by a perimeter fence with secure gates. The field crews access the yard area and building via a gate on Brown Street. The only area considered to be on site which is not within the fence is a landscaped strip of land along Pike Street which is maintained and regularly mowed by O&R employees.

6.1.2 Off-site Areas

The assessment of potential exposure to residents and workers in off-site areas is discussed using the following designations:

- **Brown Street -** The roadway and City right-of-way (ROW) areas to the north of the O&R property.

- **Residential Area North of Brown Street** - The properties at 6, 8,12, 14, and 16 Brown Street.

- **King Street** - The roadway and City ROW areas, and the residential and commercial buildings to the east of the O&R property.

- **28 Pike Street Property -** The restaurant and apartment building property at 28 Pike Street (corner of Pike and King Streets).

- **Water Street** - The roadway and City ROW areas to the west of the O&R property.

- **2 Pike Street Property** - The restaurant property between Water Street and the Delaware River.

- **O&R Apartment Lot -** The vacant apartment building property at the corner of Pike and Water Street that is owned by O&R.

- **Pike Street** - The roadway and City ROW areas to the southwest of the site.

- **19/21 Pike Street** - The residential/commercial property located cross gradient from the site.

- **9-15/17 Pike Street Properties** - The residential and commercial properties located down gradient of the site and adjacent to the Delaware River.

- **The Delaware River Area** - The riparian habitat areas adjacent to the river and the Delaware River channel.

6.2 Exposure Assessment

Exposure is the process by which humans come into contact with chemicals in their environment. Humans can be exposed to chemicals in a variety of environmental media including surface soil, subsurface soil, groundwater, and air. Exposure to these media can occur through several routes including ingestion, dermal contact, and inhalation. The exposure assessment identifies pathways by which humans are potentially exposed to constituents of concern. The assessment includes the following:

- Development of a conceptual site model;

- Discussion of potential sources;

- Evaluation of site and off-site data using health-based screening criteria;

- Discussion of potential release mechanisms; and

- Identification of potential human receptors and receptor-specific exposure pathways.

Although the potential for exposure to MGP residuals for the site includes an evaluation of the potential for exposure to COCs via drinking impacted site groundwater, according to information provided by the City of Port Jervis, all residential and commercial property in the City obtains drinking water from municipal sources. Other than an evaluation of potential incidental ingestion of impacted groundwater during subsurface construction activities, this pathway is not further discussed in this exposure assessment. It is important to note; however, that the NYSDEC considers the aquifer at the site to be a high-quality resource for drinking water. The management of groundwater impacted by site-related residuals will be addressed in the FS.

6.2.1 Conceptual Site Model

Figure 6-1 presents the conceptual model for the RI study area. Included on the figure is information regarding the known or potential sources of constituents of interest, the identified release mechanisms, and the affected source media. The potential migration pathways, the exposure media, and the potential exposure routes are identified. Note that the exposure routes are considered potential unless there is an ongoing or documented exposure. Information regarding the potential receptors identified in each area of interest is presented on Table 6-1 (potential on-site receptors) and Table 6-2 (potential off-site receptors). Note that the O&R service center is a secured facility with an active company presence.

6.2.2 Potential Sources of Residuals

The sources of environmental impact for the Port Jervis MGP site are residual materials associated with MGP-related structures and materials, and to a lesser extent petroleum, which was stored and used at the site in conjunction with its use as a utility company operations center. Hydrocarbon materials, including tar and NAPL, have been observed in on-site subsurface MGP structures and adjacent subsurface soil and groundwater. Volatile and semi-volatile compounds in these materials have leached to groundwater and these constituents have migrated to down gradient locations. NAPL has also been observed to accumulate in wells down gradient of the structures and is present in a well located at Pike Street. The dissolved groundwater plume extends further down gradient to the residential and commercial properties at 9-15/17 Pike Street, and then to the Delaware River where site-related constituents are present in groundwater along a limited stretch of shoreline (approximately 120 feet). The lower molecular weight hydrocarbons may also volatilize and migrate into ambient air where subsurface soil and groundwater are impacted by MGP residuals.

6.2.3 Potential Release Mechanisms

As shown on Table 6-1 and 6-2, there are several potential release mechanisms by which the constituents identified in the soil and groundwater may be transported to other media. Each mechanism is considered for the identified media and potential receptor group. Potential release mechanisms for soil include the following:

- **Fugitive Dust.** Constituents in surface and subsurface soil could be a potential source for fugitive dust via physical disturbance.

- **Volatilization.** Volatile constituents may potentially be transported from subsurface soil by volatilizing into soil-pore space and eventually emanate into ambient or indoor air.

- **Leaching**. Constituents in surface or subsurface soil could potentially leach to groundwater.

There are three mechanisms by which constituents in groundwater can be transported to other media. These migration pathways include the following:

- **Adsorption.** Constituents in groundwater may be sorbed onto subsurface soils; and

- **Volatilization to Ambient Air.** Volatile constituents in groundwater may potentially desorb into soil gas and be transported into ambient or indoor air.

- **Extraction.** Constituents in groundwater may migrate to other media by extraction and use of impacted groundwater.

Each of these potential release mechanisms is evaluated for each potential receptor group on Tables 6-1 and 6-2.

6.2.4 Potential Human Receptors and Exposure Pathways

This section discusses the identified potential receptors and the potential that the receptor may be exposed to site-related residuals.

6.2.4.1 On-site Area Receptors

An assessment of potential exposure pathways for receptors in the On-site Area is presented in Table 6-1. The analysis includes an identification of each potential receptor group, a listing of each potential exposure media and potential pathway, and a rationale for inclusion or exclusion of each potential receptor in the consideration of remedial actions for the FS. Each of the On-site Area receptor groups, and the potential exposure pathways, are identified on Table 6-1. Potential receptor groups and potential exposure pathways that may exist for the site are discussed below.

<u>On-site Outdoor Maintenance Workers</u>

Outdoor Maintenance Workers may potentially be exposed to constituents in surface soil via direct contact pathways (i.e., incidental ingestion, dermal contact, and inhalation of volatiles or particulates) while performing light maintenance activities such as lawn care for the lawn along Pike Street. Surface soil samples had exceedances of health based criteria for individual PAH compounds in this area. The soil in this area is covered with grass, and the period of time that they would present in this area is minimal, therefore the potential for exposure in this area is considered to be low.

On-site Outdoor Subsurface Utility Workers

Outdoor Subsurface Utility Workers may potentially be exposed to tar materials and other constituents of interest in subsurface soil and groundwater via incidental ingestion, dermal contact, and inhalation of volatiles or particulates if subsurface excavation work is needed to repair or replace underground gas lines or other utilities or equipment at the site. Impacted subsurface soil, groundwater and NAPL are known to be present in the central and southwestern portions of the property. Only properly trained field personnel should complete the subsurface utility work in this area using methods specified in a site-specific health and safety plan (HASP) until the area has been cleared of impacted materials.

On-site Building Workers

On-site Building Workers are the workers who occupy the O&R operations center buildings, including full-time office staff, and the gas and electric crews who intermittently occupy the buildings during breaks and rain days. These workers may be exposed to constituents known to be present in the subsurface of the footprint of the buildings via the migration of impacted vapors to the indoor air of the building. This potential vapor intrusion pathway was evaluated, and the results indicate that indoor air is not adversely impacted in the building. The indoor air sample results were within the 75th percentile of the NYSDOH background values for indoor air. Therefore a potential exposure pathway for On-site Building Workers was not identified.

Site Visitors and Trespassers

Site Visitors and Trespassers may potentially contact surface soil in the landscaped area adjacent to Pike Street, or inhale indoor air while at the site. Since the surface soil is covered with grass, and the indoor air is not adversely impacted in the building the potential for exposure is considered to be low.

6.2.4.2 Off-site Receptors

An exposure pathway analysis for potential receptors in each of the off-site areas of interest is presented in Table 6-2. The analysis includes an identification of each potential receptor group, a listing of each potential exposure media and pathway, and a rationale for inclusion or exclusion of each potential receptor in the consideration of remedial actions for the FS. Potential receptor groups and potential exposure pathways for this area are discussed below.

Brown Street Area

The Brown Street Areas consists of the two City right-of-way (ROW) areas to the north and south of the street, and the portion of Brown Street adjacent to the site. Subsurface soil, and groundwater samples were collected in this area during the RI. VOC and PAH compounds were detected in the subsurface samples collected in this area in concentrations greater than RSCO concentrations and/or groundwater standard values. Off-site Subsurface Utility Workers may potentially be exposed to constituents in soil or groundwater in this area via direct contact pathways (i.e., dermal contact, ingestion, and inhalation of volatiles) if subsurface work is performed in this area. Workers conducting subsurface work in this area should be properly trained and should complete this work using procedures specified in a HASP. The City DPW will be notified regarding the nature and extent of the impacts in this area.

Residential Area North of Brown Street

The Residential Area North of Brown Street includes the properties located at 8, 12, 14, and 16 Brown Street. Soil gas, subsurface soil, and groundwater samples were collected both in the footprint of these residences and at the adjacent City ROW to the south. MGP-site related impacts do not appear to extend to the residential properties. The results of the soil gas sampling performed at the residences indicate that the results of the sampling were within the 90th percentile of the NYSDOH background indoor air values. Based on the low concentrations of constituents detected during sampling performed within the footprint of these properties and the ROW the potential for significant exposure is considered to be low.

King Street Area

The King Street Area consists of the City ROW areas along King Street, the footprint of King Street, and the residential and commercial properties to the northeast of the site. Subsurface soil and groundwater sampling performed at the northeastern boundary of the O&R property (MW6, and MW14) indicate that these media are not significantly impacted at the northeast boundary of the site. The potential vapor intrusion pathway has been evaluated in this area by the collection of on-site and off-site samples (28 Pike Street) and the concentrations of compounds that may be site-related are very low (within the 90th percentile of the NYSDOH background indoor air values). Since the concentrations of constituents are low at the O&R property boundary and at 28 Pike Street, the potential for exposures to receptors in the King Street Area is considered to be very low, and the potential risk for receptors in this area is not discussed further.

28 Pike Street Property

The 28 Pike Street Property consists of the restaurant/apartment building and the property grounds. The group of potential receptors for this property is the site owners and workers at the restaurant, site visitors and trespassers, and the residents of the apartments. Based on the sampling performed during the RI, it does not appear that the impacted groundwater plume extends to this property. The potential vapor intrusion pathway has been evaluated at this location by the collection of soil gas, indoor air, and ambient air and the results of the sampling indicate that the concentrations of compounds that may be site-related are very low (within the 75^{th} percentile of the NYSDOH background values for indoor air). For these reasons, the potential risk for the residents of the apartments, potential site visitors, and trespassers is considered to be low.

The owners or workers at the restaurant may potentially be exposed to constituents in surface soil through direct contact pathways. There were exceedances of health-based criteria for PAHs and lead at SS1 in the rear of the property. For this reason the potential risk pathway for receptors who may use the area to the rear of the restaurant is considered significant. It is recommended that the soil be removed or covered at this location.

Water Street Area

The Water Street Area consists of the two City Right-Of-Way (ROW) areas to the north and south of the street, and the portion of Water Street adjacent to the site. Subsurface soil and groundwater samples were collected in this area during the RI. VOC and PAH compounds were detected in the subsurface samples collected in this area at well MW2 in concentrations greater than RSCO concentrations and/or groundwater standard values, and it is likely that the dissolved groundwater plume extends to a small portion of the northern ROW and Water Street. The impacted zone in this area is approximately 10 feet deep and substantial subsurface work would be required to potentially encounter impacted media. Off-site Subsurface Utility Workers may potentially be exposed to constituents in soil or groundwater in this area via direct contact pathways (i.e., dermal contact, ingestion, and inhalation of volatiles) if subsurface work is performed in this area. Workers conducting subsurface work in this area should be properly trained and should complete this work using procedures specified in a HASP. The City DPW will be notified regarding the nature and extent of the impacts in this area.

2 Pike Street Property Area

The 2 Pike Street Property Area consists of the restaurant building and the property grounds at the corner of Water and Pike Streets (between Water Street and the Delaware River Area). The group of potential receptors identified for this property are the site owners and workers at the restaurant, site visitors, and trespassers. Based on the sampling performed during the RI, it does not appear that the impacted groundwater plume extends to this property with the exception of very low-levels of constituents in the intermediate well MW10I, which is likely to represent the outside edge of the impacted zone at this location. The impacted zone in this area is approximately 10-15 feet deep and substantial subsurface work would be necessary to potentially encounter impacted media. The potential vapor intrusion pathway has been evaluated at this property by the collection of soil gas sampling and the results of the sampling indicate that the concentrations of compounds that may be site-related are very low (within the 90th percentile of the NYSDOH background values for indoor air). For these reasons, the potential risk for receptors at this property is considered to be very low and this area will not be discussed further in the risk evaluation.

O&R Apartment Area

The O&R Apartment Area consists of the vacant apartment building and grounds located at the corner of Pike and Water Streets. Since there are no occupants in the building, and O&R does not plan to allow occupancy in the future for this building, potential receptors for this area are subsurface utility workers, trespassers, and site visitors. Subsurface soil and groundwater sampling indicates that impacted soil and groundwater are present at this location. Well MW7 located adjacent to Pike Street accumulates DNAPL material. For these reasons subsurface utility workers may potentially be exposed to constituents in soil or groundwater in this area via direct contact pathways (i.e., dermal contact, ingestion, and inhalation of volatiles) if subsurface work is performed in this area. Workers conducting subsurface work in this area should be properly trained and should complete this work using procedures specified in a HASP. Based on the evaluation of the potential vapor intrusion pathway at the O&R operations building which indicated that concentrations of constituents were within the 75th percentile of the NYSDOH background values for indoor air, the potential risk for site visitors and trespassers to be exposed to site-related media via inhalation is considered to be low.

Pike Street Area

The Pike Street Area consists of the two City Right-Of-Way (ROW) areas to the northeast and southwest of the street, and the portion of Pike Street down gradient of the site. Subsurface soil, and groundwater samples were collected in this area during the RI. VOC and PAH compounds were detected in the subsurface samples collected in this area in concentrations greater than RSCO concentrations and/or groundwater standard values. DNAPL has been observed to accumulate in well MW8 in a thickness of up to 5 feet. Off-site Subsurface Utility Workers may potentially be exposed to constituents in soil or groundwater in this area via direct contact pathways (i.e., dermal contact, ingestion, and inhalation of volatiles) if subsurface work is performed in this area. Workers conducting subsurface work should be properly trained and should complete this work using procedures specified in a HASP. The City

DPW will be notified regarding the nature and extent of the impacts in this area.

<u>19/21 Pike Street Area</u>

This area includes the building and grounds of the property the corner of King and Pike Streets. The lower portion of the building is being remodeled for use as a coffee shop and the upper floors are apartment units. Subsurface soil, groundwater and soil gas samples have been collected near the southwest property boundary for this parcel. Constituents of interest in these media were not significantly elevated in this area, therefore, the property located at 19/21 Pike Street is considered to be outside of, and to the northeast of the site-related impacted groundwater plume. For these reasons, the potential risk for receptors at this property is considered to be low, and this area will not be discussed further in the risk evaluation.

<u>9, 11, 13, and 15/17 Pike Street Properties Area</u>

This area is comprised of the residential and commercial properties located at 9, 11, 13, and 15/17 Pike Street. Soil gas, indoor and outdoor air, subsurface soil, and groundwater samples were collected at these properties to delineate site-related impacts at this area which is down gradient of the site, including the DNAPL observed at MW8. Subsurface soil and groundwater samples contained constituents of interest in concentrations greater than the soil RSCO concentrations and groundwater standard values respectively. The potential vapor intrusion pathway has been evaluated at two buildings at this location by the collection of soil gas, indoor air and ambient air and the results of the sampling indicate that the concentrations of compounds that may be site-related are very low (within the 90^{th} percentile of the NYSDOH background values for indoor air). Subsurface work may bring residents into contact with impacted soil and groundwater known to be present at this location and potential exposure could be significant if the work is performed on a routine and frequent basis. This potential contact is unlikely; however, since the impacted zone is deep (> 16 feet bgs). Actions to address the impacted media at these properties will be evaluated in the FS.

<u>The Delaware River Area</u>

Recreational users in the Delaware River area to the southwest of the site may potentially be exposed to low-level concentrations of PAH compounds in surface water or sediment via direct contact or ingestion pathways. Direct contact exposures to surface water and sediment can be expected to occur infrequently in this area. Dilution of the constituents in surface water can also be expected to occur. Since the impacted area that may be related to the site is small (120 feet of shoreline), and the PAH concentrations are low (or attributable to urban sources), it is unlikely that impacted surface water or sediment in this area represents a significant risk for the recreational user.

The potential risk for ecological receptors, as discussed in the FWIA in Appendix E, is also believed to be low.

6.3 Conclusions

For the On-site Area, Subsurface Utility Workers who perform excavation work on the O&R property may be exposed to NAPL, impacted soil, and/or groundwater, therefore, subsurface work should only be performed by properly trained personnel, using methods specified in a HASP, or only after the area has been cleared of impacted media.

For the Off-site Areas, Subsurface Utility Workers who perform excavation work in the ROWs and roadway areas in limited areas of Brown, Water and Pike Streets, or on the O&R apartment property, may be exposed to NAPL, impacted soil, and/or groundwater, therefore, subsurface work should only be performed by properly trained personnel, using methods specified in a HASP. The City of Port Jervis DPW will be notified regarding the nature and extent of the impacted media in these areas.

The owners or workers at the restaurant/apartment property at 28 Pike Street may potentially be exposed to constituents in surface soil at the northwest corner of the property. Possible actions to reduce the potential for exposure at this location will be discussed with the NYSDEC and the NYSDOH.

Residents may be exposed to constituents in subsurface soil and groundwater at the residential and commercial properties down gradient of the site, including 9, 11, 13, and 15/17 Pike Streets if subsurface work is performed at the properties. Given the depth of the impacted zone, the potential for exposure is low. Potential actions for the management of impacted media at these locations will be evaluated in the FS and included in the remedial action plan developed for site cleanup.

7 Summary and Conclusions

This section summarizes the findings of the RI Investigation of the Port Jervis MGP site. An overview of the nature and extent of constituents of interest is presented by area of concern and by media, and known and potential source areas are identified.

7.1 Site Geology

- Historic fill material covers the majority of the site in a layer of varying thickness ranging up to 15 feet. The fill is thickest in the area of the former Holder A subsurface pit foundation and Gas-Oil UST H.

- The fill consists primarily of silty sand, bricks, concrete and metal debris and sporadically contains varying amounts of coal gasification materials such as cinder-like material, ash-like material, and coal fragments.

- Underlying the fill is an alluvial materials consisting of sand and a layer of coarse sand, silt, pebbles and cobbles.

- Underlying the alluvial materials is a thick glacial outwash deposit. The deposit is approximately 115 feet thick, and is comprised of fine to medium-grained sand with minor amounts of rounded gravel.

- A shale bedrock underlies the site at a depth of approximately 150 feet bgs. The surface of the bedrock slopes to the southwest towards the Delaware River.

- A confining unit was not found in any of the borings completed during the RI.

7.2 Site Hydrogeology

- Site surface water collects in catch basins within the footprint of the site and the adjacent roadways. It then flows into a storm sewer pipe beneath the site and discharges to the Delaware River at the Port Jervis Outfall.

- The fill, alluvium and the glacial outwash deposits comprise an unconfined aquifer.

- Groundwater is found at depths which ranged from approximately 16 to 23 feet bgs across the site.

- Groundwater flows from the northeast to the southwest across the site to the Delaware River, downstream of the Route 209 Bridge.

- Measurements of vertical gradient made at shallow and deep well clusters show a neutral to slight downward trend from the shallow to the deeper portions of the aquifer. Measurements made in both the spring and fall indicate this gradient is expected to be applicable year round.

- Groundwater is not used for drinking water in the immediate vicinity of the site. In the area-wide setting of the site, the Lower Neversink Valley aquifer is listed as a "Principal Aquifer" by NYSDEC.

7.3 Nature and Extent of Constituents of Interest

Six media were investigated at the site, including surface soil, subsurface soil, groundwater, sediments, soil gas and indoor air. Conclusions for each media are summarized in the following sections.

7.3.1 Surface Soil

- Three background surface soil samples were collected to assess concentrations of COI in the area-wide setting of Port Jervis. Each of the background samples contained individual PAHs in concentrations greater than the RSCOs, though substantially lower than those in surface samples collected on the site.

- Seven on-site surface soil samples were collected during the RI. Each of the samples contained individual PAH compounds greater than the RSCOs for soil. Total PAH concentrations ranged from 4 mg/Kg to 446 mg/Kg at a sample location adjacent to the restaurant at 28 Pike Street.

- Each of the seven on-site surface soil samples contained metal compounds in concentrations greater than the RSCOs for soil. The greatest metals concentrations were also found at the sample location adjacent to the restaurant at 28 Pike Street.

7.3.2 Subsurface Soil

- Test pits and soil borings were completed in and around MGP features to determine the condition of subsurface soil. Rotosonic soil borings were advanced below the observed impacts to the surface of the bedrock unit which underlies the site at four strategic locations.

- Heavily impacted subsurface soil is present beneath the footprint of three of the former gas holders and several of the former storage tanks.

- Impacted subsurface soil is also present at off-site, down gradient locations to the southwest of the former MGP process area.

- Soil borings and chemical analyses indicate that MGP impacts to subsurface soil are limited with depth. Soil impacted with COI above RSCOs was found to extend to a depth of 70 feet in area of the holder pit foundation. Impacts were found to be limited to 30 feet bgs in the area of the storage tanks and gas holder near the facility gate.

- Based on test pits and soil borings completed within the footprint of the former canal raceway, this former subsurface feature does not appear to be a pathway for hydrocarbon materials to migrate from the site.

7.3.3 Groundwater

- Groundwater in the central portion of the site near a subsurface gas holder foundation and oil and tar handling features has been impacted to a depth of approximately 70 feet bgs. LNAPL and DNAPL have been observed in wells further down gradient at the site's southwestern boundary, and in Pike Street.

- The site-related, dissolved-phase groundwater plume extends to several residential and commercial properties to the southwest of the site, and then to a limited area of shoreline at the Delaware River.

7.3.4 Sediments

- Sediments were probed and sampled at the Port Jervis storm sewer outfall area at a seasonal pool and adjacent downstream areas in the Delaware River. Trace amounts of NAPL and hydrocarbon-like sheen were observed in these areas respectively. Hydrocarbon identification of the NAPL indicates the material is petroleum-related. The source of the NAPL and PAH constituents in the sediments this area are likely related to urban runoff, not the MGP site.

- PAH concentrations in sediments adjacent to the area where the dissolved groundwater plume is present at the river shoreline were found to be low and, therefore, do not pose a significant threat to potential receptors in this area. It is possible that the impacts found at this location are attributable to local background sources, not the site.

7.3.5 Tar-like Material and NAPL

Several subsurface MGP features are still present in the subsurface at the site. Impacts associated with the structures include the following:

- An intact tar separator was found which contains NAPL mixed with fill in a layer approximately 3 feet thick at the structure bottom.

- A black, oil-like NAPL was found mixed with soil in the area of a former gas-oil tank and gas holder. Given the proximity of this impact to several former MGP features, the source of this material is difficult to assign. The vertical extent of observed impact in this area appears is limited to approximately 30 feet bgs. Chemical analyses completed below this depth indicate soil conditions are within RSCOs.

- A six-foot thick layer of tar-like material mixed with fill was found to be present in a gas holder pit foundation.
- Soil borings completed down gradient of the holder foundation found heavily impacted soils and NAPL are present to a depth of 70 feet bgs. Chemical analyses completed beneath the observed impacts indicate soil is not impacted in concentrations greater than RSCOs.
- A monitoring well located down gradient of the pit foundation was found to contain a measurable layer of LNAPL. Monitoring wells further down gradient, including a well in Pike Street were found to contain DNAPL.

7.3.6 Soil Gas and Indoor Air

Soil gas and indoor air sampling was performed at several on-site and off-site locations to evaluate the potential pathway for vapor intrusion from areas of known MGP residuals, to areas where potential receptors are present. VOCs were detected in all of the soil gas and indoor air samples; however, the detected concentrations in all areas sampled were low, and within expected background concentrations. Significant potential for adverse affects on indoor air quality was not observed at any of the locations sampled during the RI.

7.4 Human Health Risk Assessment

A qualitative human health risk assessment was performed to assess the potential for impacts to on-site and off-site receptors. For several on-site and off-site areas, subsurface utility workers who perform subsurface excavation work may be exposed to impacted media and controls are recommended to limit potential exposures in these areas. Receptors at one off-site property may potentially be exposed to constituents in surface soil and cleanup work is recommended. At several off-site, down gradient properties, residents may contact impacted subsurface soil and/or groundwater if subsurface work is performed; however the zone of impact is deep (> 16 feet bgs) at these locations, and the potential for contacting the impacted media is low. Options for cleanup of these areas will be evaluated in a feasibility study and included in a remedial action plan.

7.5 Ecological Risk Evaluation

A Fish and Wildlife Impact Assessment was performed as part of the RI for the site to determine the potential for site-related residuals to impact potential ecological receptors in the Delaware River area adjacent to the site. Steps I through IIB of the assessment were performed. Significant threats from site-related impacts to plant or animal species in the study area were not identified.

Based on the findings of the assessment, steps beyond Step IIB of the FWIA are not warranted.

8 Recommendations

8.1 Surface Soil at 28 Pike Street

The surface soil sample collected from the alley behind the restaurant at 28 Pike Street (corner of King and Pike Streets) was found to contain individual PAH compounds in concentrations greater than regulatory guidelines. Although there is little potential for exposure to residents or workers at the restaurant property, it is recommended that the soil in this area be covered or removed to reduce the potential for human contact. Rather than completing additional forensic analyses to determine whether the source of the PAH compounds is from the waste handling operations of the restaurant facility or the former MGP operations conducted on the adjacent property, O&R will cleanup or cover the surface soil at this location. A plan to complete this action will be prepared in consultation with the NYSDEC and the NYSDOH.

8.2 Feasibility Study

With the observations and data presented in this report, O&R has performed an evaluation of conditions on the site and the adjacent properties and thereby fulfilled the specifications of the Order on Consent. Following approval of this report by the NYSDEC, a FS evaluation of remedial options will be prepared to identify methods to remediate the impacted media. The evaluation will review potential remedial actions for both the on-site and off-site areas, and will address surface soil, surface soil, subsurface soil, groundwater, soil gas, indoor air, and sediments.

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Table 2-1
Site Ownership Summary
Port Jervis MGP Site
Port Jervis, New York

Property Owner	Years	Comments (Note 1)
Port Jervis Gas Light Company	1861 - 1895	First Browns Directory Listing in 1887
Port Jervis Gas Light Company	1895 - 1898	No Browns Directory Listing
Port Jervis Gas Company	1899 - 1901	
Port Jervis Light, Power, and Gas Company	1902	
Port Jervis Electric, Light, Power, and Gas Railroad Company	1903 - 1910	
Port Jervis Light and Power Company	1911- 1917	
Orange County Public Service Corporation	1918 - 1926	
Rockland Light & Power Company	1927 - 1957	Natural Gas Becomes Available in 1938
Orange and Rockland Utilities, Inc.	1958 - present	Final Browns Listing

Note:

(1) - Exact transaction date not available

(2) - This site ownership history is based on a combination of sources and is for general information purposes only.
It should not be used for legal purposes without further verification.

Table 2-2
Operational History Summary
Port Jervis MGP

Year	Source	Description
1853	1853 Atlas of Orange County	The Orange County Atlas shows that the site is undeveloped with the canal/raceway present.
1861	Port Jervis Historical Society Records	Gas was first produced in Port Jervis in 1861 by the Port Jervis Gas Light Company using coal gasification.
1864	Port Jervis Historical Society Records	In 1864 the gas plant was destroyed by an explosion and was rebuilt.
1873	Port Jervis Historical Society Records	The size and capacity of the MGP was doubled and gas was produced via the water gas method, which used two 4' Granger machines.
1875	1875 Atlas of Orange County	The atlas shows that two gas holders (Holder A and B) are present at the site. The site is shown to be divided into two parcels by a canal raceway. The raceway extended from the Delaware and Hudson Canal on the north side of the city to the Delaware River immediately south of the MGP.
1888	1888 Sanborn	The map shows that ownership is by the Port Jervis Gas Company, using the Granger water gas process. Two gas holders are present with capacities of 8,000 and 37,000 cubic feet. Other facility features included the generator building on Pike Street, four purifier boxes at the center of the site, a tar well, and various storage buildings. Two naphtha tanks are shown along Brown Street, fed by an underground pipeline that conveyed naphtha under Brown Street from the New York, Lake Erie, and Western Railroad Company rail yards 600 feet north of the site. Piping for the naphtha is shown on the map to also extend to the gas generation building on the east side of the site. The origin of the pipeline at the rail yard is not shown on the Sanborn map, but the end of the line is shown near a structure identified as an oil house.
1891	Browns Directory	Browns Directory shows that the gasification method was modified to produce gas via the Granger-Collins method.
1894	1894 Sanborn	The map shows the site is essentially unchanged.
1900	1900 Sanborn and Port Jervis Historical Society Records	The 1900 Sanborn map labels the canal raceway as a brook, implying that the use of the canal may have been terminated and that the flow in the raceway has been reduced. The gas plant is unchanged; the 8,000 cubic foot holder (Holder A) is now labeled "1 lift iron gasometer encased in frame structure, capacity 9,000'." The larger holder (B) is labeled as having a capacity of 39,000 cubic feet. In 1902 the plant was reorganized under the name of Port Jervis Gas Company.
1905	1905 Sanborn	The map indicates that the raceway was no longer present.
1910	Port Jervis Historical Society Records	In 1910 the plant was rebuilt. Water gas was produced via two Kemper 5' U.G.I. water gas machines. A 75,000 cubic foot holder (Holder C) was constructed near the northern corner of the site along Brown Street.
1912	1912 Sanborn	The map shows that the original gas holder (Holder A) is no longer present, and Holder B is now labeled at 99,000 cubic feet. The Brown Street naphtha pipeline is still shown; however, the on-site naphtha tanks and piping have been relocated. The tar well is also shown to be relocated from the center of the site to a location adjacent to a new generator building on Pike Street. An additional purifier is shown at the center of the site. The site is identified as being owned by Port Jervis Electric, Light, Power, & Gas Company.
1918	Browns Directory	The 1918 Browns Directory indicates that records for the site have been merged with those of Middletown. No entries are found for Port Jervis until 1927.
1921	1921 Sanborn	The 1921 Sanborn map no longer indicates the presence of the Brown Street naphtha pipeline. The tanks which it serviced are now labeled "tank" and "gas oil tank." An additional tank of 45,000 gallon capacity is shown at the former location of Holder B, labeled "gas oil tank in brick pit", suggesting that a subgrade holder pit was being reused. Holder C is shown as 75,000 cubic feet in capacity. Site ownership is indicated as Orange County Public Service Corporation.
1925	1925 Sanborn	The map shows that a 300,000 cubic foot Holder D was constructed at the western corner of the block along Water Street. The plant was completely rebuilt at this time and included a double superheated Lowe water gas apparatus and three Semit Swavey steel purifiers.
1927	Browns Directory	In 1927 and 1928 the Browns Directory listings show site holder capacity at 375,000 cubic feet, implying that only Holders C and D are in use.
1931	1931 Sanborn	The map shows Holder D at the western corner of the block and the removal of Holder B. A new purifier is shown at the center of the site. Several other features that appear in earlier and later maps are not shown, apparently due to a general reduction in the level of overall map detail.
1937	Browns Directory	The 1937 Browns Directory cites this as the final year of water gas production. All subsequent years are noted as natural gas.
1939	1939 Eastern Underwriters Inspection Bureau Map	The map shows a considerable amount of site detail. The circular footprint of Holder A is identified as being used for oxide mixing for the purifier boxes. Holder C is noted to be empty and purged. Two tanks are shown along Brown Street: one is an 8,000 gallon UST partially filled with gasoline, the other is an empty 5,000 gallon tank which appears to be above ground. A subsurface tar separator and aboveground tar tank are shown at the center of the site.
1945	1945 Sanborn	The map is virtually identical to the 1931 map.
1949	Browns Directory	The directory listing for Nyack cites Port Jervis, Middletown, and Nyack plants as available to produce 1,000 BTU gas in emergencies or when natural gas is not available, but that the plants are inactive otherwise. The note adds that the plants were upgraded to be able to produce high BTU manufactured gas.
1959	Port Jervis Historical Society Records - Union Gazette Article	A news article indicates that the old gas house was demolished to make way for the current operations center building.
1961	1961 Sanborn	The final Sanborn map for the site is a 1961 revision of the 1931 base map. Holder C is no longer present. The generator buildings have been removed, and a newer building is shown at the center of the site, with offices and garage and storage.
1968	1968 Aerial Photograph	The photograph shows that Holder D is still present in the northwestern portion of the site.
1976	1976 Aerial Photograph	The aerial photograph shows that all the holders have been removed from the site.

Table 2-3
Browns Directory Summary (1887-1957)
Port Jervis, New York

Year	Company Name	Process Type/Name	Annual Production (cubic feet)	Gas Holder Capacity (cubic feet)	Gas Oil Used (gals)	Notes
1887	Port Jervis Gas Light Co.	Lowe by Granger	NL	NL	NL	
1888	NL	NL	NL	NL	NL	
1889	Port Jervis Gas Light Co.	Lowe by Granger	NL	NL	NL	
1890	Port Jervis Gas Light Co.	Lowe	6,000,000	NL	NL	
1891	Port Jervis Gas Light Co.	Granger-Collins	6,000,000	NL	NL	
1892	Port Jervis Gas Light Co.	Granger-Collins	6,000,000	NL	NL	
1893	Port Jervis Gas Light Co.	Granger-Collins	6,000,000	NL	NL	
1894	Port Jervis Gas Light Co.	Granger-Collins	6,000,000	NL	NL	
1895	NL	NL	NL	NL	NL	
1896	NL	NL	NL	NL	NL	
1897	NL	NL	NL	NL	NL	
1898	NL	NL	NL	NL	NL	
1899	Port Jervis Gas Co.	Lowe	7,000,000	NL	NL	
1900	Port Jervis Gas Co.	Lowe	8,000,000	NL	NL	
1901	Port Jervis Gas Co.	Lowe	8,000,000	NL	NL	
1902	Port Jervis Light, Power & Gas Co.	Lowe	10,000,000	NL	NL	
1903	Port Jervis Electric, Light, Power, & Gas Railroad Co.	Lowe	10,000,000	NL	NL	
1904	Port Jervis Electric, Light, Power, & Gas Railroad Co.	Lowe	12,000,000	NL	NL	
1905	Port Jervis Electric, Light, Power, & Gas Railroad Co.	Lowe	10,000,000	NL	NL	1
1906	Port Jervis Electric, Light, Power, & Gas Railroad Co.	Lowe	10,000,000	NL	NL	1
1907	Port Jervis Electric, Light, Power, & Gas Railroad Co.	Lowe	10,000,000	NL	NL	1
1908	Port Jervis Electric, Light, Power, & Gas Railroad Co.	Lowe	10,000,000	NL	NL	1
1909	Port Jervis Electric, Light, Power, & Gas Railroad Co.	Lowe	10,000,000	NL	NL	1
1910	Port Jervis Electric, Light, Power, & Gas Railroad Co.	Lowe	10,000,000	NL	NL	1
1911	Port Jervis Light and Power Co.	Lowe	10,000,000	NL	NL	1
1912	Port Jervis Light and Power Co.	Lowe	10,000,000	NL	NL	1
1913	Port Jervis Light and Power Co.	Lowe	10,000,000	NL	NL	1
1914	Port Jervis Light and Power Co.	Lowe	10,000,000	NL	NL	1
1915	Port Jervis Light and Power Co.	Lowe	19,716,000	NL	NL	1
1916	Port Jervis Light and Power Co.	Lowe	23,678,396	110,000	NL	2
1917	Port Jervis Light and Power Co.	Lowe	23,678,396	110,000	NL	2
1918	Orange County Public Service Corp.	Lowe	NL	NL	NL	3
1919	Orange County Public Service Corp.	Lowe	NL	NL	NL	3
1920	Orange County Public Service Corp.	Lowe	NL	NL	NL	3
1921	Orange County Public Service Corp.	Lowe	NL	NL	NL	3
1922	Orange County Public Service Corp.	Lowe	NL	NL	NL	3
1923	Orange County Public Service Corp.	Lowe	NL	NL	NL	3
1924	Orange County Public Service Corp.	Lowe	NL	NL	NL	3
1925	Orange County Public Service Corp.	Lowe	NL	NL	NL	3
1926	Orange County Public Service Corp.	Lowe	NL	NL	NL	3,4
1927	Rockland Light & Power Co.	Lowe	47,376,000	375,000	180,215	
1928	Rockland Light & Power Co.	Lowe	49,627,000	375,000	180,215	
1929	Rockland Light & Power Co.	Lowe	NL	NL	NL	5
1930	Rockland Light & Power Co.	Lowe	NL	NL	NL	5
1931	Rockland Light & Power Co.	Lowe	NL	NL	NL	5
1932	Rockland Light & Power Co.	Lowe	NL	NL	NL	5
1933	Rockland Light & Power Co.	Lowe	NL	NL	NL	5
1934	Rockland Light & Power Co.	Lowe	NL	NL	NL	5
1935	Rockland Light & Power Co.	Lowe	NL	NL	NL	5
1936	Rockland Light & Power Co.	Lowe	NL	NL	NL	5
1937	Rockland Light & Power Co.	water gas	NL	NL	NL	5
1938	Rockland Light & Power Co.	natural	NL	NL	NL	5
1939	Rockland Light & Power Co.	natural	NL	NL	NL	5
1940	Rockland Light & Power Co.	natural	NL	NL	NL	5
1941	Rockland Light & Power Co.	natural	NL	NL	NL	5
1942	Rockland Light & Power Co.	natural	NL	NL	NL	5
1943-44	Rockland Light & Power Co.	natural	NL	NL	NL	5
1944-45	Rockland Light & Power Co.	natural	NL	NL	NL	5
1945-46	Rockland Light & Power Co.	natural	NL	NL	NL	5
1946-47	Rockland Light & Power Co.	natural	NL	NL	NL	5
1947-48	Rockland Light & Power Co.	natural	NL	NL	NL	5
1948-49	Rockland Light & Power Co.	natural	NL	NL	NL	5
1949-50	Rockland Light & Power Co.	natural	NL	NL	NL	5
1950-51	Rockland Light & Power Co.	natural	NL	NL	NL	5
1951-52	Rockland Light & Power Co.	natural	NL	NL	NL	5
1953-54	Rockland Light & Power Co.	natural	NL	NL	NL	5
1954-55	Rockland Light & Power Co.	natural	NL	NL	NL	5
1955-56	Rockland Light & Power Co.	natural	NL	NL	NL	5
1956-57	Rockland Light & Power Co.	natural	NL	NL	NL	5,6

Notes:

1. Supplies Port Jervis.
2. Supplies Port Jervis, NY, and Matamoras, PA.
3. Report is for Middletown, NY. (a combined report for both Middletown and Port Jervis.)
4. Controlled by Rockland LIght and Power Co., Nyack, NY.
5. Report is for Nyack, NY, with plants located in Nyack, Middletown, and Pike Street in Port Jervis (a combined report).
6. Natural gas purchased from Algonquin Gas Transmission Co., Home Gas Co., and Tennessee Gas Transmission Co.
7. NL - Not Listed

Table 2-4
MGP Site Features Summary
Port Jervis MGP Site

Site Feature	Approximate Date Of Service	Above/Below Ground Surface	Comments	RI Sample Location
Gas Holders				
Gas Holder A	1861-1925	Below Grade Pit Foundation	Gas holder capacity 39,000 cubic feet. Later converted to oxide mixing tank with 4' brick wall.	TP3; SB4
Gas Holder B	1861-1912	Below Grade Pit Foundation	Gas holder capacity 8,000 cubic feet. Later converted to containment pit for gas oil tank.	DP1; DP2; TP1
Gas Holder C	1910-1961	Above Grade - Two Lift	Gas holder capacity 75,000.	MW5; SB18; TP8; DP19; TP4
Gas Holder D	1925-1961	Above Grade	Gas holder capacity 300,000 cubic feet.	TP7; MW3S; MW3D; MW13
Storage Tanks (ASTs/USTs)				
Naphtha UST E	1861-1925	Below Grade	Tank capacity 8,500 gallons - converted to gasoline storage by 1939.	DP20; TP10
Naphtha Tank F	1861-1912	Unknown	Tank capacity approximately 7,000 gallons.	DP13; DP19
Gas Oil Tank G	1939-1945	Above Grade	Tank capacity 5,000 gallons.	DP7; TP4; SB19; DP14
Naphtha/Gas-Oil Tank H	1912-1945	Above Grade	Tank capacity approximately 7,000 gallons. Later converted for gas oil storage.	DP6; TP10
Naphtha Tank I	1912-1945	Above Grade	Capacity unknown; inside of generator room.	DP11; MW15S
Gas-Oil Tank J	1921-1961	Above Grade	Tank capacity 45,000 gallons located in brick pit.	DP1; DP2; TP1
Diesel AST K	1959-1998	Above Grade	Tank capacity 4000 gallons; installed after MGP decommissioned. Removed by 1998.	DP19
Gasoline AST L	1959-1998	Above Grade	Tank capacity 2000 gallons; installed after MGP decommissioned. Removed by 1998.	NA
Gasoline UST M	1959-1998	Below Grade	Tank capacity 1000 gallons; installed after MGP decommissioned. Removed by 1998.	Soil removal completed in this area; MW14S
Diesel UST N	1959-1998	Below Grade	Tank capacity 4000 gallons; installed after MGP decommissioned. Removed by 1998.	SB1; Floor Sample; TP9
Tar Handling Features				
Tar Separator O	1931 - 1939	Below Grade	Appears only on one 1939 drawing.	DP5
Tar Tank P	1931 - 1939	Above Grade	Appears only on one 1939 drawing.	DP4
Tar Well Q	1888-1912	Below Grade	Original tar well for MGP; capacity unknown.	DP9
Tar Extractor R	1912-1931	Above Grade	Capacity unknown.	DP3
Tar Well S	1912-1931	Unknown	Tar well adjacent to generator room; capacity unknown.	HA1; DP10
Purifier Structures				
Purifier T	1931-1945	Above Grade Boxes	Capacity unknown.	DP19
Purifier U	1912-1961	Above Grade	Iron purifier; capacity unknown.	DP8
Purifier Room V	1888-1931	Above Grade	Capacity unknown.	TP8
Purifier W	1888-1900	Above Grade	Initially lime purifier; later steel tank.	TP8
Purifier X	1888-1900	Above Grade	Initially lime purifier; later steel tank.	MW5; SB18
MGP Buildings				
Generator Room	1888-1959	Above Grade	The generator building location and footprint was modified several times during rebuilding of the MGP	NA
Governer House	1931-1959	Above Grade	NA	TP6
Miscellaneous Features				
Coke Pile Area	1939-1959	Above Grade	Shown on only one facility drawing.	MW6; SB20
Canal Raceway	prior to 1879-1905	Below Grade	Canal Raceway filled-in after 1905.	TP5; TP6; TP9; SB14; MW2; MW9D

Table 3-1
Surface Soil Sample Summary
Port Jervis MGP Site

Sample Designation	Sample Rationale	Depth Interval Collected	Laboratory Analyses Completed
On-site Locations Collected by RETEC			
SS1	Surface soil conditions adjacent to residence and onsite restaurant building.	0-2 inches bgs	SVOC, Metals, Cyanide
SS2	Surface soil conditions in grassy area between O&R operations center building and Pike Street.	0-2 inches bgs	SVOC, Metals, Cyanide
SS3	Surface soil conditions in grassy area between vacant O&R apartment building and Water Street.	0-2 inches bgs	SVOC, Metals, Cyanide
SS4	Surface soil conditions in grassy area between O&R operations center building and Pike Street.	0-2 inches bgs	SVOC, Metals, Cyanide
SS8	Surface soil conditions in narrow strip of exposed soil beneath perimeter fence along Brown Street.	0-2 inches bgs	SVOC, Metals, Cyanide
SS9	Surface soil conditions in narrow strip of exposed soil beneath perimeter fence along Brown Street.	0-2 inches bgs	SVOC, Metals, Cyanide
SS10	Surface soil conditions in narrow strip of exposed soil beneath perimeter fence along Brown Street.	0-2 inches bgs	SVOC, Metals, Cyanide
Off-site Locations Collected by RETEC			
SS5	Surface soil conditions in grassy area adjacent to Pike Street.	0-2 inches bgs	SVOC, Metals, Cyanide
SS6	Surface soil conditions in grassy area adjacent to Flo-Jean parking lot.	0-2 inches bgs	SVOC, Metals, Cyanide
SS7	Surface soil conditions in grassy area adjacent to local park located approximately 1200 feet southeast of the site.	0-2 inches bgs	SVOC, Metals, Cyanide

bgs - Below ground surface

Table 3-2
Subsurface Soil Sample Summary
Port Jervis MGP Site

Sample Designation	Sample Rationale	Sample and Sample Depth Interval	Laboratory Analyses
PSA Test Pits Sampled by GEI			
TP1	Gas Holder B; Gas-Oil AST J	NA	Field Characterization
TP2	Downgradient of Canal Raceway	NA	Field Characterization
TP3	Gas Holder A	NA	Field Characterization
TP4	Gas Holder C; AST G	TP4(8)	VOC, SVOC, RCRA Metals, Cyanide
TP5	Canal Raceway	NA	Field Characterization
TP6	Canal Raceway; Meter House	NA	Field Characterization
TP7	Holder D	NA	Field Characterization
TP8	Purifier V and W; Holder C	NA	Field Characterization
TP9	Canal Raceway	NA	Field Characterization
TP10	Naphtha Tank E; Gas Oil Tank H	TP10(10)	VOC, SVOC, RCRA Metals, Cyanide
PSA Soil Borings and Monitoring Well Soil Borings Completed by GEI			
MW1S	Downgradient of Holder A	MW1S(18.7)	VOC, SVOC, RCRA Metals, Cyanide
MW1D	Downgradient of Holder A	MW1D(41.05)	VOC, SVOC, RCRA Metals, Cyanide
MW2	Adjacent to Canal Raceway	MW2(15.6)	VOC, SVOC, RCRA Metals, Cyanide
MW3S	Gas Holder D	MW3(15.95)	VOC, SVOC, RCRA Metals, Cyanide
	Gas Holder D	MW3(17.5)	VOC, SVOC, RCRA Metals, Cyanide
MW5	Gas Holder C	MW5(15.35)	VOC, SVOC, RCRA Metals, Cyanide
HA1	Tar Well S	HA1(5.1)	VOC, SVOC, RCRA Metals, Cyanide
SB1	Canal Raceway	NA	Field Characterization
SB4	Gas Holder A	SB4(8.3)	VOC, SVOC, RCRA Metals, Cyanide
RI Direct Push Soil Borings Completed by RETEC			
DP1	Gas-Oil AST J	DP1(10.5-11.5)	VOC, SVOC, TAL Metals, Cyanide
DP2	Adjacent to Holder B and Gas-Oil AST J	DP2(18-19)	VOC, SVOC, TAL Metals, Cyanide
DP3	Tar Extractor R	DP3(19-20)	VOC, SVOC, TAL Metals, Cyanide
DP4	Tar Tank P	NA	VOC, SVOC, TAL Metals, Cyanide
DP5	Tar Separator O	DP5(5-6)	VOC, SVOC, TAL Metals, Cyanide
DP6	Gas-Oil AST H	DP6(19-20)	VOC, SVOC, TAL Metals, Cyanide
DP7	Gas-Oil AST G	DP7(22-23)	VOC, SVOC, TAL Metals, Cyanide
DP8	Purifier U	DP8(12-14)	VOC, SVOC, TAL Metals, Cyanide
DP9	Tar Well Q	DP9(6-8)	VOC, SVOC, TAL Metals, Cyanide
DP10	Tar Well S Area	DP10(12-14)	VOC, SVOC, TAL Metals, Cyanide
DP11	Naphtha AST I Area	NA	VOC, SVOC, TAL Metals, Cyanide
DP13	Naphtha Tank F Area, Naphtha Pipe in Brown Street, and to investigate the areal extent of NAPL found at SB19	DP13(14-16)	VOC, SVOC, TAL Metals, Cyanide
DP14	Gas-Oil AST G Area	DP14(22-23)	VOC, SVOC, TAL Metals, Cyanide
DP15	Naphtha UST E Area, Naphtha Pipe in Brown Street, and to investigate the areal extent of NAPL found at SB19	DP15(18.5-19.5)	VOC, SVOC, TAL Metals, Cyanide
DP16	Naphtha Pipe in Brown Street and areal extent of NAPL found at SB19	DP16(16-18)	VOC, SVOC, TAL Metals, Cyanide
DP17	Brown Street Area to investigate areal extent of impact found at SB19	DP17(15-16)	VOC, SVOC, TAL Metals, Cyanide
DP18	Brown Street Area to investigate areal extent of impact found at SB19	DP18(16-19)	VOC, SVOC, TAL Metals, Cyanide
DP19	Purifier T	NA	Field Characterization
DP20	Naphtha UST E	NA	Field Characterization
DP21	Diesel AST K , Naphtha Tank F, and Gas Holder C	NA	Field Characterization
RI Soil Borings Completed by RETEC			
SB14	Boring added during RI to investigate areal extent of NAPL found in MW1D and SB17	SB14(25-26)	VOC, SVOC, TAL Metals, Cyanide
	Sample collected below impacted interval to establish vertical extent of impact	SB14(73-75)	VOC, SVOC, TAL Metals, Cyanide
SB15	Boring added during RI to investigate areal and vertical extent of NAPL found at MW1D - downgradient of Holder A	SB15(74-75)	VOC, SVOC, TAL Metals, Cyanide
SB16	Downgradient of Gas Holder D in location between site and Delaware River	SB16(23-25)	VOC, SVOC, TAL Metals, Cyanide
	Sample collected from off-site area to confirm vertical extent of COI at depth interval similar to impacted zone found on site	SB16(53-55)	VOC, SVOC, TAL Metals, Cyanide
SB17	Boring completed to determine the vertical extent of impacts found during PSA boring MW1D	SB17(72-73)	VOC, SVOC, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	SB17(151-153)	VOC, SVOC, TAL Metals, Cyanide
SB18	Boring completed to determine vertical extent of impact found at MW5 within the footprint of Holder C	SB18(39-40)	VOC, SVOC, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	SB18(68-70)	VOC, SVOC, TAL Metals, Cyanide
SB19	Boring added during RI to investigate vertical extent of NAPL found at DP14 and TP4	SB19(38-40)	VOC, SVOC, TAL Metals, Cyanide
SB20	Upgradient location and Coke Pile	NA	Field Characterization

Table 3-2 (continued)
Subsurface Soil Sample Summary
Port Jervis MGP Site

Sample Designation	Sample Rationale	Sample and Sample Depth Interval	Laboratory Analyses
RI Monitoring Well Soil Boring Completed by RETEC			
MW3D	Boring and well completed within the footprint of Holder D to investigate vertical extent of impacts found at MW3S	MW3D(146-148)	VOC, SVOC, TAL Metals, Cyanide
MW6	Upgradient location and Coke Pile	MW6(16-18)	VOC, SVOC, TAL Metals, Cyanide
MW7	Boring and well added during RI to investigate the areal and vertical extent of impacts found at SB14 and SB17	MW7(25-26)	VOC, SVOC, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	MW7(43-45)	VOC, SVOC, TAL Metals, Cyanide
MW8	Boring and well added during RI to investigate the areal and vertical extent of impacts found at MW7 at off-site location in Pike Street	MW8(41-43)	VOC, SVOC, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	MW8(73-75)	VOC, SVOC, TAL Metals, Cyanide
MW9D	Downgradient of site between site and Delaware River	MW9D(163-165)	VOC, SVOC, TAL Metals, Cyanide
MW10S	Downgradient of site between site and Delaware River to investigate conditions at the water table	MW10(23-25)	VOC, SVOC, TAL Metals, Cyanide
MW10I	Downgradient of site between site and Delaware River to investigate conditions in the intermediate portions of the aquifer	MW10(51-53)	VOC, SVOC, TAL Metals, Cyanide
MW10D	Downgradient of site between site and Delaware River to investigate conditions in the deep portions of the aquifer	MW10(178-180)	VOC, SVOC, TAL Metals, Cyanide
MW11	Boring and well added during RI to investigate the areal and vertical extent of impacts found at MW7 at off-site location in Pike Street	MW11(23-25)	VOC, SVOC, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	MW11(43-45)	VOC, SVOC, TAL Metals, Cyanide
MW12	Relocated during RI fieldwork - boring and well completed adjacent to the north side of Brown Street to investigate the vertical and areal extent of impact found at SB19 and to monitor groundwater quality at off-site location	MW12(15-16)	VOC, SVOC, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	MW12(34-35)	VOC, SVOC, TAL Metals, Cyanide
MW13	Property line boring, advanced in Holder D area	MW13(21-23)	VOC, SVOC, TAL Metals, Cyanide
RI Monitoring Well Soil Boring Completed by Langan			
MW-14	Boring and well completed to investigate area of gasoline UST M	MW-14(12-13)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	MW-14(20-20.8)	BTEX, PAH, TAL Metals, Cyanide
MW-15	Naphtha AST I	MW-15(14-15)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	MW-15(22-22.2)	BTEX, PAH, TAL Metals, Cyanide
MW-16	Cross-gradient of site to delineate areal extent of impact	MW-16(16-17)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	MW-16(20-20.2)	BTEX, PAH, TAL Metals, Cyanide
MW-17S	Downgradient of site to investigate conditions at the water table	MW-17(10-11.5)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	MW-17(22-22.3)	BTEX, PAH, TAL Metals, Cyanide
MW-17I	Downgradient of the site to investigate intermediate portions of the aquifer	NA	NA
MW-19	Cross-gradient of site to delineate horizontal extent of impact	MW-19(10-11.3)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	MW-19(16-17)	BTEX, PAH, TAL Metals, Cyanide
TWP-1	Off-site residential area - Brown Street	TWP-1(14.15.5)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	TWP-1(16-17)	BTEX, PAH, TAL Metals, Cyanide
TWP-2	Off-site residential area - Brown Street	TWP-2(14-15.5)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	TWP-2(18-19)	BTEX, PAH, TAL Metals, Cyanide
RI Monitoring Well Soil Borings Completed by RETEC			
RBB1	Boring completed on riverbank southwest of the site (downgradient) to investigate conditions immediately adjacent to the river.	RBB1(3.2-4.3)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	RBB1(13-14)	BTEX, PAH, TAL Metals, Cyanide
RBB2	Boring completed on riverbank south-southeast of the site (downgradient) to investigate conditions immediately adjacent to the river	RBB2(3.8-4.8)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	RBB2(12-13)	BTEX, PAH, TAL Metals, Cyanide
RBB3	Boring completed on riverbank south of the site (downgradient) to investigate conditions immediately adjacent to the river	RBB3(3-4)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	RBB3(12-14)	BTEX, PAH, TAL Metals, Cyanide
RBB4	Boring completed on riverbank south-southeast of the site (downgradient) to investigate conditions immediately adjacent to the river. Multi-channel well installed to investigate groundwater conditions at shallow, intermediate, and deep portions of the aquifer	RBB4(3.8-4.8)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	RBB4(19-20)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	RBB4(32-34)	BTEX, PAH, TAL Metals, Cyanide
RBB5	Boring completed on riverbank southeast of the site (downgradient) to investigate conditions immediately adjacent to the river	RBB5(3.5-4.5)	BTEX, PAH, TAL Metals, Cyanide
	Sample collected to confirm vertical extent of impact	RBB5(12-13)	BTEX, PAH, TAL Metals, Cyanide

Table 3-3
Groundwater Sample Summary
Port Jervis MGP Site

Sample Designation	Sample Rationale	Depth Interval Monitored	Laboratory Analyses
PSA Groundwater Samples Collected by GEI (May 1998)			
MW1S	Downgradient Holder A / Tar Tank and Separator	Shallow Water Table	VOC, SVOC, PCBs, RCRA Metals and Cyanide
MW1D	Downgradient Holder A / Tar Tank and Separator	Intermediate	VOC, SVOC, PCBs, RCRA Metals and Cyanide
MW2	Property boundary at location between site and Delaware River	Shallow Water Table	VOC, SVOC, PCBs, RCRA Metals and Cyanide
MW3S	Holder D	Shallow Water Table	VOC, SVOC, PCBs, RCRA Metals and Cyanide
MW5	Holder C	Shallow Water Table	VOC, SVOC, PCBs, RCRA Metals and Cyanide
RI Groundwater Samples Collected by RETEC (November 2000)			
MW1S	Downgradient Holder A / Tar Tank and Separator	Shallow Water Table	NAPL Draw Down Testing Only
MW1D	Downgradient Holder A / Tar Tank and Separator	Intermediate	VOC, SVOC, TAL Metals, Cyanide
MW2	Property boundary at location between site and Delaware River	Shallow Water Table	VOC, SVOC, TAL Metals, Cyanide
MW3S	Holder D	Shallow Water Table	VOC, SVOC, TAL Metals, Cyanide
MW3D	Holder D	Deep	VOC, SVOC, TAL Metals, Cyanide
MW5	Holder C	Shallow Water Table	VOC, SVOC, TAL Metals, Cyanide
MW6	Upgradient location	Shallow Water Table	VOC, SVOC, TAL Metals, Cyanide
MW7	Site boundary - plume delineation	Shallow Water Table	VOC, SVOC, TAL Metals, Cyanide
MW8	Off-site downgradient site - plume delineation	Shallow Water Table	VOC, SVOC, TAL Metals, Cyanide
MW9D	Deep aquifer at bedrock between site and Delaware	Deep	VOC, SVOC, TAL Metals, Cyanide
MW10S	Downgradient site - plume delineation	Shallow Water Table	VOC, SVOC, TAL Metals, Cyanide
MW10I	Downgradient site - plume delineation	Intermediate	VOC, SVOC, TAL Metals, Cyanide
MW10D	Downgradient site - plume delineation	Deep	VOC, SVOC, TAL Metals, Cyanide
MW11	Off-site downgradient site - plume delineation	Shallow Water Table	VOC, SVOC, TAL Metals, Cyanide
MW12	Off-site location - Brown Street - plume delineation	Shallow Water Table	VOC, SVOC, TAL Metals, Cyanide
MW13	Holder D	Shallow Water Table	VOC, SVOC, TAL Metals, Cyanide
RI Groundwater Samples Collected by Langan (November 2003)			
MW1S	Downgradient Holder A / Tar Tank and Separator	Shallow Water Table	BTEX, PAHs
MW1D	Downgradient Holder A / Tar Tank and Separator	Intermediate	BTEX, PAHs
MW2	Property boundary at location between site and Delaware River	Shallow Water Table	BTEX, PAHs
MW3S	Holder D	Shallow Water Table	BTEX, PAHs
MW3D	Holder D	Deep	BTEX, PAHs
MW5	Holder C	Shallow Water Table	BTEX, PAHs
MW6	Upgradient location	Shallow Water Table	BTEX, PAHs
MW7	Site boundary - plume delineation	Shallow Water Table	BTEX, PAHs
MW9D	Deep aquifer at bedrock between site and Delaware River	Deep	BTEX, PAHs
MW10S	Downgradient site - plume delineation	Shallow Water Table	BTEX, PAHs
MW10I	Downgradient site - plume delineation	Intermediate	BTEX, PAHs
MW10D	Downgradient site - plume delineation	Deep	BTEX, PAHs
MW11	Off-site downgradient site - plume delineation	Shallow Water Table	BTEX, PAHs
MW12	Off-site location - Brown Street - plume delineation	Shallow Water Table	BTEX, PAHs
MW13	Holder D	Shallow Water Table	BTEX, PAHs
MW14S	Gasoline UST M - Property boundary King Street	Shallow Water Table	BTEX, PAHs
MW15S	Naphtha Tank I - Property boundary Pike Street	Shallow Water Table	BTEX, PAHs
MW16S	Off-site downgradient property	Shallow Water Table	BTEX, PAHs
MW17S	Off-site downgradient property	Shallow Water Table	BTEX, PAHs
MW17I	Off-site downgradient property	Intermediate	BTEX, PAHs
MW18I	Off-site downgradient property	Intermediate	BTEX, PAHs
MW19S	Off-site downgradient property	Shallow Water Table	BTEX, PAHs
RI Groundwater Samples Collected by RETEC (September 2004)			
TW1	Adjacent to Delaware River downgradient of site	Shallow Water Table	VOCs, SVOCs, Cyanide
TW2	Adjacent to Delaware River downgradient of site	Shallow Water Table	VOCs, SVOCs, Cyanide
TW4	Adjacent to Delaware River downgradient of site	Shallow Water Table	VOCs, SVOCs, Cyanide
TW5	Adjacent to Delaware River downgradient of site	Shallow Water Table	VOCs, SVOCs, Cyanide
RI Groundwater Samples Collected by RETEC (September 2004)			
TW1	Adjacent to Delaware River downgradient of site	Shallow Water Table	VOCs, SVOCs, TAL Metals, Cyanide
TW2	Adjacent to Delaware River downgradient of site	Shallow Water Table	VOCs, SVOCs, TAL Metals, Cyanide
TW3	Adjacent to Delaware River downgradient of site	Shallow Water Table	VOCs, SVOCs, TAL Metals, Cyanide
TW3(20)	Adjacent to Delaware River downgradient of site	Intermediate	VOCs, SVOCs, TAL Metals, Cyanide
TW3(30)	Adjacent to Delaware River downgradient of site	Deep	VOCs, SVOCs, TAL Metals, Cyanide
TW4	Adjacent to Delaware River downgradient of site	Shallow Water Table	VOCs, SVOCs, TAL Metals, Cyanide
TW5	Adjacent to Delaware River downgradient of site	Shallow Water Table	VOCs, SVOCs, TAL Metals, Cyanide
MW1S	Downgradient Holder A / Tar Tank and Separator	Shallow Water Table	BTEX, PAHs, Cyanide
MW1D	Downgradient Holder A / Tar Tank and Separator	Intermediate	BTEX, PAHs, Cyanide
MW2	Property boundary at location between site and Delaware River	Shallow Water Table	BTEX, PAHs, Cyanide
MW3S	Holder D	Shallow Water Table	BTEX, PAHs, Cyanide
MW3D	Holder D	Deep	BTEX, PAHs, Cyanide
MW5	Holder C	Shallow Water Table	BTEX, PAHs, Cyanide
MW6	Upgradient location	Shallow Water Table	BTEX, PAHs, Cyanide
MW9D	Deep aquifer at bedrock between site and Delaware River	Deep	BTEX, PAHs, Cyanide
MW10S	Downgradient site - plume delineation	Shallow Water Table	BTEX, PAHs, Cyanide
MW10I	Downgradient site - plume delineation	Intermediate	BTEX, PAHs, Cyanide
MW10D	Downgradient site - plume delineation	Deep	BTEX, PAHs, Cyanide
MW11	Off-site downgradient site - plume delineation	Shallow Water Table	BTEX, PAHs, Cyanide
MW12	Off-site location - Brown Street - plume delineation	Shallow Water Table	BTEX, PAHs, Cyanide
MW13	Holder D	Shallow Water Table	BTEX, PAHs, Cyanide
MW14S	Gasoline UST M - Property boundary King Street	Shallow Water Table	BTEX, PAHs, Cyanide
MW15S	Naphtha Tank I - Property boundary Pike Street	Shallow Water Table	BTEX, PAHs, Cyanide
MW16S	Off-site downgradient property	Shallow Water Table	BTEX, PAHs, Cyanide
MW17S	Off-site downgradient property	Shallow Water Table	BTEX, PAHs, Cyanide
MW17I	Off-site downgradient property	Intermediate	BTEX, PAHs, Cyanide
MW18I	Off-site downgradient property	Intermediate	BTEX, PAHs, Cyanide
MW19S	Off-site downgradient property	Shallow Water Table	BTEX, PAHs, Cyanide

Table 3-4
Monitoring Well Construction and Groundwater Elevation Summary
Port Jervis MGP Site

Well Number	Construction	Total Depth of Well (Feet bgs)	Screened Interval (feet bgs)	Ground Surface Elevation (MSL)	Top of PVC Riser Elevation (MSL)	Depth to Water 11/5/2004 (MSL)	Elevation of Water 11/5/2004 (MSL)
MW1S	Flush-mount	28.00	15-25	436.98	436.63	18.49	418.14
MWID	Flush-mount	48.50	37-47	436.92	436.59	17.90	418.69
MW2	Flush-mount	22.00	13-23	436.34	435.94	17.26	418.68
MW3S	Flush-mount	25.00	13-23	436.97	436.59	17.62	418.97
MW3D	Flush-mount	151.00	140-150	436.91	436.54	17.87	418.67
MW5	Flush-mount	23.00	12-22	435.63	435.47	16.31	419.16
MW6	Flush-mount	24.00	14-24	434.40	434.04	14.65	419.39
MW7	Flush-mount	30.00	15-30	437.08	436.72	18.23	418.49
MW8	Flush-mount	45.00	29-46	441.67	440.87	22.60	418.27
MW9D	Flush-mount	165.00	155-165	435.96	435.74	17.25	418.49
MW10S	Flush-mount	37.50	22-32	439.16	438.43	20.30	418.13
MW10I	Flush-mount	57.00	45-55	438.81	438.34	20.50	417.84
MW10D	Flush-mount	181.00	171-181	438.82	438.40	20.29	418.11
MW11	Flush-mount	30.00	15-30	435.41	435.07	16.84	418.23
MW12	Flush-mount	24.00	14-24	434.61	434.29	15.12	419.17
MW13	Flush-mount	31.00	40-50	436.94	436.39	17.60	418.79
MW14S	Flush-mount	22.00	12-22	433.73	433.38	13.44	419.94
MW15S	Flush-mount	24.10	14-24	436.52	436.24	16.66	419.58
MW16S	Flush-mount	20.20	10-20	435.63	435.27	16.12	419.15
MW17S	Flush-mount	22.40	12-22	438.26	437.86	19.15	418.71
MW17I	Flush-mount	37.00	27-37	438.2	437.78	19.23	418.55
MW18I	Flush-mount	54.00	44-54	439.13	438.42	19.71	418.71
MW19S	Flush-mount	22.00	12-22	435.38	435.01	15.58	419.43
Staff Gauge (Survey Point on Bridge)							
SG1	NA	NA	NA	NA	447.58	29.42	418.16
Temporary Well Points							
TW1	Stick-up	14.00	4-14	421.23	423.85	5.39	418.46
TW2	Stick-up	13.00	3-13	420.23	422.42	4.00	418.42
TW3	Stick-up	6.00	4-6	421.16	422.58	4.26	418.32
TW3(20)	Stick-up	20.0	18-20	421.16	422.58	4.28	418.30
TW3(30)	Stick-up	32.00	30-32	421.16	422.58	4.26	418.32
TW4	Stick-up	13.00	3-13	421.48	422.16	3.81	418.35
TW5	Stick-up	13.00	3-13	420.58	422.75	4.47	418.28

Elevation Data in Mean Sea Level (MSL) - NAVD 88
NA - Not Applicable

Table 3-5
Sediment Sample Summary
Port Jervis MGP Site

Sample Designation	Sample Location / Rationale	Laboratory Analyses Completed
PSA Sample Collected by GEI (May 1998)		
SED-01	Seasonal pool adjacent to Jervis Outfall	VOC, SVOC, PCB, RCRA Metals and Cyanide
RI Samples Collected by RETEC (November 2000)		
SD1	Most impacted sediment location in stream channel between the outfall pool and the Delaware River	VOC, SVOC, TAL Metals and Cyanide
SD2	Sample collected from probe station where slight hydrocarbon-like sheen observed during probing	VOC, SVOC, TAL Metals and Cyanide
SD3	Sample collected from probe station where slight hydrocarbon-like sheen observed during probing	VOC, SVOC, TAL Metals and Cyanide
SD4	Sample collected from probe station where slight sheen observed during probing	VOC, SVOC, TAL Metals and Cyanide
DP12(1-2)	Direct-push boring at most impacted sediment sample location found during the investigation	VOC, SVOC, TAL Metals and Cyanide
Jervis Outfall	Most impacted sediment location in stream channel between the outfall pool and the Delaware River	Hydrocarbon Identification - IR Spectral Technique
RI Samples Collected by RETEC (October 2004)		
BSD1	Background sediment samples collected upstream of site	PAHs, Total Organic Carbon
BSD2	Background sediment samples collected upstream of site	PAHs, Total Organic Carbon
BSD3	Background sediment samples collected upstream of site	PAHs, Total Organic Carbon
BSD4	Background sediment samples collected upstream of site	PAHs, Total Organic Carbon
BSD5	Background sediment samples collected upstream of site	PAHs, Total Organic Carbon
SD5	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD6	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD7	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD8	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD9	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD10	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD11	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD12	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD13	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD14	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD15	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD16	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD17	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD18	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD19	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD20	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD21	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD22	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD23	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD24	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD25	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD26	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD27	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD28	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD29	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD30	Investigate sediment conditions below urban stormwater outfall	PAHs, Total Organic Carbon
SD31	Investigate sediment conditions below urban stormwater outfall	PAHs, Total Organic Carbon
SD32	Investigate sediment conditions below urban stormwater outfall	PAHs, Total Organic Carbon
SD33	Investigate sediment conditions below urban stormwater outfall	PAHs, Total Organic Carbon
SD34	Investigate sediment conditions below urban stormwater outfall	PAHs, Total Organic Carbon
SD35	Investigate sediment conditions below urban stormwater outfall	PAHs, Total Organic Carbon
SD36	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD37	Investigate sediment conditions below Port Jervis outfall	PAHs, Total Organic Carbon
SD38	Investigate sediment conditions adjacent to groundwater plume	PAHs, Total Organic Carbon
SD39	Investigate sediment conditions at "Area B"	PAHs, Total Organic Carbon
SD40	Investigate sediment conditions at "Area B"	PAHs, Total Organic Carbon
SD41	Investigate sediment conditions at "Area B"	PAHs, Total Organic Carbon

Table 3-6
Sediment Location Summary
Delaware River Bank Area
Port Jervis MGP Site
Port Jervis, New York

Sediment Sample Designation	Northing	Easting		Sediment Sample Designation	Northing	Easting
BSD1	154286.028	407589.649		SD21	154065.873	407898.201
BSD2	154279.934	407607.390		SD22	154059.036	407894.562
BSD3	154266.654	407621.906		SD23	154062.368	407906.562
BSD4	154251.681	407644.966		SD24	154057.443	407902.698
BSD5	154236.538	407666.511		SD25	154058.887	407991.086
SD5	154131.162	407811.319		SD26	154052.197	407906.306
SD6	154121.927	407826.595		SD27	154057.807	407918.038
SD7	154119.764	407836.347		SD28	154051.902	407915.123
SD8	154106.518	407825.014		SD29	154054.850	407930.582
SD9	Note 1			SD30	153902.689	408172.185
SD10	154090.413	407871.305		SD31	153903.957	408167.537
SD11	154088.827	407858.840		SD32	153907.964	408168.763
SD12	154082.588	407864.887		SD33	153909.647	408166.164
SD13	154086.699	407876.467		SD34	153912.239	408168.683
SD14	154082.171	407873.355		SD35	153914.782	408170.140
SD15	154079.825	407879.088		SD36	154142.720	407824.070
SD16	154074.131	407877.373		SD37	154138.301	407822.022
SD17	154074.999	407884.962		SD38	154036.783	407940.968
SD18	154065.705	407881.683		SD39	153976.987	408076.135
SD19	154068.905	407891.255		SD40	153973.828	408078.178
SD20	154064.097	407889.508		SD41	153974.184	408084.054

Note 1 - GPS location not obtained - under bridge structure
Horizontal measurements - referenced to NAD83, New York State Planes, East Zone, US Foot Coordinates

Table 4-1
NAPL Gauging and Bail-Down Testing Results
Port Jervis MGP Site
June 2004 to May 2005

Well	MW1S		MW7		MW8		MW15S	
NAPL Type	LNAPL		DNAPL		DNAPL		LNAPL	
	Thickness	Volume Removed	Thickness	Volume Removed	Thickness	Volume Removed	Thickness	Volume Removed
(Units)	(Feet)	(Gallons)	(Feet)	(Gallons)	(Feet)	(Gallons)	(Feet)	(Gallons)
Date								
6/21/2004	1.43	0.23	ND	NA	5.48	0.89	ND	NA
7/15/2004	1.50	0.24	ND	NA	5.06	0.82	ND	NA
11/5/2004	1.84	0.30	0.50	0.08	5.62	0.92	ND	NA
11/18/2005	0.30	0.05	0.50	0.08	3.10	0.51	ND	NA
1/17/2005	0.26	0.04	0.60	0.10	3.50	0.57	ND	NA
2/24/2005	0.13	0.02	0.60	0.10	3.98	0.65	ND	NA
4/4/2005	0.10	0.02	0.50	0.08	3.16	0.52	ND	NA
5/19/2005	0.22	0.04	0.30	0.05	4.33	0.71	Trace	NA
6/17/2005	0.12	0.02	Trace	0.01	1.10	0.50	Trace	NA
Total Volume Collected		**0.96**		**0.50**		**6.08**		**NA**

ND- Not detected
NA - Not applicable
Trace - thickness not measurable with oil-water interface probe

Table 5-1
Data Qualifier Summary

Organic Data Qualifier Flags	
U or ND	Indicated compound was analyzed for but not detected at, or above, the reporting limit.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The result is an estimated quantity, biased low.
J+	The result is an estimated quantity, biased high.
B	This flag is used when the analyte reported was found in the associated blank as well as in the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
E	This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and reanalyzed.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor. If a sample or extract is reanalyzed at a higher dilution factor, as in the "E" flag above, the "DL" suffix is appended to the sample number.
N	Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs), where the identification is based on the Mass Spectral library search. It is applied to all TIC results.
X	Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described in the project narrative(s).
Inorganic Data Qualifier Flags	
U or ND	The compound was analyzed for but not detected at, or above, the reporting limit.
J or B	The reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
E	The reported value was estimated because of the presence of an interference. An explanatory note must be included in the project narrative.
M	Duplicate injection precision was not met.
H	Indicates analytical holding time exceedance. The value obtained should be considered an estimate.
N	Spike sample recovery was not within control limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
W	Post-digestion spike for Furnace AA analysis was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
*	Duplicate analysis was not within control limits.
+	Correlation coefficient for the MSA was less than 0.995.

Table 5-1

Data Qualifier Summary

Table 5-2
Surface Soil Results
Port Jervis MGP Site

Chemical	Sample Name Depth Date Sample Type Area CAS No.	NYSDEC Recommended Cleanup Objectives for Soil (Note 1)	SS1 0-2 11/06/00 Investigation Off-site	SS2 0-2 11/06/00 Investigation On-site	SS20 0-2 11/06/00 Duplicate On-site	SS3 0-2 11/06/00 Investigation On-site	SS4 0-2 11/06/00 Investigation On-site	SS5 0-2 11/06/00 Investigation Background	SS6 0-2 11/06/00 Investigation Background	SS7 0-2 11/06/00 Investigation Background	SS8 0-2 11/06/00 Investigation On-site	SS9 0-2 11/06/00 Investigation On-site	SS10 0-2 11/06/00 Investigation On-site
BTEX (mg/Kg)													
Benzene	71-43-2	0.06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	108-88-3	1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	100-41-4	5.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	1330-20-7	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total BTEX			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other VOCs (mg/Kg)													
1,1,2-Trichloroethane	79-00-5	NL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	78-93-3	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	67-64-1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	67-66-3	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	75-09-2	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	79-01-6	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Other VOCs		NL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (mg/Kg)													
Naphthalene	91-20-3	13	3.5 J	< 0.71	< 1.4	0.077 J	0.14 J	< 0.69	< 0.34	< 0.36	0.34 J	< 1.7	< 1.4
Acenaphthylene	208-96-8	41	1.2 J	0.39 J	0.47 J	0.4 J	0.12 J	0.12 J	0.05 J	0.1 J	1.8 J	0.2 J	0.15 J
Acenaphthene	83-32-9	50	11	< 0.71	< 1.4	< 0.7	0.73	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
Fluorene	86-73-7	50	10	< 0.71	< 1.4	< 0.7	0.57 J	< 0.69	< 0.34	< 0.36	0.42 J	< 1.7	< 1.4
Phenanthrene	85-01-8	50	72 /S	0.75	1.5	1.2	5.7	0.58 J	0.28 J	0.36	7	0.58 J	1.8
Anthracene	120-12-7	50	16	0.18 J	0.32 J	0.2 J	0.89	0.09 J	0.039 J	0.32 J	1.3 J	< 1.7	0.2 J
Fluoranthene	206-44-0	50	89 /S	2.2	3.5	2.7	8.8	1.3	0.56	0.87	11	1.4 J	4.1
Pyrene	129-00-0	50	61 /S	2.2	2.6	2.1	6.7	1	0.44	0.56	12	1.5 J	2.2
Benzo(a)anthracene	56-55-3	0.224	38 /S	1.4 /S	1.8 /S	1.2 /S	3.6 /S	0.61 J/S	0.23 J/S	0.51 /S	8.1 /S	0.7 J/S	0.56 J/S
Chrysene	218-01-9	0.4	41 /S	1.7 /S	2.2 /S	1.7 /S	4.2 /S	0.83 /S	0.35	0.88 /S	9.1 /S	0.93 J/S	1.5 /S
Benzo(b)fluoranthene	205-99-2	1.1	33 /S	2.1 /S	2.4 /S	1.7 /S	4.8 /S	0.86	0.3 J	0.61	9.6 /S	0.78 J	1.2 J/S
Benzo(k)fluoranthene	207-08-9	1.1	14 /S	1.2 /S	1.6 /S	1.1	1.8 /S	0.61 J	0.23 J	0.43	5.2 /S	0.74 J	0.98 J
Benzo(a)pyrene	50-32-8	0.061	27 /S	1.4 /S	1.6 /S	1.4 /S	3.1 /S	0.68 J/S	0.24 J/S	0.46 /S	7.4 /S	0.79 J/S	0.58 J/S
Indeno(1,2,3-cd)pyrene	193-39-5	3.2	16 /S	1.7	1.7	1	2	0.48 J	0.18 J	0.27 J	4.1 /S	0.41 J	0.43 J
Dibenz(a,h)anthracene	53-70-3	0.014	5.5 /S	0.46 J/S	0.52 J/S	0.3 J/S	0.68 /S	0.1 J/S	0.041 J/S	0.072 J/S	1.5 J/S	< 1.7	< 1.4
Benzo(ghi)perylene	191-24-2	50	8	1.2	0.69 J	0.6 J	0.89	0.3 J	0.091 J	0.14 J	2.2 J	0.38 J	0.26 J
Total CPAHs		NL	174.5	9.96	11.82	8.4	20.18	4.17	1.571	3.232	45	4.35	5.25
Total PAHs		NL	446.20	16.88	20.9	15.68	44.72	7.56	3.03	5.58	81.06	8.41	13.96
Benzo(a)pyrene Equivalent		NL	41.38	2.39	2.73	2.10	4.84	0.99	0.35	0.67	10.77	0.99	0.70
Other SVOCs (mg/Kg)													
2,4-Dimethylphenol	105-67-9	NL	< 4.1	< 0.71	< 1.4	< 0.7	< 0.68	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
2-Chloronaphthalene	91-58-7	NL	< 4.1	< 0.71	< 1.4	< 0.7	< 0.68	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
2-Methylnaphthalene	91-57-6	36.4	1.8 J	0.15 J	0.16 J	< 0.7	0.07 J	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
3,3'-Dichlorobenzidine	91-94-1	NL	< 4.1	< 0.71	< 1.4	< 0.7	< 0.68	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
4-Chloroaniline	106-47-8	0.22	< 4.1	< 0.71	< 1.4	< 0.7	< 0.68	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
4-Methylphenol	106-44-5	0.9	< 4.1	< 0.71	< 1.4	< 0.7	< 0.68	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
bis(2-Ethylhexyl) phthalate	117-81-7	50	1.6 J	0.2 J	0.17 J	< 0.7	0.15 J	0.32 J	0.049 J	0.072 J	< 3.1	0.23 J	< 1.4
Butyl benzyl phthalate	85-68-7	50	< 4.1	< 0.71	< 1.4	< 0.7	< 0.68	0.11 J	< 0.34	0.1 J	< 3.1	< 1.7	< 1.4
Carbazole	86-74-8	NL	11	0.076 J	0.15 J	0.097 J	0.98	< 0.69	< 0.34	< 0.36	0.43 J	< 1.7	0.23 J
Di-n-butyl phthalate	84-74-2	8.1	< 4.1	< 0.71	< 1.4	< 0.7	< 0.68	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
Di-n-octyl phthalate	117-84-0	50	< 4.1	< 0.71	< 1.4	< 0.7	< 0.68	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
Dibenzofuran	132-64-9	6.2	5.9	< 0.71	< 1.4	< 0.7	0.32 J	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
Pentachlorophenol	87-86-5	1	< 10	< 1.8	< 3.5	< 1.8	< 1.7	< 1.7	< 0.86	< 0.89	< 7.7	< 4.4	0.36 J
Phenol	108-95-2	0.03	< 4.1	< 0.71	< 1.4	< 0.7	< 0.68	< 0.69	< 0.34	< 0.36	< 3.1	< 1.7	< 1.4
Total Other SVOCs		NL	20.3	0.426	0.48	0.097	1.52	0.43	0.049	0.172	0.43	0.23	0.59
Metals (mg/Kg)													
Aluminum	7429-90-5	5360	6090 /S	5920 /S	6510 /S	5060	5180	4640	5010	5360	7300 /S	7840 /S	9850 /S
Antimony	7440-36-0	2.2	< 14.9	< 12.8	< 12.7	< 12.7	< 12.4	< 12.5	< 12.5	< 12.9	< 14	< 12.7	< 12.5
Arsenic	7440-38-2	7.5	8.8 J/S	7.1 J	6.8 J	5.2 J	8.3 J/S	4.6 J	3.4 J	7.4 J	7.7 J/S	4.8 J	5.6 J
Barium	7440-39-3	300	206 J	65.6 J	68.9 J	123 J	54.3 J	61 J	37.4 J	85.7 J	58.2 J	40.7 J	47.6 J
Beryllium	7440-41-7	0.32	0.53 /S	< 1.1	0.33 /S	< 0.31	< 0.29	< 1	< 0.18	< 0.32	< 0.33	0.38 /S	0.46 /S
Cadmium	7440-43-9	1	1.4 /S	< 1.1	< 1.1	< 1.1	< 1	0.84	< 1	< 1.1	2.7 /S	0.78	< 1
Calcium	7440-70-2	3270	7930 J/S	2720 J	2660 J	2210 J	2500	3270	603 J	1860 J	3550 J/S	34000 J/S	8200 J/S
Chromium	7440-47-3	10	36.3 J/S	41.6 J/S	41.2 J/S	8.4 J	33.5 J/S	9.2 J	7.3 J	9.5 J	19.8 J/S	12.6 J/S	26.4 J/S
Cobalt	7440-48-4	30	8.8	6.3	7.1	5.7	6.1	5.5	5.1	7.7	8.1	7	12.1
Copper	7440-50-8	488	48.1	19.6	20.7	18.5	16.8	26.7	8.1	488	36.1	25	30.1
Iron	7439-89-6	19600	23400 /S	13100	14300	11400	11700	12000	10400	19600	21800 /S	16200	26700 /S
Lead	7439-92-1	201	2020 /S	133	144	308 /S	80.7	201	36.9	173	166	70.3	126
Magnesium	7439-95-4	2190	4540 J/S	2220 J/S	2370 J/S	1610 J	2230 J/S	1870 J	1750 J	2190 J	3640 J/S	14500 J/S	7730 J/S
Manganese	7439-96-5	761	460 J	434 J	464 J	442 J	447 J	329 J	304 J	761 J	397 J	417 J	718 J
Mercury	7439-97-6	0.2	0.8 J/S	< 0.11	< 0.14	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.012	< 0.11	< 0.1
Nickel	7440-02-0	21.7	14.6	11.8	12.3	8.9	11.5	10.2	8.8	21.7	16.7	18.9	23.1 /S
Potassium	7440-09-7	827	736	659	743	555	753	519	827	689	687	732	846 /S
Selenium	7782-49-2	2	0.87	0.85	0.67	< 1.1	0.65	0.76	< 1	0.87	< 1.2	< 1.1	< 1
Silver	7440-22-4	2.2	< 2.5	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.2	< 2.3	< 2.1	0.8
Sodium	7440-23-5	61.2	121 /S	61.7 /S	67.7 /S	55.9	53.1	44.4	< 38	61.2	80.6 /S	85 /S	51.4
Thallium	7440-28-0	2.2	< 2.5	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.2	< 2.3	< 2.1	< 2.1
Vanadium	7440-62-2	150	17.8	9.2	10.4	8.9	8.2	10.3	6	9.1	13.9	19.4	17.9
Zinc	7440-66-6	207	807 /S	87	98.7	168	70.8	207	42.6	165	567 /S	276 /S	298 /S
PCBs (mg/Kg)													
Aroclor 1252	11097-69-1	NL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	11096-82-5	NL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs		1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Parameters (mg/Kg)													
Percent Solids	NA	NL	80.8	93.5	94.4	94.3	96.5	96.2	96	92.8	86	94.5	96
Total Cyanide	57-12-5	NL	< 0.62	< 0.53	< 0.53	< 0.53	< 0.52	< 0.52	< 0.52	< 0.54	0.72	< 0.53	< 0.52

Notes:
NA = Not Analyzed
NL = Not Listed
< = The material was analyzed for, but not detected at or above the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
/S = Compound detected above regulatory guidance value.
(Note 1) = NYSDEC TAGM HWR-94-4046 - Determination of Soil Cleanup Objectives and Cleanup Levels (NYSDEC, Jan. 1994).

Table 5-3
Surface Soil TIC Compound Summary
Port Jervis MGP Site
Port Jervis, NY

Compound ug/Kg	CAS Number	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	SS10
2-Pentanone, 4-hydroxy-4-methyl-	123-42-2	13,500	3200	4200	4300	3700	4700	3100	ND	ND	3800
Anthracene, 2-methyl-	613-12-7	5800	ND	ND	ND	ND	ND	ND	ND	ND	ND
9,10-Anthracenedione	84-65-1	13600	430	560	2240	ND	ND	ND	ND	ND	1000
Benz[c]acridine	225-51-4	4500	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Hexadecanoic acid	57-10-3	ND	420	ND	ND	510	240	530	ND	ND	ND
Stigmast-4-en-3-one	1058-61-3	ND	ND	1700	3400	ND	500	610	ND	ND	ND
Phenol, 4,4"-(1-methylethylidine) bis-	80-05-7	ND	ND	ND	ND	190	ND	ND	ND	410	ND
.gamma.-Sitosterol	83-47-6	ND	ND	ND	ND	690	520	670	ND	ND	ND
2-Phenanthrenol, 4b,5,6,7,8,	511-15-9	ND	ND	ND	ND	ND	240	ND	1900	ND	ND
Triphenylene, 2-methyl-	1705-84-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,8-Naphthalic anhydride	81-84-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	390
Unknown Compounds		403,100	11,870	14,860	48,950	7,040	9,130	8,930	78,800	7,890	7,690

ND = The material was analyzed for but not detected at, or above, the reporting limit.

Table 5-4
Subsurface Soil Sample Results - 1998-2000
Port Jervis MGP Site

Chemical	Sample Name Sample Location Depth Date Sample Type Area CAS No.	NYSDEC Recommended Cleanup Objectives for Soil (Note 1)	TP4(8) TP4 8 4/22/1998 Investigation Onsite	TP10(10) TP10 10 4/22/1998 Investigation Onsite	HA1(5.1) HA1 5.1 4/22/1998 Investigation Onsite	SB4(8.3) SB4 8.3 4/22/1998 Investigation Onsite	SB14 (25-26) SB14 25-26 10/19/00 Investigation Onsite	SB14 (73-75) SB14 73-75 10/19/00 Investigation Onsite	SB15 (74-75) SB15 74-75 10/20/00 Investigation Onsite	SB16 (23-25) SB16 23-25 10/20/00 Investigation Offsite	SB16 (53-55) SB16 53-55 10/20/00 Investigation Offsite	SB17 (72-73) SB17 72-73 10/25/00 Investigation Onsite	SB17 (151-153) SB17 151-153 10/25/00 Investigation Onsite	SB18 (39-40) SB18 39-40 10/25/0 Investigation Onsite	SB18 (68-70) SB18 68-70 10/25/00 Investigation Onsite	SB19 (38-40) SB19 38-40 11/02/00 Investigation Onsite	MW1S(18.7) MW1S 18.7 4/22/1998 Investigation Onsite	MW1D(41.05) MW1D 41.05 4/24/1998 Investigation Onsite
BTEX (mg/Kg)																		
Benzene	71-43-2	0.06	< 0.012	0.023 J	< 0.005	**1200 /S**	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012	< 0.012	< 0.012	< 0.013	< 7	< 7.9
Toluene	108-88-3	1.5	< 0.012	< 0.029	< 0.005	**1700 /S**	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012	< 0.012	< 0.012	< 0.013	< 7	**5 J/S**
Ethylbenzene	100-41-4	5.5	0.006 J	0.32	< 0.005	**1400 /S**	0.037	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012	< 0.012	< 0.012	< 0.013	**13 /S**	**150 /S**
Xylenes (total)	1330-20-7	1.2	< 0.012	0.26	< 0.005	**1900 /S**	0.02	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012	< 0.012	< 0.012	< 0.013	**14 /S**	**160 /S**
Total BTEX		**NL**	0.006	0.603	ND	6200	0.057	ND	ND	ND	ND	ND	ND	ND	ND	ND	27	315
Other VOCs (mg/Kg)																		
1,1,2-Trichloroethane	79-00-5	NL	< 0.005	< 0.005	< 0.005	< 0.62	0.0014 J	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012	< 0.012	< 0.012	< 0.013	< 0.62	< 0.62
2-Butanone	78-93-3	0.3	0.001 J	< 0.059	< 0.12	< 210	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012	< 0.012	< 0.012	< 0.013	**14 /S**	< 15
Acetone	67-64-1	0.2	< 0.01	< 0.01	< 0.01	< 1.2	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012	< 0.012	< 0.012	< 0.013	< 1.2	< 1.2
Chloroform	67-66-3	0.3	< 0.005	< 0.005	< 0.005	< 0.62	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012	< 0.012	< 0.012	< 0.013	< 0.62	< 0.62
Methylene chloride	75-09-2	0.1	< 0.005	< 0.005	< 0.005	< 0.62	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012	< 0.012	< 0.012	< 0.013	< 0.62	< 0.62
Trichloroethene	79-01-6	0.7	< 0.005	< 0.005	< 0.005	< 0.62	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012	< 0.012	< 0.012	< 0.013	< 0.62	< 0.62
Total Other VOCs		**NL**	0.001	ND	ND	ND	0.0014	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	ND
PAHs (mg/Kg)																		
Naphthalene	91-20-3	13	0.98 J	1.1 J	0.044 JB	**9000 B/S**	13	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	**240 /S**	**1400 B/S**
Acenaphthylene	208-96-8	41	1.4 J	< 1.6	< 0.39	**1200 J/S**	0.72	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	5.8 J	**56 J/S**
Acenaphthene	83-32-9	50	1.8 J	< 1.6	< 0.39	**1400 J/S**	8.1	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	**62 J/S**	**320 /S**
Fluorene	86-73-7	50	1.9 J	0.058 J	< 0.39	**310 J/S**	3	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 71	**93 J/S**
Phenanthrene	85-01-8	50	10	2.7	< 0.39	**3000 /S**	14	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	**80 /S**	**480 /S**
Anthracene	120-12-7	50	3.5 J	0.43 J	< 0.39	**1000 J/S**	1.7	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	27 J	**160 J/S**
Fluoranthene	206-44-0	50	1.2 J	< 1.6	< 0.39	< 1700	4.9	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	**93 J/S**
Pyrene	129-00-0	50	5.6	0.58 J	0.017 J	**1400 J/S**	7.6	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	36 J	**280 /S**
Benzo(a)anthracene	56-55-3	0.224	**2.2 J/S**	**0.29 J/S**	0.012 J	**500 J/S**	**1.7 /S**	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	**12 J/S**	**81 J/S**
Chrysene	218-01-9	0.4	**2.4 J/S**	**0.49 J/S**	0.012 J	**500 J/S**	**1.9 /S**	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	**12 J/S**	**96 J/S**
Benzo(b)fluoranthene	205-99-2	1.1	0.78 J	0.092 J	0.01 J	**140 J/S**	0.94	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	**4.5 J/S**	**35 J/S**
Benzo(k)fluoranthene	207-08-9	1.1	< 3.9	< 1.6	< 0.39	< 1700	0.89	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 71	< 180
Benzo(a)pyrene	50-32-8	0.061	**2 J/S**	**0.18 J/S**	0.011 J	**370 J/S**	**1.1 /S**	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	**9.2 J/S**	**84 J/S**
Indeno(1,2,3-cd)pyrene	193-39-5	3.2	0.87 J	0.099 J	< 0.39	**110 J/S**	0.58	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	3.1 J	**28 J/S**
Dibenz(a,h)anthracene	53-70-3	0.014	**0.29 J/S**	**0.047 J/S**	< 0.39	< 1700	**0.16 J/S**	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 71	**8.5 J/S**
Benzo(ghi)perylene	191-24-2	50	1.1 J	0.14 J	< 0.39	**130 J/S**	0.38	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	3.6 J	34 J
Total CPAHs		**NL**	8.54	1.198	0.045	1620	7.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	40.8	332.5
Total PAHs		**500**	36.02	6.21	0.106	19060	60.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	495.2	3248.5
Other SVOCs (mg/Kg)																		
2,4-Dimethylphenol	105-67-9	NL	< 0.33	< 0.33	< 0.33	< 0.33	< 0.38	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
2-Chloronaphthalene	91-58-7	NL	< 0.33	< 0.33	< 0.33	< 0.33	< 0.38	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
2-Methylnaphthalene	91-57-6	36.4	< 3.9	< 1.6	< 0.39	**6400 /S**	12	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	**130 /S**	**730 /S**
3,3'-Dichlorobenzidine	91-94-1	NL	< 0.66	< 0.66	< 0.66	< 0.66	< 0.38	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.66	< 0.66
4-Chloroaniline	106-47-8	0.22	< 0.33	< 0.33	< 0.33	< 0.33	0.12 J	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
4-Methylphenol	106-44-5	0.9	< 0.33	< 0.33	< 0.33	< 0.33	< 0.38	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
bis(2-Ethylhexyl) phthalate	117-81-7	50	< 0.33	< 0.33	< 0.33	< 0.33	< 0.38	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.039	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
Butyl benzyl phthalate	85-68-7	50	< 0.33	< 0.33	< 0.33	< 0.33	< 0.38	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
Carbazole	86-74-8	NL	< 0.33	< 0.33	< 0.33	< 0.33	0.046 J	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
Di-n-butyl phthalate	84-74-2	8.1	< 0.33	< 0.33	< 0.33	< 0.33	< 0.38	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
Di-n-octyl phthalate	117-84-0	50	< 0.33	< 0.33	< 0.33	< 0.33	< 0.38	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
Dibenzofuran	132-64-9	6.2	< 0.33	< 0.33	< 0.33	< 0.33	0.33 J	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
Pentachlorophenol	87-86-5	1	< 1.6	< 1.6	< 1.6	< 1.6	< 0.95	< 0.95	< 0.95	< 0.92	< 0.92	< 0.93	< 0.98	< 0.97	< 0.96	< 1	< 1.6	< 1.6
Phenol	108-95-2	0.03	< 0.33	< 0.33	< 0.33	< 0.33	< 0.38	< 0.38	< 0.38	< 0.36	< 0.37	< 0.37	< 0.39	< 0.38	< 0.38	< 0.42	< 0.33	< 0.33
Total Other SVOCs		**NL**	ND	ND	ND	6400	12.496	ND	ND	ND	ND	ND	ND	ND	ND	ND	130	730
Metals (mg/Kg)																		
Aluminum	7429-90-5	5360	**8030 /S**	**8300 /S**	**7250 /S**	4050	**6460 /S**	4230	4650	**6840 /S**	**6090 /S**	3960	3830	3510	4360	4240	**7640 /S**	3970
Antimony	7440-36-0	2.2	< 0.97	< 0.94	< 0.94	< 1.2	< 13.8 J	< 13.8 J	< 13.7 J	< 13.3 J	< 13.3 J	< 13.5 J	< 14.2 J	< 14 J	< 13.9 J	< 15.2	< 0.9	< 0.88
Arsenic	7440-38-2	7.5	3.2	3.2	4.6	**12.3 /S**	2.8	4.2	4.8	3.5	5.7	3.9	3.9	3.5	4.6	7.4	3.5	3.1
Barium	7440-39-3	300	62.4	52.3	70.4	37.1 B	41.6 J	30.8 J	32.2 J	35.5	34.8	26.8	34.4	35.9	33.5	31.1	66.3	26.7 B
Beryllium	7440-41-7	0.32	**0.36 B/S**	**0.36 B/S**	0.28 B	**0.58 B/S**	0.26 J	0.18 J	0.2 J	**0.37 /S**	< 0.26	< 0.19	< 0.16	< 0.17	< 0.19	0.14	< 0.22	< 0.22
Cadmium	7440-43-9	1	< 0.24	< 0.24	< 0.24	< 0.29	< 1.2	< 1.2	< 1.1	0.86	< 1.1	< 1.1	< 1.2	< 1.2	< 1.2	< 1.3	< 0.22	< 0.22 J
Calcium	7440-70-2	3270	955 B	476 B	746 B	**9060 /S**	560 J	394 J	452 J	518	499	398	432	350	413	< 432	494 B	312 B
Chromium	7440-47-3	10	7.1	7.3	7.6	6	8.6	4.3	5.8	9	8.2	5.8	4.6	4	6.8	3.6	**12.3 /S**	4.8
Cobalt	7440-48-4	30	6.8 B	7 B	6.7 B	3.7 B	6.8 J	5.3 J	5.4 J	9	6.9	5.4	5.2	4.8	5	5.6	6.9 B	4.3 B
Copper	7440-50-8	488	11.7	9.4	10.1	47.6	9.5	5.6 J	7.2	9.2	13.8	7.4	6.6	6	7.1	8.2 J	6.3	8.5
Iron	7439-89-6	19600	14200	14500	14500	18400	15300	9950	11100	16500	14900	9330	9010	8270	10500	10400	19300	9780
Lead	7439-92-1	201	15.9	11.5	9	117	5.8	5.3	5.3	4.7	5	5	4.8	5	5.5	9.9 J	5.4	7.6
Magnesium	7439-95-4	2190	**2320 /S**	**2620 /S**	2190	811 B	**2550 /S**	1700	1840	**2500 /S**	**2510 /S**	1590	1550	1410	1770	1700	**2840 /S**	1650
Manganese	7439-96-5	761	218	191	467	59.1	220 J	382 J	345 J	371	268	310	573	411	410	315 J	260	206
Mercury	7439-97-6	0.2	< 0.12 N	< 0.1 N	< 0.11	< 0.095 N	< 0.12	< 0.12	< 0.11	< 0.11	< 0.11	< 0.11	< 0.12	< 0.12	< 0.12	< 0.13	< 0.11 N	< 0.11 N
Nickel	7440-02-0	21.7	13.9	14.6	11.9	14.5	12.6	10.4	9.5	17.6	14	10.7	< 10.3	< 9.5	< 10.1	9.7	16.1	9.9
Potassium	7440-09-7	827	777 BE	**926 BE/S**	677 BE	192 BE	385 J	< 500	603 J	452	403	614	487	379	535	431	488 BE	403 BE
Selenium	7782-49-2	2	1.8	1.3	0.97 B	**2.4 J/S**	< 1.2	< 1.2 J	< 1.1 J	< 1.1	< 1.1	< 1.1	< 1.2	< 1.2	< 1.2	< 1.3	1.3 J	0.79 J
Silver	7440-22-4	2.2	< 0.24	< 0.24	< 0.24	< 0.29	< 2.3	< 2.3	< 2.3	< 2.2	< 2.2	< 2.2	< 2.4	< 2.3	< 2.3	< 2.5	< 0.22	< 0.22
Sodium	7440-23-5	61.2	**153 B/S**	**153 B/S**	24.1 B	**254 B/S**	54.1 J	43.6 J	45.7 J	53.1	50.9	43.2	48.7	43.3	45.3	56.3	**75.4 B/S**	31.4 B
Thallium	7440-28-0	2.2	< 0.73 J	< 0.7 J	0.99 J	1.7 J	< 2.3	< 2.3	< 2.3	< 2.2	< 2.2	< 2.2	< 2.4	< 2.3	< 2.3	< 2.5	< 0.68 J	< 0.66 J
Vanadium	7440-62-2	150	8.2 B	8 B	7.3 B	9.3 B	6.4 J	4.4 J	5.5 J	6.2	6.4	4.2	3.5	2.8	4.1	4.5	8.8 B	4.4 B
Zinc	7440-66-6	207	59.8	52.6	67.9	123	34.7	25.6	27.9	41.8	36.5	23.9	24.7	25.4	27.1	26.8 J	38.7	28.8
PCBs (mg/Kg)																		
Aroclor 1252	11097-69-1	NL	< 0.035	< 0.035	< 0.035	< 0.035	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.035	< 0.035
Aroclor 1260	11096-82-5	NL	0.013 J	< 0.035	< 0.035	< 0.035	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.035	< 0.035
Total PCBs		10	0.013	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Other Parameters (mg/Kg)																		
Percent Solids	NA	NL	NA	NA	NA	NA	87.1	87.1	87.7	90.6	90.1	89.1	84.3	86	86.5	79.2	NA	NA
Total Cyanide	57-12-5	NL	< 0.68	< 0.58	< 0.59	< 0.75	< 0.57	< 0.57	< 0.57	< 0.55	< 0.56	< 0.56	< 0.59	< 0.58	< 0.58	< 0.63	< 0.57	< 0.56

Notes:
NA = Not Analyzed
NL = Not Listed
< = The material was analyzed for but not detected at or above the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
/S = compound detected above regulatory guidance value.
(Note 1) = NYSDEC TAGM HWR-94-4046 - Determination of Soil Cleanup Objectives and Cleanup Levels [NYSDEC, Jan. 1994].

Table 5-4
Subsurface Soil Sample Results - 1998-2000
Port Jervis MGP Site

Sample Name		NYSDEC Recommended Cleanup Objectives for Soil (Note 1)	MW2(15.6)	MW3(15.95)	MW3(17.5)	MW3D (146-148)	MW5(15.35)	MW6 (16-18)	MW7 (25-26)
Sample Location			MW2	MW3	MW3	MW3D	MW5	MW6	MW7
Depth			15.56	15.95	17.5	146-148	15.35	16-18	25-26
Date			4/22/1998	4/22/1998	4/22/1998	10/18/00	4/24/1998	10/20/00	11/02/00
Sample Type			Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation
Area			Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite
Chemical	**CAS No.**								
BTEX (mg/Kg)									
Benzene	71-43-2	0.06	< 0.006	< 0.76	< 1.4	< 0.011	< 7.6	< 0.012	< 1.3
Toluene	108-88-3	1.5	< 0.006	< 0.76	< 1.4	< 0.011	< 7.6	< 0.012	< 1.3
Ethylbenzene	100-41-4	5.5	< 0.006	2	13 /S	< 0.011	28 /S	< 0.012	6.2 /S
Xylenes (total)	1330-20-7	1.2	< 0.006	2.2 /S	15 /S	< 0.011	32 /S	< 0.012	7.7 /S
Total BTEX		**NL**	ND	4.2	28	ND	60	ND	13.9
Other VOCs (mg/Kg)									
1,1,2-Trichloroethane	79-00-5	NL	< 0.005	< 0.62	< 0.62	< 0.011	< 0.62	< 0.012	< 1.3
2-Butanone	78-93-3	0.3	< 0.012	< 1.5	< 2.8	< 0.011	< 15	< 0.012	< 1.3
Acetone	67-64-1	0.2	< 0.01	< 1.2	< 1.2	< 0.011	< 1.2	< 0.012	< 4.7
Chloroform	67-66-3	0.3	< 0.005	< 0.62	< 0.62	< 0.011	< 0.62	< 0.012	< 1.3
Methylene chloride	75-09-2	0.1	< 0.005	< 0.62	< 0.62	< 0.011	< 0.62	< 0.012	< 1.3
Trichloroethene	79-01-6	0.7	< 0.005	< 0.62	< 0.62	< 0.011	< 0.62	< 0.012	< 1.3
Total Other VOCs		**NL**	ND	ND	ND	ND	ND	ND	ND
PAHs (mg/Kg)									
Naphthalene	91-20-3	13	< 1.6	440 B/S	250 B/S	< 0.36	160 B/S	< 0.4	50 /S
Acenaphthylene	208-96-8	41	1.4 J	14 J	9.8 J	< 0.36	4.4 J	< 0.4	3.2 J
Acenaphthene	83-32-9	50	0.048 J	130 /S	80 /S	< 0.36	39	< 0.4	17
Fluorene	86-73-7	50	< 1.6	21 J	23 J	< 0.36	< 39	< 0.4	15
Phenanthrene	85-01-8	50	0.049 J	160 /S	100 /S	< 0.36	51 /S	0.17 J	56 /S
Anthracene	120-12-7	50	0.31 J	56 J/S	37	< 0.36	17 J	< 0.4	9.3
Fluoranthene	206-44-0	50	< 1.6	< 80	< 5	< 0.36	< 39	0.24 J	23
Pyrene	129-00-0	50	0.89 J	66 J/S	48	< 0.36	21 J	0.28 J	30
Benzo(a)anthracene	56-55-3	0.224	0.17 J	24 J/S	16 J/S	< 0.36	7.4 J/S	0.14 J	8.7 /S
Chrysene	218-01-9	0.4	0.46 J/S	25 J/S	16 J/S	< 0.36	8 J/S	0.17 J	9.1 /S
Benzo(b)fluoranthene	205-99-2	1.1	0.53 J	7.7 J/S	4.7 J/S	< 0.36	2.5 J/S	0.11 J	4.2 J/S
Benzo(k)fluoranthene	207-08-9	1.1	< 1.6	< 80	< 36	< 0.36	4.5 J/S	0.12 J	5.4 J/S
Benzo(a)pyrene	50-32-8	0.061	1.6 /S	18 J/S	12 J/S	< 0.36	6.1 J/S	0.12 J/S	7.4 /S
Indeno(1,2,3-cd)pyrene	193-39-5	3.2	2.5	5.1 J/S	4.2 J/S	< 0.36	2.2 J	0.11 J	4.9 J/S
Dibenz(a,h)anthracene	53-70-3	0.014	0.66 J/S	< 80	1.4 J/S	< 0.36	< 39	< 0.4	0.78 J/S
Benzo(ghi)perylene	191-24-2	50	5.5	5.8 J	5 J	< 0.36	2.7 J	0.083 J	5.4 J
Total CPAHs		**NL**	5.92	79.8	54.3	ND	30.7	0.77	40.48
Total PAHs		**500**	14.12	972.6	607.1	ND	325.8	1.54	249.38
Other SVOCs (mg/Kg)									
2,4-Dimethylphenol	105-67-9	NL	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	< 7
2-Chloronaphthalene	91-58-7	NL	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	< 7
2-Methylnaphthalene	91-57-6	36.4	< 1.6	260 /S	180 /S	< 0.36	120 /S	< 0.4	22
3,3'-Dichlorobenzidine	91-94-1	NL	< 0.66	< 0.66	< 0.66	< 0.36	< 0.66	< 0.4	< 7
4-Chloroaniline	106-47-8	0.22	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	< 7
4-Methylphenol	106-44-5	0.9	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	< 7
bis(2-Ethylhexyl) phthalate	117-81-7	50	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	< 7
Butyl benzyl phthalate	85-68-7	50	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	< 7
Carbazole	86-74-8	NL	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	< 7
Di-n-butyl phthalate	84-74-2	8.1	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	< 7
Di-n-octyl phthalate	117-84-0	50	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	< 7
Dibenzofuran	132-64-9	6.2	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	1.2 J
Pentachlorophenol	87-86-5	1	< 1.6	< 1.6	< 1.6	< 0.92	< 1.6	< 1	< 18
Phenol	108-95-2	0.03	< 0.33	< 0.33	< 0.33	< 0.36	< 0.33	< 0.4	< 7
Total Other SVOCs		**NL**	ND	260	180	ND	120	ND	23.2
Metals (mg/Kg)									
Aluminum	7429-90-5	5360	5060	4380	6980 /S	3900	3630	6550 /S	5300
Antimony	7440-36-0	2.2	< 0.97	< 0.96	< 0.9	< 13.3 J	1.1 B	< 14.4 J	< 12.7
Arsenic	7440-38-2	7.5	1.2 B	0.71 B	3.7	5.5	1.2 B	2.8	5.3
Barium	7440-39-3	300	23.6 B	31.9 B	46	15.8 J	21.6 B	51.7	74.6
Beryllium	7440-41-7	0.32	< 0.24	< 0.24	0.26 B	0.19 J	< 0.24	0.27 J	0.25
Cadmium	7440-43-9	1	< 0.24 J	< 0.24 J	< 0.22 J	< 1.1	< 0.24 J	< 1.2	< 1.1
Calcium	7440-70-2	3270	277 B	222 B	309 B	435 J	266 B	1590	580
Chromium	7440-47-3	10	5.5	4.4	10.9 /S	6.6	3.9	10	5.7
Cobalt	7440-48-4	30	3.9 B	3.7 B	5.9 B	5.4 J	3.1 B	6.4 J	6.5
Copper	7440-50-8	488	17.9	4.4 B	6.8	6.7	3.7 B	6.7	13.1 J
Iron	7439-89-6	19600	9900	8660	16000	9630	7730	13400	12900
Lead	7439-92-1	201	7.1	4	5.9	4.9	4.6	6.1	5.1 J
Magnesium	7439-95-4	2190	2020	1660	2600 /S	1620	1390	2660 /S	1800
Manganese	7439-96-5	761	94	209	173	135 J	106	406 J	1600 J/S
Mercury	7439-97-6	0.2	< 0.11 N	< 0.1 N	< 0.075 N	< 0.11	< 0.1 N	< 0.12	< 0.11
Nickel	7440-02-0	21.7	10.4	8.1 B	14.6	8.3 J	7.6 B	11	12.7
Potassium	7440-09-7	827	508 BE	336 BE	472 BE	591 J	351 BE	733 J	208
Selenium	7782-49-2	2	1 J	0.65 J	1.2 J	< 1.1 J	0.77 J	< 1.2 J	< 1.1
Silver	7440-22-4	2.2	< 0.24	< 0.24	< 0.22	< 2.2	< 0.24	< 2.4	2.1
Sodium	7440-23-5	61.2	82.1 B/S	60 B	68.4 B/S	50.7 J	60.2 B	90.2 J/S	37.9
Thallium	7440-28-0	2.2	< 0.72 J	1.2 J	< 0.67 J	< 2.2	< 0.71 J	< 2.4	< 2.1
Vanadium	7440-62-2	150	4.9 B	3.9 B	8 B	4.2 J	3.4 B	7 J	6
Zinc	7440-66-6	207	40.4	29.1	36.2	23.5	25.3	35.4	30.7 J
PCBs (mg/Kg)									
Aroclor 1252	11097-69-1	NL	< 0.035	< 0.035	0.0028 J	NA	< 0.035	NA	NA
Aroclor 1260	11096-82-5	NL	< 0.035	< 0.035	< 0.035	NA	< 0.035	NA	NA
Total PCBs		10	ND	ND	0.0028	NA	ND	NA	NA
Other Parameters (mg/Kg)									
Percent Solids	NA	NL	NA	NA	NA	90.6	NA	83.3	94.9
Total Cyanide	57-12-5	NL	< 0.62	< 0.56	< 0.6	< 0.55	< 0.59	< 0.6	< 0.53

Sample Name	MW7 (43-45)	MW8 (41-43)	MW18S (41-43)	MW8 (73-75)	MW9 (163-165)	MW10I (23-25)	MW10 (51-53)	MW-10 (178-180)	MW11 (23-25)	MW110S (23-25)	MW11 (43-45)
Sample Location	MW7	MW8	MW8	MW8	MW9	MW10I	MW10	MW10	MW11	MW11	MW11
Depth	43-45	41-43	41-43	73-75	163-165	23-25	51-53	178-180	23-25	23-25	43-45
Date	11/02/00	11/03/00	11/03/00	11/03/00	10/23/00	10/24/00	10/24/00	10/24/00	11/03/00	11/03/00	11/03/00
Sample Type	Investigation	Investigation	Duplicate	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Duplicate	Investigation
Area	Onsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite	Offsite
Chemical											
BTEX (mg/Kg)											
Benzene	< 0.013	< 0.012	< 0.012	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012
Toluene	< 0.013	< 0.012	< 0.012	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012
Ethylbenzene	< 0.013	0.061	0.012 J	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	0.081	0.051	< 0.012
Xylenes (total)	< 0.013	0.074	0.011 J	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	0.17	0.11	< 0.012
Total BTEX	ND	0.135	0.023	ND	ND	ND	ND	ND	0.251	0.161	ND
Other VOCs (mg/Kg)											
1,1,2-Trichloroethane	< 0.013	< 0.012	< 0.012	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012
2-Butanone	< 0.013	< 0.012	< 0.012	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012
Acetone	< 0.013	< 0.012	< 0.012	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012
Chloroform	< 0.013	< 0.012	< 0.012	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012
Methylene chloride	< 0.013	< 0.012	< 0.012	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012
Trichloroethene	< 0.013	< 0.012	< 0.012	< 0.012	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.012
Total Other VOCs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PAHs (mg/Kg)											
Naphthalene	< 0.43	1.8	1.2	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	53 /S	60 /S	< 0.41
Acenaphthylene	< 0.43	0.3 J	0.18 J	< 0.39	< 0.36	0.11 J	< 0.38	< 0.38	1.8	1.9	< 0.41
Acenaphthene	< 0.43	2	1.2	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	15	17	< 0.41
Fluorene	< 0.43	1.2	0.66	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	6.3 J	7.5 J	< 0.41
Phenanthrene	< 0.43	5.1	3	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	19	23	< 0.41
Anthracene	< 0.43	1.3	0.78	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	5.6 J	6.4 J	< 0.41
Fluoranthene	< 0.43	2	1.2	< 0.39	< 0.36	0.069 J	< 0.38	< 0.38	6.6 J	7.8 J	< 0.41
Pyrene	< 0.43	2.1	1.3	< 0.39	< 0.36	0.17 J	< 0.38	< 0.38	7.5 J	9	< 0.41
Benzo(a)anthracene	< 0.43	0.87 /S	0.53 /S	< 0.39	< 0.36	0.069 J	< 0.38	< 0.38	3.4 /S	3.6 /S	< 0.41
Chrysene	< 0.43	0.87 /S	0.51 /S	< 0.39	< 0.36	0.086 J	< 0.38	< 0.38	3.7 /S	4 /S	< 0.41
Benzo(b)fluoranthene	< 0.43	0.39	0.25 J	< 0.39	< 0.36	0.076 J	< 0.38	< 0.38	1.7 /S	2.2 /S	< 0.41
Benzo(k)fluoranthene	< 0.43	0.49	0.29 J	< 0.39	< 0.36	0.081 J	< 0.38	< 0.38	1.8 /S	1.6 /S	< 0.41
Benzo(a)pyrene	< 0.43	0.76 /S	0.48 /S	< 0.39	< 0.36	0.12 J/S	< 0.38	< 0.38	2.9 /S	3.1 /S	< 0.41
Indeno(1,2,3-cd)pyrene	< 0.43	0.28 J	0.16 J	< 0.39	< 0.36	0.19 J	< 0.38	< 0.38	1.1	1.2	< 0.41
Dibenz(a,h)anthracene	< 0.43	0.062 J/S	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	0.27 J/S	0.28 J/S	< 0.41
Benzo(ghi)perylene	< 0.43	0.18 J	0.13 J	< 0.39	0.057 J	0.4	< 0.38	< 0.38	0.88	0.94	< 0.41
Total CPAHs	ND	3.722	2.22	ND	ND	0.622	ND	ND	14.87	15.98	ND
Total PAHs	ND	19.702	12.27	ND	0.057	1.37	ND	ND	130.55	149.52	ND
Other SVOCs (mg/Kg)											
2,4-Dimethylphenol	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	< 0.7	< 0.72	< 0.41
2-Chloronaphthalene	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	< 0.7	< 0.72	< 0.41
2-Methylnaphthalene	< 0.43	1.7	0.89	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	5.5	4.9	< 0.41
3,3'-Dichlorobenzidine	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	0.18 J	< 0.72	< 0.41
4-Chloroaniline	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	< 0.7	< 0.72	< 0.41
4-Methylphenol	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	< 0.7	< 0.72	< 0.41
bis(2-Ethylhexyl) phthalate	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	< 0.7	< 0.72	0.045 J
Butyl benzyl phthalate	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	< 0.7	< 0.72	< 0.41
Carbazole	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	0.073 J	< 0.72	< 0.41
Di-n-butyl phthalate	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	< 0.7	< 0.72	< 0.41
Di-n-octyl phthalate	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	< 0.7	< 0.72	< 0.41
Dibenzofuran	< 0.43	0.1 J	0.059 J	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	0.58 J	< 0.72	< 0.41
Pentachlorophenol	< 1.1	< 0.98	< 1	< 0.99	< 0.91	< 0.91	< 0.95	< 0.95	< 1.8	< 1.8	< 1
Phenol	< 0.43	< 0.39	< 0.4	< 0.39	< 0.36	< 0.36	< 0.38	< 0.38	< 0.7	< 0.72	< 0.41
Total Other SVOCs	ND	1.8	0.949	ND	ND	ND	ND	ND	6.333	4.9	0.045
Metals (mg/Kg)											
Aluminum	3890	4480	4820	4680	5400 /S	8800 /S	3710	5060	6260	7340	4180
Antimony	< 15.7	< 14.1	< 14.6	< 0.5	< 13.1 J	< 13.2 J	< 13.7 J	< 13.7 J	< 12.7	< 13	< 15
Arsenic	4.7	4.9	5.1	5.1	4.2	3.9	3	3	3.7	4.1	8.7 /S
Barium	33.5	30.6	33.3	30.6	15.1 J	50.8	28.9	18.3	36.7	39.2	33.6
Beryllium	0.12	0.15	0.18	0.16	0.25 J	0.4 /S	< 0.19	0.27	0.21	0.21	0.14
Cadmium	1.1 /S	< 1.2	< 1.2	< 1.2	< 1.1	1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.3
Calcium	< 400	< 1180	< 1220	533	626 J	577	405	6790 /S	< 1060	< 1080	< 301
Chromium	3.2	4.7	4.6	6.8	8.1	12.7 /S	4.3	7.4	9.4	10	2.9
Cobalt	4.8	5.6	6.4	6.6	5.5 J	103 /S	< 4	6.6	7	7.9	6.3
Copper	7 J	9 J	9.3 J	8 J	9.3	11.5	6.6	7.6	6.5 J	5.5 J	7.3 J
Iron	9060	10700	11500	11100	13300	21500 /S	8720	13600	15000	17000	12400
Lead	5.1 J	6.1 J	6.8 J	6.9 J	6.4	2.9	4.6	6.5	4 J	4.5 J	6 J
Magnesium	1580	1750	1890	1860	2320 /S	3280 /S	1530	2590 /S	2420	2720	1680
Manganese	137 J	190 J	203 J	364 J	157 J	257	192	532	202 J	208 J	209 J
Mercury	< 0.13	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.13
Nickel	6.8	8	9.2	9.5	12	20.2	6.6	14.8	12.2	13.6	7.9
Potassium	405	506	578	671	460 J	533	337	543	438	587	529
Selenium	< 1.3	< 1.2	< 1.2	< 1.2	< 1.1	1.9	< 1.1	< 1.1	< 1.1	< 1.1	< 1.3
Silver	< 2.6	< 2.4	< 2.4	< 2.4	< 2.2	< 2.2	< 2.3	< 2.3	< 2.1	< 2.2	2.5 /S
Sodium	49.9	72.2 /S	60.3	50.7	271 J/S	60.9	< 49	58.5	99.7	110	50.6
Thallium	< 2.6	< 2.4	< 2.4	< 2.4	< 2.2	< 2.2	< 2.3	< 2.3	< 2.1	< 2.2	< 2.5
Vanadium	3.7	4.6	5.7	4.8	6 J	9.7	3.4	5.6	7.1	9	4
Zinc	22.8 J	25.3 J	27.7 J	26.2 J	36.5	40.6	24.1	28.3	28.2 J	32.2 J	22.9 J
PCBs (mg/Kg)											
Aroclor 1252	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Parameters (mg/Kg)											
Percent Solids	76.5	84.9	82.1	84	91.6	91.2	87.4	87.7	94.2	92.3	80.3
Total Cyanide	< 0.65	< 0.59	< 0.61	< 0.6	< 0.55	< 0.55	< 0.57	< 0.57	< 0.53	< 0.54	< 0.62

Notes:
NA = Not Analyzed
NL = Not Listed
< = The material was analyzed for but not detected at or above the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
/S - compound detected above regulatory guidance value.
(Note 1) - NYSDEC TAGM HWR-94-4046 - Determination of Soil Cleanup Objectives and Cleanup Levels [NYSDEC, Jan. 1994].

Table 5-4
Subsurface Soil Sample Results - 1998-2000
Port Jervis MGP Site

Chemical	CAS No.	NYSDEC Recommended Cleanup Objectives for Soil (Note 1)	MW12 (15-16)	MW12 (34-35)	MW13 (21-23)	DP1 (10.5-11.5)	DP2 (18-19)	DP3 (19-20)
Sample Location			MW12	MW12	MW13	DP1	DP2	DP3
Depth			15-16	34-35	21-23	10.5-11.5	18-19	19-20
Date			11/03/00	11/03/00	11/03/00	10/25/00	10/25/00	10/25/00
Sample Type			Investigation	Investigation	Investigation	Investigation	Investigation	Investigation
Area			Offsite	Offsite	Onsite	Onsite	Onsite	Onsite
BTEX (mg/Kg)								
Benzene	71-43-2	0.06	< 0.012	< 0.01	< 0.01	< 1.8	< 1.4	< 1.4
Toluene	108-88-3	1.5	< 0.012	< 0.01	< 0.01	< 1.8	< 1.4	< 1.4
Ethylbenzene	100-41-4	5.5	< 0.012	< 0.01	< 0.01	< 1.8	1.9	10 /S
Xylenes (total)	1330-20-7	1.2	< 0.012	< 0.01	< 0.01	< 1.8	< 1.4	24 /S
Total BTEX		NL	ND	ND	ND	ND	1.9	34
Other VOCs (mg/Kg)								
1,1,2-Trichloroethane	79-00-5	NL	< 0.012	< 0.01	< 0.01	< 1.8	< 1.4	< 1.4
2-Butanone	78-93-3	0.3	< 0.012	< 0.01	< 0.01	< 1.8	< 1.4	< 1.4
Acetone	67-64-1	0.2	< 0.012	< 0.01	< 0.01	< 3.6	< 2.6	< 2.3
Chloroform	67-66-3	0.3	< 0.012	< 0.01	< 0.01	< 1.8	< 1.4	< 1.4
Methylene chloride	75-09-2	0.1	< 0.012	< 0.01	< 0.01	< 1.8	< 1.4	< 1.4
Trichloroethene	79-01-6	0.7	< 0.012	< 0.01	< 0.01	< 1.8	< 1.4	< 1.4
Total Other VOCs		NL	ND	ND	ND	ND	ND	ND
PAHs (mg/Kg)								
Naphthalene	91-20-3	13	0.47 J	< 0.38	< 0.38	6.2	460 /S	180 /S
Acenaphthylene	208-96-8	41	< 1.6	< 0.38	< 0.38	0.43 J	13 J	9.6
Acenaphthene	83-32-9	50	1.6	< 0.38	< 0.38	3.7	180 /S	75 /S
Fluorene	86-73-7	50	1.3 J	< 0.38	< 0.38	3.6	72 /S	33
Phenanthrene	85-01-8	50	1.6	< 0.38	< 0.38	11	220 /S	100 /S
Anthracene	120-12-7	50	0.58 J	< 0.38	< 0.38	1.9	65 /S	28
Fluoranthene	206-44-0	50	1 J	< 0.38	< 0.38	3.6	90 /S	44
Pyrene	129-00-0	50	1.9	< 0.38	< 0.38	3.7	120 /S	59 /S
Benzo(a)anthracene	56-55-3	0.224	0.48 J/S	< 0.38	< 0.38	1.2 /S	44 /S	22 /S
Chrysene	218-01-9	0.4	0.57 J/S	< 0.38	< 0.38	1.4 /S	47 /S	23 /S
Benzo(b)fluoranthene	205-99-2	1.1	0.26 J	< 0.38	< 0.38	0.72 J	18 J/S	10 /S
Benzo(k)fluoranthene	207-08-9	1.1	0.31 J	< 0.38	< 0.38	0.73 J	23 /S	13 /S
Benzo(a)pyrene	50-32-8	0.061	0.33 J/S	< 0.38	< 0.38	0.8 J/S	35 /S	20 /S
Indeno(1,2,3-cd)pyrene	193-39-5	3.2	0.29 J	< 0.38	< 0.38	0.69 J	20 /S	11 /S
Dibenz(a,h)anthracene	53-70-3	0.014	< 1.6	< 0.38	< 0.38	0.15 J/S	5.7 J/S	3 J/S
Benzo(ghi)perylene	191-24-2	50	0.31 J	< 0.38	< 0.38	0.63 J	17 J	10
Total CPAHs		NL	2.24	ND	ND	5.69	192.7	102
Total PAHs		500	11	ND	ND	40.45	1430	640.6
Other SVOCs (mg/Kg)								
2,4-Dimethylphenol	105-67-9	NL	< 1.6	< 0.38	< 0.38	< 0.94	< 19	< 7.4
2-Chloronaphthalene	91-58-7	NL	< 1.6	< 0.38	< 0.38	< 0.94	< 19	< 7.4
2-Methylnaphthalene	91-57-6	36.4	0.95 J	< 0.38	< 0.38	4.5	93 /S	110 /S
3,3'-Dichlorobenzidine	91-94-1	NL	< 1.6	< 0.38	< 0.38	< 0.94	< 19	< 7.4
4-Chloroaniline	106-47-8	0.22	< 1.6	< 0.38	< 0.38	< 0.94	< 19	< 7.4
4-Methylphenol	106-44-5	0.9	< 1.6	< 0.38	< 0.38	< 0.94	< 19	< 7.4
bis(2-Ethylhexyl) phthalate	117-81-7	50	< 1.6	< 0.38	< 0.38	0.15 J	< 19	< 7.4
Butyl benzyl phthalate	85-68-7	50	< 1.6	< 0.38	< 0.38	< 0.94	< 19	< 7.4
Carbazole	86-74-8	NL	< 1.6	< 0.38	< 0.38	< 0.94	< 19	< 7.4
Di-n-butyl phthalate	84-74-2	8.1	< 1.6	< 0.38	< 0.38	< 0.94	< 19	< 7.4
Di-n-octyl phthalate	117-84-0	50	< 1.6	< 0.38	< 0.38	< 0.94	< 19	< 7.4
Dibenzofuran	132-64-9	6.2	0.28 J	< 0.38	< 0.38	0.79 J	7.1 J/S	2.9 J
Pentachlorophenol	87-86-5	1	< 4	< 0.96	< 0.97	< 2.4	< 48	< 19
Phenol	108-95-2	0.03	< 1.6	< 0.38	< 0.38	< 0.94	< 19	< 7.4
Total Other SVOCs		NL	1.23	ND	ND	5.44	100.1	112.9
Metals (mg/Kg)								
Aluminum	7429-90-5	5360	4620	5210	4720	10100 /S	4490	8520 /S
Antimony	7440-36-0	2.2	< 14.6 J	< 13.9 J	< 14 J	< 17.1 J	< 13.8 J	< 13.4 J
Arsenic	7440-38-2	7.5	1.8	3.9	2.6	8.2 /S	3	3.3
Barium	7440-39-3	300	38	33.6	44.3 J	52.1 J	24.3 J	70.8
Beryllium	7440-41-7	0.32	< 0.24	< 0.21	0.2 J	0.38 J/S	0.16 J	0.47 J/S
Cadmium	7440-43-9	1	< 1.2	< 1.2	0.86 J	< 1.4	< 1.2	< 1.1
Calcium	7440-70-2	3270	318	506	4460 /S	31600 /S	229 J	428 J
Chromium	7440-47-3	10	7.3	6.1	8.5	7.7	4.2	12.2 /S
Cobalt	7440-48-4	30	5.6	7	4.1 J	4.6 J	5 J	9.2 J
Copper	7440-50-8	488	6	9.3	7.3	15.9	3.4 J	9.5
Iron	7439-89-6	19600	9560	####	####	10700	10600	21600 /S
Lead	7439-92-1	201	18.3	5.1	84.4	30.5	2.8	6.3
Magnesium	7439-95-4	2190	1700	2080	2160	2740 /S	1660	2820 /S
Manganese	7439-96-5	761	130	405	327 J	204 J	119 J	734 J
Mercury	7439-97-6	0.2	< 0.12	< 0.12	< 0.12	0.14	< 0.12	< 0.11
Nickel	7440-02-0	21.7	< 11.4	11.4	8.5 J	9.5 J	8.5 J	21.4
Potassium	7440-09-7	827	487	475	346 J	611 J	485 J	638 J
Selenium	7782-49-2	2	< 1.2	< 1.2	< 1.2 J	< 1.4	< 1.2 J	< 1.1 J
Silver	7440-22-4	2.2	< 2.4	< 2.3	< 2.3	< 2.9 J	< 2.3	0.69 J
Sodium	7440-23-5	61.2	88.8 /S	51.7	50.8 J	870 J/S	49.1 J	57.9 J
Thallium	7440-28-0	2.2	< 2.4	< 2.3	< 2.3	< 2.9	< 2.3	< 2.2
Vanadium	7440-62-2	150	3.5	4.6	5 J	14.5	4.4 J	9.8 J
Zinc	7440-66-6	207	35.9	30.5	69.4	79.8	26.4	43.7
PCBs (mg/Kg)								
Aroclor 1252	11097-69-1	NL	NA	NA	NA	NA	NA	NA
Aroclor 1260	11096-82-5	NL	NA	NA	NA	NA	NA	NA
Total PCBs		10	NA	NA	NA	NA	NA	NA
Other Parameters (mg/Kg)								
Percent Solids	NA	NL	82.3	86.1	85.7	70.3	86.8	89.4
Total Cyanide	57-12-5	NL	0.68	< 0.58	< 0.58	< 0.71	1.7	< 0.56

Chemical	DP5 (5-6)	DP6 (19-20)	DP7 (22-23)	DP8 (12-14)	DP9 (6-8)	DP10 (12-14)
Sample Location	DP5	DP6	DP7	DP8	DP9	DP10
Depth	5-6	19-20	22-23	12-14	6-8	12-14
Date	10/25/00	10/25/00	10/25/00	10/25/00	10/25/00	10/25/00
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation
Area	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite
BTEX (mg/Kg)						
Benzene	140 /S	< 1.5	< 1.5	< 1.5	< 0.012	< 0.011
Toluene	180 /S	< 1.5	< 1.5	< 1.5	< 0.012	< 0.011
Ethylbenzene	160 /S	11 /S	< 1.5	< 1.5	< 0.012	< 0.011
Xylenes (total)	130 /S	11 /S	< 1.5	< 1.5	< 0.012	< 0.011
Total BTEX	610	22	ND	ND	ND	ND
Other VOCs (mg/Kg)						
1,1,2-Trichloroethane	6	< 1.5	< 1.5	< 1.5	< 0.012	< 0.011
2-Butanone	< 1.4	< 1.5	< 1.5	< 1.5	< 0.012	< 0.011 J
Acetone	< 2.6	< 2.3	< 2.5	< 2.5	< 0.012	< 0.011
Chloroform	< 1.4	< 1.5	< 1.5	< 1.5	< 0.012	< 0.011
Methylene chloride	< 1.4	< 1.5	< 1.5	< 1.5	0.038	< 0.011
Trichloroethene	< 1.4	< 1.5	< 1.5	< 1.5	< 0.012	< 0.011
Total Other VOCs	6	ND	ND	ND	0.038	ND
PAHs (mg/Kg)						
Naphthalene	800 /S	81 /S	5.8	0.21 J	1	0.73 J
Acenaphthylene	9.7	3.9	3.3 J	0.66	1.5	5.8
Acenaphthene	120 J/S	37	21	0.042 J	< 0.81	0.26 J
Fluorene	47	16	14	0.2 J	0.088 J	0.98 J
Phenanthrene	170 /S	51 /S	53 /S	1.5	1.6	4.5
Anthracene	34	13	14	0.2 J	0.57 J	2.4
Fluoranthene	43	13	15	1.5	2.3	5.4
Pyrene	68 J/S	21	24	4.4	3.2	7.9
Benzo(a)anthracene	24 /S	6.9 /S	8.4 /S	0.83 /S	0.8 J/S	3.7 /S
Chrysene	24 /S	7.3 /S	8.9 /S	1.3 /S	2.3 /S	4.5 /S
Benzo(b)fluoranthene	12 /S	2.4 /S	2.9 J/S	1.9 /S	2.2 /S	5.1 /S
Benzo(k)fluoranthene	12 /S	3.1 /S	3.8 /S	1.2 /S	1.5 /S	3.2 /S
Benzo(a)pyrene	21 /S	5.1 /S	6 /S	1.6 /S	2.7 /S	6.9 /S
Indeno(1,2,3-cd)pyrene	8.5 /S	2	3 J	2.1	2.5	6.8 /S
Dibenz(a,h)anthracene	2.8 J/S	0.63 J/S	1 J/S	0.35 J/S	0.5 J/S	1.5 J/S
Benzo(ghi)perylene	6.8 J	1.7 J	2.4 J	1.8	1.9	4.5
Total CPAHs	104.3	27.43	34	9.28	12.5	31.7
Total PAHs	1402.8	265	186.5	19.79	24.66	64.17
Other SVOCs (mg/Kg)						
2,4-Dimethylphenol	1.1 J	< 1.9	< 3.8	< 0.39	< 0.81	< 1.9
2-Chloronaphthalene	< 7.4	< 1.9	< 3.8	< 0.39	< 0.81	< 1.9
2-Methylnaphthalene	340 /S	80 /S	14	0.16 J	0.97	1 J
3,3'-Dichlorobenzidine	< 7.4	< 1.9	< 3.8	< 0.39	< 0.81	< 1.9
4-Chloroaniline	< 7.4	< 1.9	< 3.8	< 0.39	< 0.81	< 1.9
4-Methylphenol	< 7.4	< 1.9	< 3.8	< 0.39	< 0.81	< 1.9
bis(2-Ethylhexyl) phthalate	< 7.4	< 1.9	< 3.8	< 0.39	< 0.81	< 1.9
Butyl benzyl phthalate	< 7.4	< 1.9	< 3.8	< 0.39	< 0.81	< 1.9
Carbazole	1.8 J	< 1.9	< 3.8	< 0.39	< 0.81	0.19 J
Di-n-butyl phthalate	< 7.4	< 1.9	< 3.8	< 0.39	< 0.81	< 1.9
Di-n-octyl phthalate	< 7.4	< 1.9	< 3.8	< 0.39	< 0.81	< 1.9
Dibenzofuran	8.9 /S	2.4	1.3 J	< 0.39	< 0.81	0.34 J
Pentachlorophenol	< 19	< 4.8	< 9.6	< 0.98	< 2	< 4.7
Phenol	< 7.4	< 1.9	< 3.8	< 0.39	0.12 J/S	< 1.9
Total Other SVOCs	351.8	82.4	15.3	0.16	1.09	1.53
Metals (mg/Kg)						
Aluminum	6290 /S	4830	6600 /S	6730 /S	1870	4960
Antimony	0.7 J	< 14 J	< 13.9 J	< 14.1 J	0.52 J	< 13.6 J
Arsenic	4.8	1.6 J	2.2 J	4	21.4 /S	1.9
Barium	38.5 J	28.8 J	39.2 J	38.8	26.4	44.7
Beryllium	0.29 J	0.18 J	0.27 J	0.28	< 0.18	< 0.21
Cadmium	< 1.1	< 1.2	< 1.2	< 1.2	< 1.2	< 1.1
Calcium	765 J	354 J	655 J	1270	2440	1930
Chromium	7.7	5.6	8.7	7	5.9	5.4
Cobalt	7.2 J	4.3 J	7.3 J	7.6	4.4	6.1
Copper	24.1	4.1 J	8.8	9.2	11.9	4.9
Iron	13000	9700	15200	14000	18700	10300
Lead	38.8	3	3.9	29.8	26.6	20.5
Magnesium	1760	1830	2490 J/S	2240 /S	641	1870
Manganese	276 J	113 J	< 168	542	130	167
Mercury	< 0.11	< 0.13	< 0.12	< 0.12	< 0.12	< 0.11
Nickel	14.3	8.6 J	14.7 J	13.4	< 8.2	11.9
Potassium	479 J	394 J	382 J	576	477	544
Selenium	0.8 J	< 1.2 J	< 1.2 J	< 1.2	2.7 /S	< 1.1
Silver	1.4 J	< 2.3	< 2.3	< 2.4	< 2.5	< 2.3
Sodium	65.7 J/S	58 J	79.5 J/S	65.1 /S	121 /S	45.2
Thallium	< 2.2	< 2.3	< 2.3	< 2.4	< 2.5	< 2.3
Vanadium	10.6 J	4.5 J	6.7 J	6.8	5.6	4.4
Zinc	51.7	28.7	33.1	41.3	15.5	31
PCBs (mg/Kg)						
Aroclor 1252	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA
Total PCBs	NA	NA	NA	NA	NA	NA
Other Parameters (mg/Kg)						
Percent Solids	89.2	85.7	86.1	85	81.3	88.2
Total Cyanide	< 0.56	< 0.58	< 0.58	< 0.59	< 0.61	< 0.57

Chemical	DP13 (14-16)	DP14 (22-23)	DP15 (18.5-19.5)	DP16 (16-18)	DP17 (15-16)	DP18 (16-17)
Sample Location	DP13	DP14	DP15	DP16	DP17	DP18
Depth	14-16	22-23	18.5-19.5	16-18	15-16	16-17
Date	10/25/00	10/23/00	10/23/00	10/23/00	10/23/00	10/23/00
Sample Type	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation
Area	Onsite	Onsite	Onsite	Onsite	Offsite	Offsite
BTEX (mg/Kg)						
Benzene	< 1.3	< 1.3	< 0.012	< 0.011	< 1.4	< 0.012
Toluene	< 1.3	< 1.3	< 0.012	< 0.011	< 1.4	< 0.012
Ethylbenzene	< 1.3	1.6	< 0.012	< 0.011	< 1.4	< 0.012
Xylenes (total)	< 1.3	< 1.3	< 0.012	< 0.011	< 1.4	< 0.012
Total BTEX	ND	1.6	ND	ND	ND	ND
Other VOCs (mg/Kg)						
1,1,2-Trichloroethane	< 1.3	< 1.3	< 0.012	< 0.011	< 1.4	< 0.012
2-Butanone	< 1.3	< 1.3	< 0.012	< 0.011	< 1.4	< 0.012
Acetone	< 2.4	< 2.4	< 0.012	< 0.011	< 2.7	< 0.012
Chloroform	< 1.3	< 1.3	< 0.012	< 0.011	< 1.4	< 0.012
Methylene chloride	< 1.3	< 1.3	< 0.012	< 0.011	< 1.4	< 0.012
Trichloroethene	< 1.3	< 1.3	< 0.012	< 0.011	< 1.4	< 0.012
Total Other VOCs	ND	ND	ND	ND	ND	ND
PAHs (mg/Kg)						
Naphthalene	13	5.2	< 0.4	< 0.35	< 3.7	< 0.4
Acenaphthylene	1.8 J	1.4 J	< 0.4	< 0.35	0.62 J	< 0.4
Acenaphthene	12	11	< 0.4	< 0.35	< 3.7	< 0.4
Fluorene	7.2	6.4	< 0.4	< 0.35	< 3.7	< 0.4
Phenanthrene	20	23	< 0.4	< 0.35	< 3.7	< 0.4
Anthracene	3.1 J	4.2	< 0.4	< 0.35	< 3.7	< 0.4
Fluoranthene	4.7 J	6.5	< 0.4	< 0.35	< 3.7	< 0.4
Pyrene	7.6	9.5	< 0.4	< 0.35	4.7	< 0.4
Benzo(a)anthracene	2.4 J/S	3.3 /S	< 0.4	< 0.35	< 3.7	< 0.4
Chrysene	2.7 J/S	3.6 /S	< 0.4	< 0.35	0.6 J/S	< 0.4
Benzo(b)fluoranthene	0.84 J	1.4 J/S	< 0.4	< 0.35	0.9 J	< 0.4
Benzo(k)fluoranthene	1.3 J/S	1.6 J/S	< 0.4	< 0.35	0.51 J	< 0.4
Benzo(a)pyrene	1.4 J/S	2.2 /S	< 0.4	< 0.35	0.94 J/S	< 0.4
Indeno(1,2,3-cd)pyrene	0.77 J	0.97 J	< 0.4	< 0.35	1 J	< 0.4
Dibenz(a,h)anthracene	< 7.1	0.27 J/S	< 0.4	< 0.35	< 3.7	< 0.4
Benzo(ghi)perylene	< 7.1	0.61 J	< 0.4	< 0.35	0.76 J	0.063 J
Total CPAHs	9.41	13.34	ND	ND	3.95	ND
Total PAHs	78.81	81.15	ND	ND	10.03	0.06
Other SVOCs (mg/Kg)						
2,4-Dimethylphenol	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
2-Chloronaphthalene	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
2-Methylnaphthalene	35	15	< 0.4	< 0.35	< 3.7	< 0.4
3,3'-Dichlorobenzidine	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
4-Chloroaniline	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
4-Methylphenol	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
bis(2-Ethylhexyl) phthalate	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
Butyl benzyl phthalate	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
Carbazole	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
Di-n-butyl phthalate	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
Di-n-octyl phthalate	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
Dibenzofuran	1.3 J	0.65 J	< 0.4	< 0.35	< 3.7	< 0.4
Pentachlorophenol	< 18	< 4.4	< 1	< 0.88	< 9.4	< 1
Phenol	< 7.1	< 1.8	< 0.4	< 0.35	< 3.7	< 0.4
Total Other SVOCs	36.3	15.65	ND	ND	ND	ND
Metals (mg/Kg)						
Aluminum	4490	7560 /S	6270 /S	4270	4900	4470
Antimony	< 12.9 J	< 12.8 J	< 14.4 J	< 12.7 J	< 13.6 J	< 14.5 J
Arsenic	1.6	4.9	1.3	1.9	1.5	1.6
Barium	18.2	82.2	54.4	20.1	38.2	31
Beryllium	< 0.19	0.34 /S	< 0.24	< 0.17	< 0.2	< 0.14
Cadmium	< 1.1	< 1.1	< 1.2	< 1.1	2 /S	< 1.2
Calcium	174	595	568	197	227	295
Chromium	5.3	10.1 /S	6.3	4.1	5.9	4.3
Cobalt	5.2	7.7	5.6	4.5	5	4.2
Copper	4.2	10.1	6.2	4.4	5.5	3.6
Iron	9070	17700	12000	9270	8720	8760
Lead	3	3.9	5.6	3.3	4.4	2.7
Magnesium	1720	2710 /S	2290 /S	1570	1800	1650
Manganese	92.1	221	147	271	101	94.5
Mercury	< 0.11	< 0.11	< 0.12	< 0.11	< 0.11	< 0.12
Nickel	< 9.3	16.2	12.6	< 9	< 10.4	< 10
Potassium	419	302	483	318	454	460
Selenium	< 1.1	< 1.1	< 1.2	< 1.1	< 1.1	< 1.2
Silver	< 2.2	< 2.1	< 2.4	< 2.1	< 2.3	< 2.4
Sodium	81.2 /S	156 /S	130 /S	116 /S	73.9 /S	94 /S
Thallium	< 2.2	< 2.1	< 2.4	< 2.1	< 2.3	< 2.4
Vanadium	3.9	7.7	6.6	3.8	4.2	2.9
Zinc	25.8	36.8	35.2	24.2	33.1	26.8
PCBs (mg/Kg)						
Aroclor 1252	NA	NA	NA	NA	NA	NA
Aroclor 1260	NA	NA	NA	NA	NA	NA
Total PCBs	NA	NA	NA	NA	NA	NA
Other Parameters (mg/Kg)						
Percent Solids	92.8	93.8	83.2	94.8	88.5	82.9
Total Cyanide	0.9	< 0.53	< 0.6	< 0.53	1.4	< 0.6

Notes:
NA = Not Analyzed
NL = Not Listed
< = The material was analyzed for but not detected at or above the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
/S - compound detected above regulatory guidance value.
(Note 1) - NYSDEC TAGM HWR-94-4046 - Determination of Soil Cleanup Objectives and Cleanup Levels [NYSDEC, Jan. 1994].

Table 5-5
Subsurface Soil Sample Results - 2003
Port Jervis MGP Site

Sample ID	NYSDEC	MW-14S		MW-14S		MW-15S		MW-15S		MW-16S		MW-16S		MW-17S		MW-17S	
Langan Sample Number	TAGM 4046	# 021		# 023		# 052		# 055		# 027		# 028		# 056		# 058	
Lab Sample Number	Recommended Soil	N51876-9		N51876-11		N52140-2		N52140-5		N51876-15		N51876-16		N52140-6		N52140-8	
Sampling Date	Cleanup Objective	10/28/2003		10/28/2003		10/30/2003		10/30/2003		10/29/2003		10/29/2003		10/31/2003		10/31/2003	
Sampling Depth (ft. bgs)	Concentration	12-13		20-20.8		14-15		22-22.2		16-17		20-20.2		10-11.5		22-22.3	
Units	(ug/Kg)	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Parameter		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds (VOCs)																	
Benzene	60	ND		ND		ND		26.3	J	ND		ND		ND		ND	
Toluene	1,500	1.2		ND		ND		35.2	J	ND		ND		ND		ND	
Ethylbenzene	5,500	ND		ND		9,620		2,170		ND		ND		ND		ND	
Xylene (total)	1,200	ND		ND		4,140		1,260		ND		ND		ND		ND	
Polycyclic Aromatic Hydrocarbons (PAHs)																	
Acenaphthene	50,000	ND		ND		73,600	a	2,430		ND		72.1	J	ND		6,500	
Acenaphthylene	41,000	ND		ND		2,770		357	J	31.2	J	71.4	J	ND		1,850	
Anthracene	50,000	ND		ND		29,000	a	1,840		ND		60.9	J	ND		10,200	
Benzo(a)anthracene	224	ND		ND		15,500	a	1,310		30.0	J	117	J	ND		7,020	J
Benzo(a)pyrene	61	ND		ND		9,910		1,190		27.4	J	110	J	ND		5,740	J
Benzo(b)fluoranthene	1,100	ND		ND		5,530		653		ND		ND		ND		3,500	J
Benzo(g,h,i)perylene	50,000	ND		ND		4,220		610		25.9	J	152	J	ND		3,210	J
Benzo(k)fluoranthene	1,100	ND		ND		3,960		805		21.5	J	ND		ND		3,080	J
Chrysene	400	ND		ND		10,100		1,200		26.4	J	104	J	ND		6,250	J
Dibenzo(a,h)anthracene	14	ND		ND		1,050		130	J	ND		ND		ND		640	J
Fluoranthene	50,000	ND		ND		28,900	a	2,720		43.9	J	175	J	ND		14,200	a
Fluorene	50,000	ND		ND		37,300	a	1,760		ND		ND		ND		8,370	
Indeno(1,2,3-cd)pyrene	3,200	ND		ND		3,320		506		ND		ND		ND		2,560	J
Naphthalene	13,000	ND		ND		140,000	a	401	J	ND		ND		ND		ND	
Phenanthrene	50,000	ND		ND		95,500	a	6,310		ND		140	J	ND		33,400	a
Pyrene	50,000	ND		ND		40,600	a	3,650		52.7	J	251		ND		18,000	a

Sample ID	MW-19S		DUP-2 (MW-19S)		MW-19S		TWP-1		DUP-1 (TWP-1)		TWP-1		TWP-2		TWP-2	
Langan Sample Number	# 059		# 061		# 060		# 013		# 015		# 014		# 019		# 020	
Lab Sample Number	N52140-9		N52140-11		N52140-10		N51876-1		N51876-3		N51876-2		N51876-7		N51876-8	
Sampling Date	10/31/2003		10/31/2003		10/31/2003		10/28/2003		10/28/2003		10/28/2003		10/28/2003		10/28/2003	
Sampling Depth (ft. bgs)	10-11.3		10-11.3		16-17		14-15.5		14-15.5		16-17		14-15.5		18-19	
Units	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Parameter	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds (VOCs)																
Benzene	ND		ND		ND		ND	J	ND		ND		ND		ND	
Toluene	ND		ND		ND		ND	J	1.4		ND		ND		ND	
Ethylbenzene	ND		ND		ND		ND	J	ND		ND		ND		ND	
Xylene (total)	ND		ND		ND		ND	J	ND		ND		ND		ND	
Polycyclic Aromatic Hydrocarbons (PAHs)																
Acenaphthene	ND		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene	ND		ND		ND		ND		ND		ND		ND		ND	
Anthracene	ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene	47.7	J	184		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	39.5	J	132	J	ND		ND		ND		ND		ND		ND	
Benzo(b)fluoranthene	46.1	J	101	J	ND		23.0	J	23.9	J	ND		ND		ND	
Benzo(g,h,i)perylene	ND		66.7	J	ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene	17.9	J	154		ND		ND		ND		ND		ND		ND	
Chrysene	48.9	J	150		ND		22.9	J	ND		ND		ND		ND	
Dibenzo(a,h)anthracene	ND		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene	56.9	J	231		ND		32.9	J	ND		24.3	J	ND		ND	
Fluorene	ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene	ND		67.8	J	ND		ND		ND		ND		ND		ND	
Naphthalene	ND		ND		ND		ND		ND		ND		ND		ND	
Phenanthrene	ND		ND		ND		ND		ND		ND		ND		ND	
Pyrene	51	J	167		ND		28.6	J	ND		21.6	J	ND		ND	

Notes:

ND - Not detected
J - Indicates an estimated value
NA - Not Analyzed
TWP - Temporary Well Point
DUP - Duplicate
bgs - Below Ground Surface

Q - Qualifier
ug/Kg - micrograms per kilograms
a - Result from Run # 2
TIC - Tentatively Identified Compounds
[ ] : Indicates compound exceeding the respective NYSDEC Soil Cleanup Objectives
NYSDEC - New York State Department of Environmental Conservation

Table 5-6
River Bank Area Subsurface Soil Sample VOC Results
Port Jervis MGP Site

Sample Designation / Laboratory Identification / Date Sampled	NYSDEC Recommended Soil Cleanup Objective (Note 1)	RBB1 (3.3-4.3) C4I170326001 9/13/2004		RBB1 (13-14) C4I170326003 9/14/2004		RBB2 (3.8-4.8) C4I170326005 9/15/2004		RBB2 (12-13) C4I180236006 9/16/2004		RBB3 (3-4) C4I170326004 9/14/2004		RBB3 (12-14) C4I170326002 9/15/2004		RBB4 (3.8-4.8) C4I180236005 9/16/2004		RBB4 (19-20) C4I180236008 9/17/2004		RBB-4 (32-34) C4J190220001 10/14/2004		RBB5 (3.5-4.5) C4I130217001 9/9/2004		RBB5 (12-13) C4I130217002 9/10/2004	
BTEX (ug/Kg)																							
Benzene	60	11	U	11	U	12	U	11	U	11	U	12	U	11	U	10	U	12	U	13	U	12	U
Ethylbenzene	5,500	11	U	11	U	12	U	11	U	11	U	12	U	11	U	10	U	12	U	13	U	12	U
Toluene	1,500	11	U	11	U	12	U	11	U	11	U	12	U	11	U	10	U	12	U	13	U	12	U
Xylenes (total)	1,200	11	U	11	U	12	U	11	U	11	U	12	U	11	U	10	U	12	U	13	U	12	U
Total BTEX (ug/Kg)	NL	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**
Other VOCs (ug/Kg)																							
1,1,1-Trichloroethane	800	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,1,2,2-Tetrachloroethane	600	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,1,2-Trichloroethane	100	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,1-Dichloroethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,1-Dichloroethene	400	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,2,4-Trichlorobenzene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,2-Dibromo-3-chloropropane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,2-Dibromoethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,2-Dichlorobenzene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,2-Dichloroethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,2-Dichloropropane	300	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,3-Dichlorobenzene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
1,4-Dichlorobenzene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
2-Butanone	300	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
2-Hexanone	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
4-Methyl-2-pentanone	1,000	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Acetone	200	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Bromodichloromethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Bromoform	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Bromomethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Carbon disulfide	2,700	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Carbon tetrachloride	600	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Chlorobenzene	1,700	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Chloroethane	1,900	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Chloroform	300	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Chloromethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
cis-1,2-Dichloroethene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
cis-1,3-Dichloropropene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Cyclohexane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Dibromochloromethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Dichlorodifluoromethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Isopropylbenzene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Methyl acetate	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Methyl tert-butyl ether	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Methylcyclohexane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Methylene chloride	100	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Styrene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Tetrachloroethene	1,400	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
trans-1,2-Dichloroethene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
trans-1,3-Dichloropropene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Trichloroethene	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Trichlorofluoromethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Vinyl chloride	200	NA		NA		NA		NA		NA		NA		NA		NA		12	U	NA		NA	
Total VOCs	< 10,000	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**	-	**U**

Notes:
NA = Not Analyzed
NL = Not Listed
U = The material was analyzed for but not detected at or above the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
(Note 1) - NYSDEC TAGM HWR-94-4046 - Determination of Soil Cleanup Objectives and Cleanup Levels [NYSDEC, Jan. 1994].
(Note 2) - Total VOCs includes all BTEX compounds.

Table 5-7
River Bank Subsurface Soil Sample SVOC Results
Port Jervis MGP Site

Sample Designation Laboratory Identification Date Sampled	NYSDEC Recommended Soil Cleanup Objective (Note 1)	RBB1 (3.3-4.3) C4I170326001 9/13/2004		RBB1 (13-14) C4I170326003 9/14/2004		RBB2 (3.8-4.8) C4I170326005 9/15/2004		RBB2 (12-13) C4I180236006 9/16/2004		RBB3 (3-4) C4I170326004 9/14/2004		RBB3 (12-14) C4I170326002 9/15/2004		RBB4 (3.8-4.8) C4I180236005 9/16/2004		RBB4 (19-20) C4I180236008 9/17/2004		RBB-4 (32-34) C4J190220001 10/14/2004		RBB5 (3.5-4.5) C4I130217001 9/9/2004		RBB5 (12-13) C4I130217002 9/10/2004	
PAH Compounds (ug/Kg)																							
2-Methylnaphthalene	36,400	360	U	360	U	390	U	370	UJ	360	UJ	380	U	330	J	330	U	380	U	430	U	400	U
Acenaphthene	50,000	360	U	360	U	390	U	370	UJ	360	UJ	380	U	310	J	330	U	380	U	430	U	400	U
Acenaphthylene	41,000	66	J	360	U	48	J	370	UJ	270	J	380	U	350	J	330	U	380	U	210	J	400	U
Anthracene	50,000	39	J	360	U	80	J	370	UJ	130	J	380	U	890		330	U	380	U	120	J	400	U
Benzo(a)anthracene	224/MDL	230	J	360	U	410		51	J	890	J	380	U	1800		330	U	380	U	530		400	U
Benzo(a)pyrene	61/MDL	270	J	360	U	310	J	370	UJ	1200	J	380	U	1400		330	U	380	U	780		400	U
Benzo(b)fluoranthene	1,100	280	J	360	U	350	J	44	J	1200	J	380	U	1600		330	U	380	U	710		400	U
Benzo(ghi)perylene	50,000	350	J	360	U	210	J	370	UJ	1100	J	380	U	760		330	U	380	U	720		400	U
Benzo(k)fluoranthene	1,100	100	J	360	U	160	J	370	UJ	480	J	380	U	620		330	U	380	U	260	J	400	U
Chrysene	400	240	J	360	U	360	J	43	J	1000	J	380	U	1600		330	U	380	U	590		400	U
Dibenz(a,h)anthracene	14/MDL	51	J	360	U	62	J	370	UJ	210	J	380	U	220	J	330	U	380	U	150	J	400	U
Fluoranthene	50,000	340	J	360	U	600		77	J	850	J	380	U	5300		330	U	380	U	520		400	U
Fluorene	50,000	360	U	360	U	390	U	370	UJ	58	J	380	U	640		330	U	380	U	430	U	400	U
Indeno(1,2,3-cd)pyrene	3,200	310	J	360	U	240	J	370	UJ	1100	J	380	U	920		330	U	380	U	660		400	U
Naphthalene	13,000	360	U	360	U	390	U	370	UJ	58	J	380	U	640		330	U	380	U	140	J	400	U
Phenanthrene	50,000	130	J	360	U	300	J	370	UJ	390	J	380	U	6200		330	U	380	U	180	J	400	U
Pyrene	50,000	570		360	U	630		98	J	1500	J	380	U	4800		330	U	380	U	630		400	U
Total PAHs	< 500,000	**2,976**		**-**	**U**	**3,760**		**313**		**10,436**		**-**	**U**	**28,380**		**-**	**U**	**-**	**U**	**6,200**		**-**	**U**
Total CPAHs	NL	**1,481**		**-**	**U**	**1,892**		**138**		**6,080**		**-**	**U**	**8,160**		**-**	**U**	**-**	**U**	**3,680**		**-**	**U**
Other SVOCs																							
1,1'-Biphenyl	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
2,2'-oxybis(1-Chloropropane)	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
2,4,5-Trichlorophenol	NL	NA		NA		NA		NA		NA		NA		NA		NA		960	U	NA		NA	
2,4,6-Trichlorophenol	400	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
2,4-Dichlorophenol	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
2,4-Dimethylphenol	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
2,4-Dinitrophenol	200/MDL	NA		NA		NA		NA		NA		NA		NA		NA		960	U	NA		NA	
2,4-Dinitrotoluene	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
2,6-Dinitrotoluene	1,000	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
2-Chloronaphthalene	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
2-Chlorophenol	800	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
2-Methylphenol	100/MDL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
2-Nitroaniline	430/MDL	NA		NA		NA		NA		NA		NA		NA		NA		960	U	NA		NA	
2-Nitrophenol	300/MDL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
3,3'-Dichlorobenzidine	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
3-Nitroaniline	500/MDL	NA		NA		NA		NA		NA		NA		NA		NA		960	U	NA		NA	
4,6-Dinitro-2-methylphenol	NL	NA		NA		NA		NA		NA		NA		NA		NA		960	U	NA		NA	
4-Bromophenyl phenyl ether	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
4-Chloro-3-methylphenol	240/MDL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
4-Chloroaniline	220/MDL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
4-Chlorophenyl phenyl ether	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
4-Methylphenol	900	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
4-Nitroaniline	NL	NA		NA		NA		NA		NA		NA		NA		NA		960	U	NA		NA	
4-Nitrophenol	100/MDL	NA		NA		NA		NA		NA		NA		NA		NA		960	U	NA		NA	
Acetophenone	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Atrazine	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Benzaldehyde	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
bis(2-Chloroethoxy)methane	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
bis(2-Chloroethyl) ether	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
bis(2-Ethylhexyl) phthalate	50,000	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Butyl benzyl phthalate	50,000	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Caprolactam	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Carbazole	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Di-n-butyl phthalate	8,100	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Di-n-octyl phthalate	50,000	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Dibenzofuran	6,200	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Diethyl phthalate	7,100	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Dimethyl phthalate	2,000	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Hexachlorobenzene	410	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Hexachlorobutadiene	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Hexachlorocyclopentadiene	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Hexachloroethane	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Isophorone	4,400	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
N-Nitrosodi-n-propylamine	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
N-Nitrosodiphenylamine	NL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Nitrobenzene	200/MDL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Pentachlorophenol	1,000	NA		NA		NA		NA		NA		NA		NA		NA		960	U	NA		NA	
Phenol	30/MDL	NA		NA		NA		NA		NA		NA		NA		NA		380	U	NA		NA	
Total SVOCs	NL	**2,976**		**-**	**U**	**3,760**		**313**		**10,436**		**-**	**U**	**28,380**		**-**	**U**	**-**	**U**	**6,200**		**-**	**U**

Notes:
NA = Not Analyzed
NL = Not Listed
MDL - Minimum Detection Limit
U = The material was analyzed for but not detected at or above the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
(Note 1) - NYSDEC TAGM HWR-94-4046 - Determination of Soil Cleanup Objectives and Cleanup Levels [NYSDEC, Jan. 1994].
(Note 2) - Total SVOCs includes all of the PAH and SVOC compounds.
CPAHs - Carcinogenic PAHs are shown in bold and italics.

Table 5-8
River Bank Area Subsurface Soil Metals and Cyanide Results
Port Jervis MGP Site

Sample Identification Laboratory Identification Date Sampled	NYSDEC Recommended Soil Cleanup Objective (Note 1)	RBB1 (3.3-4.3) C4I170326001 9/13/2004		RBB1 (13-14) C4I170326003 9/14/2004		RBB2 (3.8-4.8) C4I170326005 9/15/2004		RBB2 (12-13) C4I180236006 9/16/2004		RBB3 (3-4) C4I170326004 9/14/2004		RBB3 (12-14) C4I170326002 9/15/2004		RBB4 (3.8-4.8) C4I180236005 9/16/2004		RBB4 (19-20) C4I180236008 9/17/2004		RBB-4 (32-34) C4J190220001 10/14/2004		RBB5 (3.5-4.5) C4I130217001 9/9/2004		RBB5 (12-13) C4I130217002 9/10/2004	
Metals (mg/Kg)																							
Aluminum	SB	7,990		9,410		9,150		6,810		9,690		10,500		8,580		6,910		3,730		4,390	J	8,380	J
Antimony	SB	13.2	UJ	13.1	U	14.1	UJ	13.4	U	13	UJ	13.9	UJ	13.8	U	12.1	U	13.9	U	0.62	J	14.4	UJ
Arsenic	7.5/SB	8.2		5.7		2.6		0.98	J	1.7	J	8.6		4		6.5		3.3		13	J	1	J
Barium	300/SB	126		46.2		47.3		44.7	U	43.8		51.5		68.3		151		46.4	U	62.3		47.9	U
Beryllium	0.16/SB	0.34	J	0.28	J	0.19	J	1.1	U	0.45	J	0.45	J	0.099	J	0.14	J	1.2	U	1.3	U	1.2	U
Cadmium	1/SB	0.22	J	1.1	U	1.2	U	1.1	U	1.1	U	1.2	U	1.1	U	1	U	1.2	U	1.5		0.45	J
Calcium	SB	1420		1090	U	1170	U	1120	U	1090	U	1160	U	9800		1010	U	1160	U	1300	U	1200	U
Chromium	10/SB	24.8		14.4		13.1		9.6		13.3		17.2		13.7		11.3		5		38.3	J	28.5	J
Cobalt	30/SB	11	U	10.9	U	11.7	U	11.2	U	10.9	U	11.6	U	11.5	U	10.1	U	4.1	J	9.8	J	6.8	J
Copper	25/SB	91.5	J	16	J	22.4	J	9.9		12.6	J	13	J	19.3		10.3		7.2		127	J	29.9	J
Iron	2,000/SB	27,300		20,300		21,600		13,200		23,300		26,600		19,300		16,800		8,100		41,100	J	19,500	J
Lead	SB	136		6.9		37.2		8.4		6.4		5.8		48.8		5		4.8		573	J	6.8	J
Magnesium	SB	2,490		3,520		3,350		2,510		3,030		3,790		3,200		2,460		1,540		1,610		3,280	
Manganese	SB	1,140		348		318		193		2,100		1,030		485		1,460		302		294		196	
Mercury	0.1	0.81		0.023	J	0.025	J	0.056	J	0.03	J	0.12	U	0.25		0.1	U	0.12	U	0.15		0.12	U
Nickel	13/SB	20.3		21.2		19.2		13.8		20.7		22.8		15.6		15		8.7	J	18.6		21	
Potassium	SB	1100	U	1090	U	1170	U	1120	U	1090	U	1160	U	1150	U	1010	U	1160	U	1300	U	1200	U
Selenium	2/SB	1.1	U	1.1	UJ	1.2	U	1.1	U	0.54	UJ	1.2	U	1.1	U	0.53	J	0.76	J	3	J	1.2	U
Silver	SB	2.2	U	2.2	U	2.3	U	2.2	U	0.095	J	2.3	U	2.3	U	2	U	2.3	U	2.6	J	2.4	U
Sodium	SB	66.9	J	60.3	J	54.2	J	63.9	J	29.2	J	70.4	J	57.3	J	42.5	J	43.2	J	96.2	J	45.5	J
Thallium	SB	2.2	U	2.2	U	2.3	U	2.2	U	2.2	U	2.3	U	2.3	U	2	U	2.3	U	2.6	U	2.4	U
Vanadium	150/SB	13.5		10.9	U	11.7	U	11.2	U	11.1		12.6		11.5	U	10.1	U	11.6	U	28.5	J	8.6	J
Zinc	20/SB	113		49.3		90.2		40.8		50.2		57.2		76.6		36.4		24.8		386	J	58.9	J
Total Cyanide	NL	0.55	U	0.54	U	0.17	J	0.16	J	0.15	J	0.57	J	0.57	U	0.5	U	0.58	U	0.65	U	0.6	U
Percent Solids	NL	90.6		91.8		85.4		89.6		92.2		86.1		87		99.3		86.2		77.2		83.4	

Notes:
NL - Not Listed
SB - Site Background
U - The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J - The associated numerical value is an estimated quantity.
(Note 1) - NYSDEC TAGM HWR-94-4046 - Determination of Soil Cleanup Objectives and Cleanup Levels [NYSDEC, Jan. 1994].
[shaded box] - Exceeds NYSDEC Recommended Soil Cleanup Objective.

Table 5-9
Subsurface Soil TIC Summary
Port Jervis MGP Site

Compound	CAS Number	SB-14 (25-26)	SB-14 (73-75)	SB-15 (74-75)	SB-17 (151-153)	SB-19 (38-40)	MW-3D (146-148)	MW-6 (16-18)	MW-7S (25-26)	MW-7S (43-45)	MW-8S (41-43)	MW-8S (73-75)	MW-9 (163-165)	MW-10I (23-25)	MW-10 (51-53)	MW-10 (178-180)	MW-11S (23-25)	MW-11S (43-45)	MW-12S (15-16)
Naphthalene	91-20-3	3,400	6	ND	ND	140	ND	ND	69,000	ND	3,600	150	ND	ND	ND	ND	4,600	25	ND
2-Pentanone, 4-hydroxy-4-methyl-	123-42-2	7,000	ND	ND	ND	ND	6,300	ND	ND	ND	7,100	4,600	ND	ND	ND	5,800	2,300	5,800	ND
Biphenyl	95-52-4	520	ND	ND	ND	ND	ND	ND	11,000	ND	1,080	ND	ND	ND	ND	ND	6,400	ND	ND
Dibenzothiophene	132-65-0	330	ND	ND	ND	ND	ND	ND	ND	ND	500	ND	ND	ND	ND	ND	ND	ND	ND
9,10-Anthracenedione	84-65-1	280	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene, 1-methyl-	90-12-0	7,500	ND	ND	ND	ND	ND	ND	ND	ND	1,200	ND	ND	ND	ND	ND	28,000	ND	ND
Ethanol, 2-(2-ethoxyethoxy)	111-90-0	ND	170	ND	ND	ND	ND	130	ND	ND	ND	ND	79	ND	150	ND	ND	ND	ND
n-Hexadecanoic acid	57-10-3	ND	ND	ND	ND	120	ND	240	ND	130	ND	ND	ND	170	ND	250	ND	ND	ND
Cyclic octaatomic sulfur	10544-50-0	ND	ND	ND	ND	ND	ND	220	ND	ND	ND	ND	ND	ND	ND	ND	6,700	ND	ND
Benzene, 1,3,5-trimethyl-	108-67-8	ND	ND	ND	ND	ND	ND	ND	3,500	ND	230	ND	ND	ND	ND	ND	870	ND	ND
Benzene, 1,2,4-trimethyl-	95-63-6	ND	ND	ND	ND	ND	ND	ND	6,400	ND	180	ND	ND	ND	ND	ND	950	ND	ND
1,4-Methanonaphthalene, 1,4-	4453-90-1	ND	ND	ND	ND	ND	ND	ND	16,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Propanoic acid, 2-methyl-, 1	74381-40-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	89	ND	110	ND	ND	ND	ND
Cyclohexasiloxane, dodecamet	540-97-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	160	ND	ND	ND
Decane, 2,6,7-trimethyl-	62108-25-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,400	ND	ND
Pentadecane, 2,6,10-trimethy	3892-00-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indane	496-11-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,5-Hexanedione	110-13-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1, 8-Naphthalic anhydride	81-84-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclopenta (def) phenanthrenon	5737-13-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dodecanoic acid	143-07-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5, 12-Naphthacenedione	1090-13-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Acenaphthylenedione	82-86-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene, 2,7-dimethyl-	582-16-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Unknown	NA	109,074	217	354	140	418	ND	2,484	227,940	ND	32,097	397	1,150	2,870	97	722	268,390	7	231,340

Compound	CAS Number	MW12S (34-35)	MW-13 (21-23)	DP-1 (10.5-11.5)	DP-2 (18-19)	DP-3 (19-20)	DP-5 (5-6)	DP-6 (19-20)	DP-7 (22-23)	DP-8 (12-14)	DP-9 (6-8)	DP-10 (12-14)	DP-12 (1-2)	DP-13 (14-16)	DP-14 (22-23)	DP-15 (8.5-19.5)	DP-16 (16-18)	DP-17 (15-16)	DP-18 (16-17)
Naphthalene	91-20-3	ND	ND	230,000	62,000	170,000	1,140,000	81,000	9,700	24,000	ND	54	ND	ND	84,000	ND	ND	ND	ND
2-Pentanone, 4-hydroxy-4-methyl-	123-42-2	ND	5,100	ND	ND	ND	ND	ND	ND	18,900	5,500	10,000	4,600	ND	16,300	4,200	3,900	4,900	4,400
Biphenyl	95-52-4	ND	ND	ND	129,000	49,000	57,000	4,100	8,200	340	ND	ND	ND	ND	4,800	ND	ND	ND	ND
Dibenzothiophene	132-65-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9,10-Anthracenedione	84-65-1	ND	ND	ND	ND	ND	ND	ND	ND	210	ND	ND	ND	ND	2,000	ND	ND	ND	ND
Naphthalene, 1-methyl-	90-12-0	ND	ND	7,500	280,000	134,000	240,000	75,000	40,000	ND	980	1,200	ND	21,000	26,000	ND	ND	ND	ND
Ethanol, 2-(2-ethoxyethoxy)	111-90-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Hexadecanoic acid	57-10-3	87	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	230	ND	ND	210	180	ND	390
Cyclic octaatomic sulfur	10544-50-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene, 1,3,5-trimethyl-	108-67-8	ND	ND	28,000	5,900	22,000	50,000	ND	ND	ND	ND	ND	ND	26,000	8,200	ND	ND	ND	ND
Benzene, 1,2,4-trimethyl-	95-63-6	ND	ND	ND	3,700	36,000	115,000	26,000	ND	2,700	ND	ND	ND	75,000	13,000	ND	ND	43,000	ND
1,4-Methanonaphthalene, 1,4-	4453-90-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Propanoic acid, 2-methyl-, 1	74381-40-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexasiloxane, dodecamet	540-97-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Decane, 2,6,7-trimethyl-	62108-25-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	93	88	ND	130
Pentadecane, 2,6,10-trimethy	3892-00-0	ND	ND	3,200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indane	496-11-7	ND	ND	ND	73,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,5-Hexanedione	110-13-4	ND	ND	ND	ND	ND	ND	ND	ND	780	ND	ND	ND	ND	ND	ND	ND	ND	ND
1, 8-Naphthalic anhydride	81-84-5	ND	ND	ND	ND	ND	ND	ND	ND	560	840	1,600	ND	ND	ND	ND	ND	ND	ND
Cyclopenta (def) phenanthrenon	5737-13-3	ND	ND	ND	ND	ND	ND	ND	ND	980	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dodecanoic acid	143-07-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	870	ND	ND	ND	ND	ND	ND	ND	ND
5, 12-Naphthacenedione	1090-13-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	760	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Acenaphthylenedione	82-86-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,300	ND	ND	ND	ND	ND	ND	ND
Naphthalene, 2,7-dimethyl-	582-16-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21,000	ND	ND	ND	ND	ND
Unknown	NA	ND	130	1,598,400	4,119,400	2,377,200	3,884,500	1,631,600	539,400	207,290	26,910	77,830	21,080	2,237,400	834,900	998	506	1,694,400	30,132

ND = The material was analyzed for but not detected at, or above, the reporting limit.

Table 5-10
Groundwater Sample Results
1998-2000
Port Jervis MGP Site

Sample Name Sample Location Date Sample Type Area Chemical	CAS No.	NYSDEC Recommended Groundwater Standards (Note 1)	MW1S MW1S 5/20/1998 Investigation Onsite	MW1D MW1D 5/20/1998 Investigation Onsite	MW1D MW1D 11/30/2000 Investigation Onsite	MW2 MW2 5/20/1998 Investigation Onsite	MW2 MW2 11/30/2000 Investigation Onsite	MW3 MW3 5/20/1998 Investigation Onsite	MW3 MW3 11/30/2000 Investigation Onsite	MW3D MW3D 11/30/2000 Investigation Onsite	MW5 MW5 5/20/1998 Investigation Onsite	MW5 MW5 11/30/2000 Investigation Onsite	MW6 MW6 11/30/2000 Investigation Onsite	MW7 MW7 11/30/2000 Investigation Onsite
BTEX (ug/L)														
Benzene	71-43-2	1	52 /GW	130 /GW	160 /GW	< 5	28 /GW	< 5	< 10	< 10	75 /GW	2 J/GW	< 10	11 J/GW
Toluene	108-88-3	5	11 J/GW	52 /GW	18 J/GW	< 5	9 J/GW	< 5	< 10 J	< 10	15 /GW	< 10	< 10	5 J
Ethylbenzene	100-41-4	5	410 /GW	830 /GW	590 /GW	< 5	280 /GW	2 J	13 /GW	< 10	< 20	50 /GW	< 10	370 /GW
Xylenes (total)	1330-20-7	5	< 520	760 /GW	360 /GW	< 5	160 /GW	14 /GW	8 J/GW	< 10	400 /GW	25 /GW	< 10	240 /GW
Total BTEX			473	1772	1128	ND	477.1	16	21.3	ND	490	76.9	ND	626
Other VOCs (ug/L)														
1,1,2-Trichloroethane	79-00-5	5	< 25	< 50	< 50	< 5	< 25	< 5	< 10	< 10	< 10	< 10	< 10	< 20
2-Butanone	78-93-3	50	< 50	< 100	< 50 J	< 10	< 25	< 10	< 10 J	< 10 J	< 20	< 10 J	< 10 J	< 20 J
Acetone	67-64-1	50	< 50	< 100	< 50	< 10	< 25	< 10	< 10	< 10	< 20	< 10	< 10	< 20
Chloroform	67-66-3	7	< 25	< 50	< 50	< 5	< 25	< 5	< 10	1 J	< 10	< 10	< 10	< 20
Methylene chloride	75-09-2	5	< 25	28 J/GW	< 50	< 5	< 25	< 5	< 10	< 10	< 10	< 10	< 10	< 20
Trichloroethene	79-01-6	5	< 25	< 50	< 50	< 5	< 25	< 5 J	< 10	< 10	< 10	< 10	< 10	< 20
Total Other VOCs			ND	28	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND
PAHs (ug/L)														
Naphthalene	91-20-3	10	3100 /GW	270 /GW	6300 J/GW	< 54	660 /GW	< 1400	220 /GW	< 10	1200 /GW	480 /GW	< 10	2500 /GW
Acenaphthylene	208-96-8	NL	< 600	21 J	17 J	< 11	8 J	24 J	6 J	< 10	14 J	5 J	< 10	23 J
Acenaphthene	83-32-9	20	370 J/GW	140 J/GW	170 J/GW	< 11	55 /GW	170 J/GW	49 J/GW	< 10	110 J/GW	50 /GW	< 10	100 /GW
Fluorene	86-73-7	50	140 J/GW	42 J	38 J	< 11	14 J	58 /GW	15 J	< 10	40 J	20 J	< 10	32 J
Phenanthrene	85-01-8	50	320 J/GW	380 J/GW	47 J	< 11	11 J	110 J/GW	29 J	< 10	92 J/GW	37 J	< 10	42 J
Anthracene	120-12-7	50	94 J/GW	12 J	8 J	< 11	< 50	38 J	6 J	< 10	26 J	7 J	< 10	7 J
Fluoranthene	206-44-0	50	83 J/GW	4 J	< 50 J	< 11	< 50	28 J	< 50	< 10	16 J	< 40	< 10	< 50
Pyrene	129-00-0	50	110 J/GW	5 J	< 50 J	< 11	< 50	36 J	< 50	< 10	19 J	< 40	< 10	< 50
Benzo(a)anthracene	56-55-3	0.002	< 600	< 50 J	< 50 J	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Chrysene	218-01-9	0.002	< 600	< 50 J	< 50 J	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Benzo(b)fluoranthene	205-99-2	0.002	< 600	< 50 J	< 50 J	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Benzo(k)fluoranthene	207-08-9	0.002	< 600	< 50 J	< 50 J	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Benzo(a)pyrene	50-32-8	ND	< 600	< 50 J	< 50 J	1 J/GW	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	< 600	< 54	< 50 J	7 J/GW	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Dibenz(a,h)anthracene	53-70-3	NL	< 600	< 54	< 50	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Benzo(ghi)perylene	191-24-2	NL	< 600	< 50 J	< 50 J	8 J	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Total CPAHs			ND	ND	ND	8	ND	ND	ND	ND	ND	ND	ND	ND
Total PAHs			4217	874	6580.1	16	747.6	464	325.5	ND	1517	598.8	ND	2704
Other SVOCs (ug/L)														
2-Chloronaphthalene	91-58-7	10	< 600	< 50 J	< 50 J	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
2-Methylnaphthalene	91-57-6	NL	1000	290	220	< 11	6 J	< 270	5 J	< 10	210	22 J	< 10	79
3,3'-Dichlorobenzidine	91-94-1	5	< 1200	< 110	< 50	< 22	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
4-Chloroaniline	106-47-8	5	< 600	< 50 J	< 50 J	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
4-Methylphenol	106-44-5	NL	< 600	< 54	< 50	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
bis(2-Ethylhexyl) phthalate	117-81-7	5	< 600	< 50 J	< 50 J	< 11	34 J/GW	< 270	< 50	7 J/GW	< 250	< 40	< 10	< 50
Butyl benzyl phthalate	85-68-7	50	< 600	< 50 J	< 50 J	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Carbazole	86-74-8	NL	< 600	12 J	7 J	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	6 J
Di-n-butyl phthalate	84-74-2	50	< 600	< 54	< 50	1 J	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Di-n-octyl phthalate	117-84-0	NL	< 600	< 54	< 50	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Dibenzofuran	132-64-9	NL	< 600	6 J	5 J	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Pentachlorophenol	87-86-5	1	< 3000	< 270	< 120	< 54	< 120	< 1400	< 120	< 25	< 1200	< 100	< 25	< 120
Phenol	108-95-2	1	< 600	< 54	< 50	< 11	< 50	< 270	< 50	< 10	< 250	< 40	< 10	< 50
Total Other SVOCs			1000	308	231.6	0.6	39.8	ND	5	6.8	210	22	ND	85.2
Metals (ug/L)														
Aluminum	7429-90-5	NL	NA	NA	< 200	NA	< 200	NA	50 J	213	NA	61 J	251	903
Antimony	7440-36-0	3	NA	NA	< 60	NA	60	NA	< 60	< 60	NA	< 60	60	< 60
Arsenic	7440-38-2	25	10	22 R	33 /GW	4 B	< 10	9 B	6 J	< 10	7 B	5 J	< 10	5 J
Barium	7440-39-3	1000	235 J	292 J	374	68 J	314	347 J	368	47 J	765 J	598	76 J	314
Beryllium	7440-41-7	3	NA	NA	< 5	NA	< 5	NA	< 5	< 5	NA	< 5	< 5	< 0
Cadmium	7440-43-9	10	NA	NA	< 5	NA	< 5	NA	< 5	< 5	NA	< 5	< 5	< 5
Calcium	7440-70-2	NL	NA	NA	63500	NA	44000	NA	39100	42300	NA	66200	32100	32300
Chromium	7440-47-3	50	6 J	4 J	< 10	3 J	< 10	5 J	< 10	< 10	3 J	< 10	< 10	< 10
Cobalt	7440-48-4	NL	NA	NA	< 50	NA	< 50	NA	< 50	< 50	NA	< 50	< 50	< 50
Copper	7440-50-8	200	NA	NA	< 25	NA	< 25	NA	< 25	< 25	NA	< 25	< 25	< 25
Iron	7439-89-6	300	NA	NA	20200 /GW	NA	27100 /GW	NA	12100 /GW	1190 /GW	NA	16700 /GW	632 /GW	17700 /GW
Lead	7439-92-1	25	5 J	5 J	< 3	7 J	< 3	7 J	< 3	< 3	3 J	< 3	< 3	< 3
Magnesium	7439-95-4	35000	NA	NA	7390	NA	6140	NA	4450 J	9500	NA	5770	3670 J	< 2740
Manganese	7439-96-5	300	NA	NA	27300 /GW	NA	12700 /GW	NA	12800 /GW	525 /GW	NA	12300 /GW	857 /GW	4570 /GW
Mercury	7439-97-6	2	NA	NA	< 0.2	NA	< 0.2	NA	< 0.2	< 0.2	NA	< 0.2	< 0.2	< 0.2
Nickel	7440-02-0	NL	NA	NA	< 40	NA	< 40	NA	< 40	< 40	NA	< 40	< 40	< 40
Potassium	7440-09-7	NL	NA	NA	8060	NA	5100	NA	5030	3450 J	NA	7230	3150 J	< 2120
Selenium	7782-49-2	10	< 3	< 2 N	< 25	< 8	< 10	< 2 N	< 10	< 5	< 3	< 10	< 5	< 5
Silver	7440-22-4	50	< 1	2 B	< 10	< 1	< 10	1 B	< 10	< 10	1 B	< 10	< 10	< 10
Sodium	7440-23-5	20000	NA	NA	83100 /GW	NA	63700 /GW	NA	63600 /GW	12600	NA	112000 /GW	103000 /GW	23300 /GW
Thallium	7440-28-0	4	NA	NA	< 50	NA	< 20	NA	< 20	< 10	NA	< 20	< 10	< 10
Vanadium	7440-62-2	NL	NA	NA	< 50	NA	< 50	NA	< 50	4 J	NA	< 50	< 50	< 50
Zinc	7440-66-6	300	NA	NA	8 J	NA	8 J	NA	< 20	5 J	NA	< 20	10 J	< 7
PCBs (ug/L)														
Aroclor 1252	11097-69-1	NL	< 1	< 1	NA	< 1	NA	< 1	NA	NA	< 1 J	NA	NA	NA
Aroclor 1260	11096-82-5	NL	< 1	< 1	NA	< 1	NA	< 1	NA	NA	< 1 J	NA	NA	NA
Total PCBs		0.09	ND	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Other Parameters (ug/L)														
Percent Solids		NL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	57-12-5	200	< 10	20	14	< 10	60	< 10	11	< 10	< 10	11	< 10	< 10
Total Organic Carbon		NL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
/GW- Indicates Exceedence of the Guidance or Standard Values
NA = Not Analyzed
NL = Not Listed
J = The associated numerical value is an estimated quantity.
< = The material was analyzed for, but not detected at or above the reporting limit. The associated numerical value is the sample quantitation limit.
Note(1) - Guidance or Standard Values - NYSDEC, Division of Water, TOGS (1.1.1) - 6 NYCRR 703.5 [NYSDEC, 1998].

Table 5-10
Groundwater Sample Results
1998-2000
Port Jervis MGP Site

Chemical (Sample Name / Sample Location / Date / Sample Type / Area)	CAS No.	NYSDEC Recommended Groundwater Standards (Note 1)	MW8 / MW8 / 11/30/2000 / Investigation / Offsite	MW9D / MW9D / 11/30/2000 / Investigation / Offsite	MW10S / MW10S / 11/30/2000 / Investigation / Offsite	MW10I / MW10I / 11/30/2000 / Investigation / Offsite	MW10D / MW10D / 11/30/2000 / Investigation / Offsite	MW11 / MW11 / 11/30/2000 / Investigation / Offsite	MW110 / MW11 / 11/30/2000 / Duplicate / Offsite	MW12 / MW12 / 11/30/2000 / Investigation / Offsite	MW120 / MW12 / 11/30/2000 / Duplicate / Offsite	MW13 / MW13 / 11/30/2000 / Investigation / Onsite
BTEX (ug/L)												
Benzene	71-43-2	1	150 /GW	< 10	< 10	1 J/GW	< 10	12 J/GW	14 J/GW	< 10	< 10	< 10
Toluene	108-88-3	5	22 J/GW	< 10	< 10	2 J	< 10	3 J	4 J	< 10	< 10	< 10 J
Ethylbenzene	100-41-4	5	1100 /GW	< 10	< 10	< 10	< 10	230 /GW	270 /GW	< 10	< 10	< 10
Xylenes (total)	1330-20-7	5	760 /GW	< 10	< 10	42 /GW	< 10	190 /GW	230 /GW	< 10	< 10	< 10
Total BTEX			2032	ND	ND	45.3	ND	435	518	ND	ND	ND
Other VOCs (ug/L)												
1,1,2-Trichloroethane	79-00-5	5	< 100	< 10	< 10	< 10	< 10	< 20	< 20	< 10	< 10	< 10
2-Butanone	78-93-3	50	< 100	< 10	< 10 J	< 10 J	< 10 J	< 20	< 20	< 10 J	< 10 J	< 10
Acetone	67-64-1	50	< 100	< 10	< 10	< 10	3.6 J	< 20	< 20	< 10	< 10	5 J B
Chloroform	67-66-3	7	< 100	< 10	< 10	1 J	< 10	< 20	< 20	< 10	< 10	2 J
Methylene chloride	75-09-2	5	< 100	< 10	< 10	< 10	< 10 J	< 20	< 20	< 10	< 10	< 10
Trichloroethene	79-01-6	5	< 100	< 10	< 10	< 10	< 10	< 20	< 20	< 10	< 10	2 J
Total Other VOCs			ND	ND	ND	1.4	ND	ND	ND	ND	ND	8.9
PAHs (ug/L)												
Naphthalene	91-20-3	10	3600 J/GW	< 10	< 10	100 /GW	< 10	1300 /GW	1300 J/GW	7 J	6 J	2 J
Acenaphthylene	208-96-8	NL	6 J	< 10	< 10	3 J	< 10	5 J	4 J	< 10	< 10	< 10
Acenaphthene	83-32-9	20	160 /GW	< 10	4 J	9 J	< 10	99 /GW	100 J/GW	5 J	5 J	< 10
Fluorene	86-73-7	50	38 J	< 10	1 J	< 10	< 10	26	26 J	3 J	3 J	< 10
Phenanthrene	85-01-8	50	61 J/GW	< 10	< 10	< 10	< 10	48	44 J	2 J	2 J	< 10
Anthracene	120-12-7	50	11 J	< 10	< 10	< 10	< 10	8 J	7 J	< 10	< 10	< 10
Fluoranthene	206-44-0	50	< 50	< 10	< 10	< 10	< 10	7 J	6 J	< 10	< 10	< 10
Pyrene	129-00-0	50	6 J	< 10	1 J	< 10	< 10	8 J	7 J	< 10	< 10	< 10
Benzo(a)anthracene	56-55-3	0.002	< 50 J	< 10	< 10	< 10	< 10	2 J	2 J	< 10	< 10	< 10
Chrysene	218-01-9	0.002	< 50 J	< 10	< 10	< 10	< 10	2 J	2 J	< 10	< 10	< 10
Benzo(b)fluoranthene	205-99-2	0.002	< 50 J	< 10	< 10	< 10	< 10	< 20	< 10 J	< 10	< 10	< 10
Benzo(k)fluoranthene	207-08-9	0.002	< 50 J	< 10	< 10	< 10	< 10	< 20	< 10 J	< 10	< 10	< 10
Benzo(a)pyrene	50-32-8	ND	< 50 J	< 10	< 10	< 10	< 10	< 20	1 J/GW	< 10	< 10	< 10
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	< 50 J	< 10	< 10	< 10	< 10	< 20	< 10 J	< 10	< 10	< 10
Dibenz(a,h)anthracene	53-70-3	NL	< 50 J	< 10	< 10	< 10	< 10	< 20	< 10 J	< 10	< 10	< 10
Benzo(ghi)perylene	191-24-2	NL	< 50 J	< 10	< 10	< 10	< 10	< 20	< 10 J	< 10	< 10	< 10
Total CPAHs			ND	ND	ND	ND	ND	4.4	5	ND	ND	ND
Total PAHs			3881.3	ND	6.2	112.2	ND	1505.2	1498.2	16.5	15.7	1.6
Other SVOCs (ug/L)												
2-Chloronaphthalene	91-58-7	10	< 50	< 10	< 10	< 10	< 10	< 20	< 10 J	< 10	< 10	< 10
2-Methylnaphthalene	91-57-6	NL	140 J	< 10	< 10	< 10	< 10	63	55	10 J	9 J	< 10
3,3'-Dichlorobenzidine	91-94-1	5	< 50	< 10	< 10	< 10	< 10	< 20	< 10 J	< 10	< 10	< 10
4-Chloroaniline	106-47-8	5	< 50 J	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 10	< 10
4-Methylphenol	106-44-5	NL	< 50	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 10	< 10
bis(2-Ethylhexyl) phthalate	117-81-7	5	< 50 J	< 10	< 10	< 10	< 10	< 20	< 10 J	< 10	< 10	< 10
Butyl benzyl phthalate	85-68-7	50	< 50 J	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 10	< 10
Carbazole	86-74-8	NL	8 J	< 10	< 10	1 J	< 10	3 J	4 J	< 10	< 10	< 10
Di-n-butyl phthalate	84-74-2	50	< 50 J	< 10	< 10	< 10	< 10	< 20	< 10 J	< 10	< 10	< 10
Di-n-octyl phthalate	117-84-0	NL	< 50 J	< 10	< 10	< 10	< 10	< 20	< 10 J	< 10	< 10	< 10
Dibenzofuran	132-64-9	NL	5 J	< 10	< 10	1 J	< 10	2 J	2 J	< 10	< 10	< 10
Pentachlorophenol	87-86-5	1	< 120	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25
Phenol	108-95-2	1	< 50	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 10	< 10
Total Other SVOCs			153.1	ND	ND	2.3	ND	68.5	60.7	9.5	8.7	ND
Metals (ug/L)												
Aluminum	7429-90-5	NL	919	73 J	545	< 200	30 J	1530	1880	44 J	43 J	89 J
Antimony	7440-36-0	3	< 60	< 60	< 60	< 60	< 60	< 60	< 60	< 60	< 60	< 60
Arsenic	7440-38-2	25	7 J	< 10	3 J	< 10	< 10	27 /GW	29 /GW	< 10	< 10	2 J
Barium	7440-39-3	1000	456	27 J	125 J	157 J	61 J	440	462	347	357	63 J
Beryllium	7440-41-7	3	< 0	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Cadmium	7440-43-9	10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Calcium	7440-70-2	NL	36800	46100	17600	44800	38900	39600	41900	37800	38700	21400
Chromium	7440-47-3	50	9 J	< 10	16	< 10	< 10	5 J	8 J	< 10	< 10	3 J
Cobalt	7440-48-4	NL	< 50	< 50	< 50	8 J	< 50	< 50	4 J	< 50	4 J	< 50
Copper	7440-50-8	200	4 J	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Iron	7439-89-6	300	11500 /GW	< 108	2270 /GW	61 J	1810 /GW	26200 /GW	27900 /GW	2000 /GW	2070 /GW	81 J
Lead	7439-92-1	25	< 3	< 3	< 3	< 3	< 3	2 J	4	< 3	< 3	< 3
Magnesium	7439-95-4	35000	4940 J	9780	3510 J	5550	11700	4850 J	5180	4240 J	4430 J	4040 J
Manganese	7439-96-5	300	13900 /GW	244	775 /GW	18300 /GW	792 /GW	8220 /GW	8640 /GW	14700 /GW	15100 /GW	59
Mercury	7439-97-6	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Nickel	7440-02-0	NL	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40
Potassium	7440-09-7	NL	4550 J	3830 J	1750 J	6160	1070 J	5140	5690	5920	5900	3390 J
Selenium	7782-49-2	10	< 10	< 5	< 5	< 10	< 5	< 5	< 5	< 10	< 10	< 5
Silver	7440-22-4	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Sodium	7440-23-5	20000	45400 /GW	13000	30100 /GW	49900 /GW	16000	48700 /GW	51200 /GW	75300 /GW	77900 /GW	21500 /GW
Thallium	7440-28-0	4	< 20	< 10	< 10	< 20	< 10	< 10	< 10	< 20	< 20	< 10
Vanadium	7440-62-2	NL	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Zinc	7440-66-6	300	< 20	< 20	9 J	4 J	< 8	< 14	< 21	8 J	5 J	14 J
PCBs (ug/L)												
Aroclor 1252	11097-69-1	NL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	11096-82-5	NL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs		0.09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Parameters (ug/L)												
Percent Solids		NL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	57-12-5	200	15	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Total Organic Carbon		NL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
/GW- Indicates Exceedence of the Guidance or Standard Values
NA = Not Analyzed
NL = Not Listed
J = The associated numerical value is an estimated quantity.
< = The material was analyzed for, but not detected at or above the reporting limit. The associated numerical value is the sample quantitation limit.
Note(1) - Guidance or Standard Values - NYSDEC, Division of Water, TOGS (1.1.1) - 6 NYCRR 703.5 [NYSDEC, 1998].

Table 5-11
Groundwater Sample Results
2003
Port Jervis MGP Site

Sample ID		MW-1S		MW-1D		DUP-2 (MW-1D)		MW-2		MW-3S		MW-3D		MW-5		MW-6		MW-7		MW-7-(1)		MW-7-(2)		MW-9D		MW-10S		MW-10I		MW-10D	
Langan Sample Number	NYSDEC Groundwater	096		097		098		082		080		077		081		068		089		092		093		101		074		075		102	
Lab Sample Number	Quality Standards and	N54078-5		N54078-6		N54078-7		N53927-13		N53927-11		N53927-8		N53927-12		N53927-1		N53927-20		N54078-1		N54078-2		N54277-1		N53927-5		N53927-6		N54277-2	
Sampling Date	Guidance Values	11/24/2003		11/24/2003		11/24/2003		11/21/2003		11/21/2003		11/20/2003		11/21/2003		11/20/2003		11/21/2003		11/24/2003		11/24/2003		11/25/2003		11/20/2003		11/20/2003		11/25/2003	
Matrix		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous	
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		ug/L		ug/L		ug/L	
Parameter		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds (VOC)																															
Benzene	1	331	J	144	J	148	J	2.1		1.5		ND		5.7		ND		NA		72.4		66.9		ND		ND		3.0		ND	
Toluene	5	21.0	J	13.9	J	13.5	J	ND		ND		ND		1.0		ND		NA		10.9		9.5		ND		ND		ND		ND	
Ethylbenzene	5	1,220[a]	J	509	J	525	J	7.6		9.6		ND		57.9		ND		NA		465		547		ND		ND		ND		ND	
Xylene (total)	5	658	J	264	J	265	J	12.3		9.5		ND		18.4		ND		NA		246		275		ND		ND		13.1		ND	
Total BTEX		2,230	J	930.9	J	951.5	J	22	J	20.6	J	0		83	J	0		NA		794.3	J	898.4	J	0		0		16.1	J	0	
Polycyclic Aromatic Hydrocarbons (PAHs)																															
Acenaphthene	20*	243	a	207	a	171	a	9.5		26.3		ND		33.8		ND		NA		146	a	163	a	ND		ND		19.2		ND	
Acenaphthylene	--	24.4		19.1		16.9		1.4	J	4.7		ND		4.8		ND		NA		17.9		28.8		ND		ND		3.7		ND	
Anthracene	50*	30.0		15.2		13.2		ND		6.8		ND		9.9		ND		NA		12.1		15.9		ND		ND		0.70	J	ND	
Benzo(a)anthracene	0.002*	7.9		1.1	J	0.61	J	ND		ND		ND		ND		ND		NA		1.1	J	1.6	J	ND		ND		ND		ND	
Benzo(a)pyrene	--	6.6		0.84	J	ND		ND		ND		ND		ND		ND		NA		0.85	J	0.95	J	ND		ND		ND		ND	
Benzo(b)fluoranthene	0.002*	4.2		0.58	J	ND		ND		ND		ND		ND		ND		NA		0.57	J	0.76	J	ND		ND		ND		ND	
Benzo(g,h,i)perylene	--	2.4		ND		ND		ND		ND		ND		ND		ND		NA		0.58	J	ND		ND		ND		ND		ND	
Benzo(k)fluoranthene	0.002*	1.6	J	ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		ND		ND		ND	
Chrysene	0.002*	7.9		1.1	J	0.57	J	ND		ND		ND		ND		ND		NA		1.2	J	1.5	J	ND		ND		ND		ND	
Dibenzo(a,h)anthracene	--	ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		ND		ND		ND	
Fluoranthene	50*	20.1		5.3		3.9		ND		2.8		ND		3.6		ND		NA		6.4		8.6		ND		ND		ND		ND	
Fluorene	50*	76.2		59.0		52.7		2.2		10.4		ND		16.9		ND		NA		45.3		57.6		ND		ND		0.63	J	ND	
Indeno(1,2,3-cd)pyrene	0.002*	2.3		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		ND		ND		ND	
Naphthalene	10*	4880	a	3,640	a	2,940	a	14.5		44.2		ND		83.2		ND		NA		1,440	a	1,910	a	ND		ND		ND		ND	
Phenanthrene	50*	114	a	70.3		60.9		0.72	J	21.2		ND		37.1		ND		NA		50.5		70.7		ND		ND		ND		ND	
Pyrene	50*	28.4		6.3		4.5		ND		3.8		ND		4.7		ND		NA		7.7		10.5		ND		ND		ND		ND	
Total PAHs		5,449	J	4,026	J	3,264	J	28	J	120	J	0		194	J	0		0		1,730	J	2,270	J	0		0		24	J	0	

Notes:
ND - Not detected.
J - Indicates an estimated value.
Q - Qualifier.
ug/L - micrograms per liter.
* - Indicates guidance value, not a standard
-- Indicates no applicable standard, or guidance value
a - Result is from Run # 2.

FB - Field Blank
TB - Trip Blank
DUP - Duplicate
: Indicates compound exceeding the respective NYSDEC GWQS.
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
TIC - Tentatively Identified Compounds

Table 5-11
Groundwater Sample Results
2003
Port Jervis MGP Site

Sample ID		MW-11-(1)		MW-11-(2)		MW-12		MW-13		DUP-1 (MW-13)		MW-14S	
Langan Sample Number	NYSDEC Groundwater	094		095		072		073		076		069	
Lab Sample Number	Quality Standards and	N54078-3		N54078-4		N53927-3		N53927-4		N53927-7		N53927-2	
Sampling Date	Guidance Values	11/24/2003		11/24/2003		11/20/2003		11/20/2003		11/20/2003		11/20/2003	
Matrix		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous	
Units	ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Parameter		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds (VOC)													
Benzene	1	19.9	J	22.3	J	ND		ND		ND		ND	
Toluene	5	4.4	J	5.1	J	ND		ND		ND		ND	
Ethylbenzene	5	266	J	301	J	ND		ND		ND		ND	
Xylene (total)	5	170	J	191	J	ND		ND		ND		ND	
Total BTEX		460.3	J	519.4	J	0		0		0		0	
Polycyclic Aromatic Hydrocarbons (PAHs)													
Acenaphthene	20*	131	a	62.2		ND		ND		ND		ND	
Acenaphthylene	--	8.0		4.5		ND		ND		ND		ND	
Anthracene	50*	11.0		9.8		ND		ND		ND		ND	
Benzo(a)anthracene	0.002*	1.3	J	2.2		ND		ND		ND		ND	
Benzo(a)pyrene	--	1.3	J	2.1		ND		ND		ND		ND	
Benzo(b)fluoranthene	0.002*	0.89	J	1.5	J	ND		ND		ND		ND	
Benzo(g,h,i)perylene	--	0.78	J	1.1	J	ND		ND		ND		ND	
Benzo(k)fluoranthene	0.002*	0.52	J	0.80	J	ND		ND		ND		ND	
Chrysene	0.002*	1.4	J	2.3		ND		ND		ND		ND	
Dibenzo(a,h)anthracene	--	ND		ND		ND		ND		ND		ND	
Fluoranthene	50*	5.8		7.3		ND		ND		ND		ND	
Fluorene	50*	38.6		23.2		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene	0.002*	ND		1.0	J	ND		ND		ND		ND	
Naphthalene	10*	1,490	a	728	aJ	ND		ND		ND		ND	
Phenanthrene	50*	49.1		43.2		ND		ND		ND		ND	
Pyrene	50*	6.8		9.0		ND		ND		ND		ND	
Total PAHs		1,746	J	898	J	0		0		0		0	

Sample ID		MW-15S		MW-16S		MW-17S		MW-17I		MW-18I		MW-19S	
Langan Sample Number	NYSDEC Groundwater	085		084		086		087		088		083	
Lab Sample Number	Quality Standards and	N53927-16		N53927-15		N53927-17		N53927-18		N53927-19		N53927-14	
Sampling Date	Guidance Values	11/21/2003		11/21/2003		11/21/2003		11/21/2003		11/21/2003		11/21/2003	
Matrix		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous		Aqueous	
Units	ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Parameter		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds (VOC)													
Benzene	1	4.0		ND		0.66	J	23.7	J	ND	J	ND	
Toluene	5	6.1		ND		ND	J	3.1	J	ND	J	ND	
Ethylbenzene	5	396		ND		0.97	J	152	J	ND	J	ND	
Xylene (total)	5	233		ND		1.3	J	59.3	J	ND	J	ND	
Total BTEX		639.1	J	0		2.93		238.1	J	0		0	
Polycyclic Aromatic Hydrocarbons (PAHs)													
Acenaphthene	20*	134	a	2.7		11.5		64.2		15.0		ND	
Acenaphthylene	--	10.4		ND		2.0		3.0		1.1	J	ND	
Anthracene	50*	11.4		ND		2.5		6.5		1.4	J	ND	
Benzo(a)anthracene	0.002*	0.70	J	ND		0.99	J	ND		ND		ND	
Benzo(a)pyrene	--	ND		ND		1.3	J	ND		ND		ND	
Benzo(b)fluoranthene	0.002*	ND		ND		0.66	J	ND		ND		ND	
Benzo(g,h,i)perylene	--	ND		ND		2.0		ND		ND		ND	
Benzo(k)fluoranthene	0.002*	ND		ND		1.3	J	ND		ND		ND	
Chrysene	0.002*	0.66	J	ND		1.0	J	ND		ND		ND	
Dibenzo(a,h)anthracene	--	ND		ND		ND		ND		ND		ND	
Fluoranthene	50*	4.2		ND		3.8		3.5		2.4		ND	
Fluorene	50*	37.5		ND		5.1		19.8		4.0		ND	
Indeno(1,2,3-cd)pyrene	0.002*	ND		ND		1.1	J	ND		ND		ND	
Naphthalene	10*	2,360	a	ND		0.70	J	197	a	1.3	J	ND	
Phenanthrene	50*	49.5		ND		0.84	J	27.3		1.9	J	ND	
Pyrene	50*	4.8		0.54	J	4.0		3.5		2.7		ND	
Total PAHs		2,613	J	3		39	J	325	J	30	J	0	

Notes:

ND - Not detected.
J - Indicates an estimated value.
Q - Qualifier.
ug/L - micrograms per liter.
* - Indicates guidance value, not a standard
-- Indicates no applicable standard, or guidance value
a - Result is from Run # 2.

FB - Field Blank
TB - Trip Blank
DUP - Duplicate
[ ]: Indicates compound exceeding the respective NYSDEC GWQS.
NA - Not Analyzed
NYSDEC - New York State Department of Environmental Conservation
TIC - Tentatively Identified Compounds

Table 5-12
2004 Groundwater VOC Results
Port Jervis MGP Site

Sample Designation / Laboratory Identification / Date Sampled	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW1D C4K050180012 11/4/04	MW2 C4K060113007 11/4/04	MW3D C4K050180013 11/4/04	MW3S C4K060113002 11/4/04	MW5 C4K060113008 11/4/04	MW6 C4K050180011 11/4/04	MW9D C4K060113003 11/5/04	MW10S C4K050180017 11/3/04	MW10I C4K050180019 11/4/04	MW100I C4K050180020 11/4/04 Duplicate MW10I	MW10D C4K050180014 11/4/04
Volatile Organic Compounds (ug/Kg)												
Benzene	1 s	150	19	10 U	32	64	10 U	10 U	10 U	2 J	2 J	10 U
Ethylbenzene	5 s	510	68	10 U	140	540	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	5 s	16 J	2.4 J	10 U	5.7 J	14 J	10 U	10 U	10 U	10 U	10 U	10 U
Xylenes (total)	5 s	270	56	10 U	120	310	10 U	10 U	10 U	22	23	10 U
Total BTEX (ug/Kg)	NL	**946**	**145.4**	**- U**	**297.7**	**928**	**- U**	**- U**	**- U**	**24**	**25**	**- U**
Total Cyanide	200s	**21**	**11**	**10 U**	**13**	**11**	**10 U**	**10 U**	**7 J**	**32**	**15**	**10 U**

Sample Designation / Laboratory Identification / Date Sampled	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW11 C4K060113001 11/5/04	MW12 C4K060113004 11/5/04	MW13 C4K060113009 11/5/04	MW14S C4K050180010 11/4/04	MW15S C4K060113006 11/5/04	MW16S C4K060113005 11/5/04	MW17I C4K050180016 11/3/04	MW17S C4K050180009 11/4/04	MW18I C4K050180018 11/3/04	MW19S C4K050180015 11/3/04
Volatile Organic Compounds (ug/Kg)											
Benzene	1 s	1.3 J	10 U	10 U	10 U	25 U	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	5 s	8.1 J	10 U	10 U	10 U	330	10 U	10 U	10 U	10 U	10 U
Toluene	5 s	10 U	10 U	10 U	10 U	3.7 J	10 U	10 U	10 U	10 U	10 U
Xylenes (total)	5 s	7.7 J	10 U	10 U	10 U	200	10 U	10 U	10 U	10 U	10 U
Total BTEX (ug/Kg)	NL	**17.1**	**- U**	**- U**	**- U**	**533.7**	**- U**	**- U**	**- U**	**- U**	**- U**
Total Cyanide	200s	**10 U**	**10 U**	**10 U**	**3 J**	**10 U**	**10 U**	**10 U**	**4 J**	**10 U**	**3 J**

Notes:
NL = Not Listed
U = The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
s = Standard Value
g = Guidance Value
Note(1) - Guidance or Standard Values - NYSDEC, Division of Water, TOGS (1.1.1) - 6 NYCRR 703.5 [NYSDEC, 1998].

Table 5-13
2004 Groundwater PAH Results
Port Jervis MGP Site

Sample Designation / Laboratory Identification / Date Sampled	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-1D C4K050180012 11/4/04	MW-2 C4K060113007 11/4/04	MW-3D C4K050180013 11/4/04	MW-3S C4K060113002 11/4/04	MW-5 C4K060113008 11/4/04	MW-6 C4K050180011 11/4/04	MW-9D C4K060113003 11/5/04	MW-10S C4K050180017 11/3/04	MW-10I C4K050180019 11/4/04	MW-100I C4K050180020 11/4/04 Duplicate MW10I	MW-10D C4K050180014 11/4/04
PAH Compounds (ug/Kg)												
2-Methylnaphthalene	NL	170 J	9.5 U	9.9 U	34 J	24 J	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Acenaphthene	20 g	170 J	30	9.9 U	79 J	69 J	9.4 U	10 U	9.9 U	61	75	10 U
Acenaphthylene	NL	17	6 J	9.9 U	11 J	190 U	9.4 U	10 U	9.9 U	11	13	10 U
Anthracene	50 g	14	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	1.1 J	10 U
Benzo(a)anthracene	0.002 g	11 U	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Benzo(a)pyrene	NL	11 U	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Benzo(b)fluoranthene	0.002 g	11 U	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Benzo(ghi)perylene	NL	11 U	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Benzo(k)fluoranthene	0.002 g	11 U	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Chrysene	0.002 g	11 U	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Dibenz(a,h)anthracene	NL	11 U	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Fluoranthene	50 g	4.2 J	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Fluorene	50 g	53	7.2 J	9.9 U	26 J	31 J	9.4 U	10 U	9.9 U	3.1 J	1.1 J	10 U
Indeno(1,2,3-cd)pyrene	0.002 g	11 U	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Naphthalene	10 g	3100	66	3 J	940	1000	9.4 U	10 U	9.9 U	31	47	1 J
Phenanthrene	50 g	75	3.1 J	9.9 U	38 J	47 J	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Pyrene	50 g	3.9 J	9.5 U	9.9 U	100 U	190 U	9.4 U	10 U	9.9 U	9.9 U	10 U	10 U
Total PAHs	NL	**3607.1**	**112.3**	**3**	**1128**	**1171**	**- U**	**- U**	**- U**	**103**	**137.2**	**1**
Total CPAHs	NL	**- U**	**- U**	**- U**	**- U**	**- U**	**- U**	**- U**	**- U**	**- U**	**- U**	**- U**

Sample Designation / Laboratory Identification / Date Sampled	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-11 C4K060113001 11/5/04	MW-12 C4K060113004 11/5/04	MW13 C4K180227001 11/16/04	MW-14S C4K050180010 11/4/04	MW-15S C4K060113006 11/5/04	MW-16S C4K060113005 11/5/04	MW-17I C4K050180016 11/3/04	MW-17S C4K050180009 11/4/04	MW-18I C4K050180018 11/3/04	MW-19S C4K050180015 11/3/04
PAH Compounds (ug/Kg)											
2-Methylnaphthalene	NL	10 U	9.5 U	11 U	9.7 U	52 J	9.5 U	1.2 J	9.6 U	10 U	10 U
Acenaphthene	20 g	13	9.5 U	11 U	9.7 U	86 J	9.5 U	5 J	1.5 J	10 U	10 U
Acenaphthylene	NL	10 U	9.5 U	11 U	9.7 U	300 U	9.5 U	10 U	1.2 J	10 U	10 U
Anthracene	50 g	1.5 J	9.5 U	11 U	9.7 U	300 U	9.5 U	1.3 J	1.9 J	10 U	10 U
Benzo(a)anthracene	0.002 g	10 U	9.5 U	11 U	9.7 U	300 U	9.5 U	10 U	9.6 U	10 U	10 U
Benzo(a)pyrene	NL	10 U	9.5 U	11 U	9.7 U	300 U	9.5 U	10 U	0.99 J	10 U	10 U
Benzo(b)fluoranthene	0.002 g	10 U	9.5 U	11 U	9.7 U	300 U	9.5 U	10 U	9.6 U	10 U	10 U
Benzo(ghi)perylene	NL	10 U	9.5 U	11 U	9.7 U	300 U	9.5 U	10 U	1.7 J	10 U	10 U
Benzo(k)fluoranthene	0.002 g	10 U	9.5 U	11 U	9.7 U	300 U	9.5 U	10 U	9.6 U	10 U	10 U
Chrysene	0.002 g	10 U	9.5 U	11 U	9.7 U	300 U	9.5 U	10 U	9.6 U	10 U	10 U
Dibenz(a,h)anthracene	NL	10 U	9.5 U	11 U	9.7 U	300 U	9.5 U	10 U	9.6 U	10 U	10 U
Fluoranthene	50 g	1.7 J	9.5 U	11 U	9.7 U	300 U	9.5 U	1.3 J	3.3 J	2 J	10 U
Fluorene	50 g	3.8 J	9.5 U	11 U	9.7 U	300 U	9.5 U	10 U	2 J	10 U	10 U
Indeno(1,2,3-cd)pyrene	0.002 g	10 U	9.5 U	11 U	9.7 U	300 U	9.5 U	10 U	1.1 J	10 U	10 U
Naphthalene	10 g	13	9.5 U	11 U	9.7 U	1800	9.5 U	10 U	9.6 U	10 U	10 U
Phenanthrene	50 g	4.9 J	9.5 U	11 U	9.7 U	36 J	9.5 U	10 U	1.8 J	10 U	10 U
Pyrene	50 g	1.7 J	9.5 U	11 U	9.7 U	300 U	9.5 U	1.5 J	3.9 J	1.8 J	10 U
Total PAHs	NL	**39.6**	**- U**	**- U**	**- U**	**1974**	**- U**	**10.3**	**19.39**	**3.8**	**- U**
Total CPAHs	NL	**- U**	**- U**	**- U**	**- U**	**- U**	**- U**	**- U**	**2.09**	**- U**	**- U**

Notes:
NL = Not Listed
U = The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
s = Standard Value
g = Guidance Value
(Note 1) - Guidance or Standard Values - NYSDEC, Division of Water, TOGS (1.1.1) - 6 NYCRR 703.5 [NYSDEC, 1998].

Table 5-14
Delaware River Area Temporary Well Groundwater VOC Results
Port Jervis MGP

Sample Designation / Laboratory Identification / Date Sampled	NYSDEC Groundwater Guidance or Standard Value (Note 1)	TW1 C4I180236001 9/17/04	TW1 C4K050180001 11/4/04	TW2 C4I180236002 9/17/04	TW2 C4K050180002 11/4/04	TW3(10) C4K050180003 11/3/04	TW3(20) C4K050180004 11/3/04	TW3(30) C4K050180005 11/3/04	TW4 C4I180236003 9/17/04	TW4 C4K050180007 11/3/04	TW40 C4K050180008 11/3/04 Duplicate TW4	TW5 C4I180236004 9/17/04	TW5 C4K050180006 11/3/04
BTEX Compounds (ug/Kg)													
Benzene	1 s	10 U	10 U	10 U	10 U	22	7.3 J	10 U	12	9.8 J	9.3 J	10 U	10 U
Ethylbenzene	5 s	10 U	10 U	10 U	10 U	26	14	10 U	43	2.7 J	2.3 J	10 U	10 U
Toluene	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Xylenes (total)	5 s	10 U	10 U	10 U	10 U	24	6.4 J	10 U	4.6 J	3.1 J	2.8 J	10 U	10 U
Total BTEX (ug/Kg)	NL	- U	- U	- U	- U	72	27.7	- U	59.6	15.6	14.4	- U	- U
Other VOCs													
1,1,1-Trichloroethane	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloro-1,2,2-trifluoroethane	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	1 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dibromo-3-chloropropane	NL	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R
1,2-Dibromoethane	0.6 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	1 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Butanone	50 g	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	50 g	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	50 g	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	50 g	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	50 g	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon disulfide	60 g	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon tetrachloride	5 g	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	7 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloromethane	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,2-Dichloroethene	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	0.4 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cyclohexane	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	50 g	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dichlorodifluoromethane	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isopropylbenzene	5	10 U	10 U	10 U	10 U	13	5.8 J	10 U	2.9 J	1.3 J	1.2 J	10 U	10 U
Methyl acetate	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl tert-butyl ether	10 g	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylcyclohexane	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene chloride	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,2-Dichloroethene	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	0.4 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	5 s	10 U	1.4 J	1.1 J	1.2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Trichlorofluoromethane	NL	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl chloride	2 s	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Total VOCs	NL	- U	1.4	1.1	1.2	85	33.5	- U	62.5	16.9	15.6	- U	- U

Notes:
NL = Not Listed
U = The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
R = Rejected value
s = Standard Value
g = Guidance Value
(Note 1) - Guidance or Standard Values - NYSDEC, Division of Water, TOGS (1.1.1) - 6 NYCRR 703.5 [NYSDEC, 1998].

Table 5-15
Delaware River Area Temporary Well Groundwater SVOC Results
Port Jervis MGP Site

Sample Designation / Laboratory Identification / Date Sampled	NYSDEC Groundwater Guidance or Standard Value (Note 1)	TW1 C4I180236001 9/17/04	TW1 C4K050180001 11/4/04	TW2 C4I180236002 9/17/04	TW2 C4K050180002 11/4/04	T3(WT) C4K050180003 11/3/04	TW3(20) C4K050180004 11/3/04	TW3(30) C4K050180005 11/3/04	TW4 C4I180236003 9/17/04	TW4 C4K050180007 11/3/04	TW40 C4K050180008 11/3/04 Duplicate TW4	TW5 C4I180236004 9/17/04	TW5 C4K050180006 11/3/04
PAH Compounds (ug/Kg)													
2-Methylnaphthalene	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Acenaphthene	20 g	11 U	9.7 U	9.4 U	1.7 J	58	30	9.9 U	47	35	28	10 U	9.5 U
Acenaphthylene	NL	11 U	9.7 U	9.4 U	9.5 U	4.9 J	11	9.9 U	2.3 J	1.7 J	1.6 J	10 U	9.5 U
Anthracene	50 g	11 U	9.7 U	9.4 U	9.5 U	2.3 J	9.4 U	9.9 U	1.8 J	9.4 U	9.5 U	10 U	9.5 U
Benzo(a)anthracene	0.002 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Benzo(a)pyrene	ND	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Benzo(b)fluoranthene	0.002 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Benzo(ghi)perylene	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Benzo(k)fluoranthene	0.002 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Chrysene	0.002 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Dibenz(a,h)anthracene	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Fluoranthene	50 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	1.7 J	1.8 J	1.7 J	10 U	9.5 U
Fluorene	50 g	11 U	9.7 U	9.4 U	9.5 U	6.7 J	2.3 J	9.9 U	13	1.7 J	1.4 J	10 U	9.5 U
Indeno(1,2,3-cd)pyrene	0.002 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Naphthalene	10 g	11 U	9.7 U	9.4 U	9.5 U	2.5 J	9.4 U	9.9 U	3.7 J	9.4 U	9.5 U	10 U	9.5 U
Phenanthrene	50 g	11 U	9.7 U	9.4 U	9.5 U	8.8 J	1.3 J	9.9 U	8 J	9.4 U	9.5 U	10 U	9.5 U
Pyrene	50 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	2.1 J	2 J	1.9 J	10 U	9.5 U
Total PAHs	NL	- U	- U	- U	1.7	83.2	44.6	- U	79.6	42.2	34.6	- U	- U
Total CPAHs	NL	- U	- U	- U	- U	- U	- U	- U	- U	- U	- U	- U	- U
Other SVOCs													
1,1'-Biphenyl	NL	11 U	9.7 U	9.4 U	9.5 U	4.2 J	1.3 J	9.9 U	1.6 J	9.4 U	9.5 U	10 U	9.5 U
2,2'-oxybis(1-Chloropropane)	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2,4,5-Trichlorophenol	NL	26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
2,4,6-Trichlorophenol	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2,4-Dichlorophenol	5 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2,4-Dimethylphenol	50 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2,4-Dinitrophenol	10 g	26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
2,4-Dinitrotoluene	5 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2,6-Dinitrotoluene	5 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2-Chloronaphthalene	10 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2-Chlorophenol	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2-Methylphenol	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2-Nitroaniline	5 s	26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
2-Nitrophenol	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
3,3'-Dichlorobenzidine	5 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
3-Nitroaniline	5 s	26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
4,6-Dinitro-2-methylphenol	NL	26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
4-Bromophenyl phenyl ether	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
4-Chloro-3-methylphenol	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
4-Chloroaniline	5 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
4-Chlorophenyl phenyl ether	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
4-Methylphenol	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
4-Nitroaniline	5 s	26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
4-Nitrophenol	NL	26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
Acetophenone	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Atrazine	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Benzaldehyde	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
bis(2-Chloroethoxy)methane	5 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
bis(2-Chloroethyl) ether	1 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
bis(2-Ethylhexyl) phthalate	5 s	1.2 J	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	1.1 J	9.5 U
Butyl benzyl phthalate	50 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Caprolactam	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Carbazole	NL	11 U	9.7 U	9.4 U	9.5 U	2 J	9.4 U	9.9 U	1.7 J	1 J	1 J	10 U	9.5 U
Di-n-butyl phthalate	50 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Di-n-octyl phthalate	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Dibenzofuran	NL	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Diethyl phthalate	50 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Dimethyl phthalate	50 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Hexachlorobenzene	0.4 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Hexachlorobutadiene	0.5 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Hexachlorocyclopentadiene	5 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Hexachloroethane	5 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Isophorone	50 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
N-Nitrosodi-n-propylamine	50 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
N-Nitrosodiphenylamine	50 g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Nitrobenzene	0.4	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Pentachlorophenol	1 s	26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
Phenol	1 s	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Total SVOCs (Note 2)	NL	1.2	- U	- U	1.7	89.4	45.9	- U	82.9	43.2	35.6	1.1	- U

Notes:
U - The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
NL - Not Listed
J - The associated numerical value is an estimated quantity.
(Note 1) - Guidance or Standard Values - NYSDEC, Division of Water, TOGS (1.1.1) - 6 NYCRR 703.5 [NYSDEC, 1998].
(Note 2) - Total VOCs includes all BTEX compounds.

Table 5-16
Delaware River Temporary Well Groundwater Metals and Cyanide Results
Port Jervis MGP

Sample Identification / Laboratory Identification / Date Sampled	NYSDEC Groundwater Guidance or Standard Value (Note 1)	TW1 C4I180236001 9/17/04	TW1 C4K050180001 11/4/04	TW2 C4I180236002 9/17/04	TW2 C4K050180002 11/4/04	T3(WT) C4K050180003 11/3/04	TW3(20) C4K050180004 11/3/04	TW3(30) C4K050180005 11/3/04	TW4 C4I180236003 9/17/04	TW4 C4K050180007 11/3/04	TW40 C4K050180008 11/3/04 Duplicate TW4	TW5 C4I180236004 9/17/04	TW5 C4K050180006 11/3/04
Metals (mg/Kg)													
Aluminum	NL	NA	200 U	NA	200 U	200 U	200 U	1,120	NA	200 U	200 U	NA	200 U
Antimony	3 g	NA	60 U	NA	60 U	60 U	60 U	60 U	NA	60 U	60 U	NA	60 U
Arsenic	25 s	NA	10 U	NA	10 U	10 U	13	10 U	NA	3 J	2 J	NA	10 U
Barium	1,000 s	NA	200 U	NA	200 U	200 U	429	352	NA	301	309	NA	200 U
Beryllium	3 g	NA	5 U	NA	5 U	5 U	5 U	5 U	NA	5 U	5 U	NA	5 U
Cadmium	10 s	NA	5 U	NA	5 U	5 U	5 U	5 U	NA	5 U	5 U	NA	5 U
Calcium	NL	NA	26,700	NA	30,300	48,200	43,200	50,100	NA	37,200	38,300	NA	106,000
Chromium	50 s	NA	10 U	NA	10 U	2 J	8 J	9 J	NA	2 J	2 J	NA	10 U
Cobalt	NL	NA	50 U	NA	50 U	50 U	50 U	50 U	NA	50 U	50 U	NA	50 U
Copper	200 s	NA	25 U	NA	25 U	25 U	25 U	3 J	NA	25 U	25 U	NA	3 J
Iron	300 s	NA	100 U	NA	100 U	5,470	12,500	7,990	NA	6,280	6,450	NA	100 U
Lead	25 s	NA	3 U	NA	3 U	3 U	3 U	4	NA	3 U	3 U	NA	3 U
Magnesium	35,000 s	NA	5,180	NA	5,800	7,430	7,670	10,800	NA	5,510	5,670	NA	13,300
Manganese	300 s	NA	15 U	NA	54	8,670	33,300	17,100	NA	7,890	8,090	NA	85
Mercury	2 s	NA	0 U	NA	0 U	0 U	0 U	0 U	NA	0 U	0 U	NA	0 U
Nickel	NL	NA	2 J	NA	5 J	4 J	3 J	6 J	NA	40 U	40 U	NA	2 J
Potassium	NL	NA	5,000 U	NA	5,000 U	5,690	6,660	8,340	NA	5,500	5,580	NA	16,100
Selenium	10 s	NA	5 U	NA	5 U	5 U	10 U	5 U	NA	5 U	5 U	NA	9
Silver	50 s	NA	10 U	NA	10 U	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U
Sodium	20,000 s	NA	43,800	NA	51,600	88,600	54,200	26,000	NA	58,200	59,700	NA	101,000
Thallium	4 g	NA	10 U	NA	10 U	10 U	20 U	10 U	NA	10 U	10 U	NA	10 U
Vanadium	NL	NA	50 U	NA	50 U	50 U	50 U	50 U	NA	50 U	50 U	NA	50 U
Zinc	300 s	NA	33	NA	16 J	29	3 J	23	NA	6 J	8 J	NA	64
Total Cyanide	200s	10 U	10 U	10 U	10 U	6 J	6 J	6 J	6 J	11	6 J	10 U	5 J

Notes:
NA = Not Analyzed
NL = Not Listed
U = The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
s = Standard Value
g = Guidance Value
Note(1) - Guidance or Standard Values - NYSDEC, Division of Water, TOGS (1.1.1) - 6 NYCRR 703.5 [NYSDEC, 1998].
- Compound detected above regulatory guidance or standard value.

Table 5-17
Groundwater TIC Summary
Port Jervis MGP Site

Compound	CAS Number	MW-1D	MW-2	MW-3S	MW-5	MW-7	MW-8	MW-10S	MW-10I	MW-11	MW-12	MW-13
Naphthalene	91-20-3	3,900	580	70	96	1,700	3,500	14	120	970	61	7
2-Pentanone, 4-hydroxy-4-metyl	123-42-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Biphenyl	95-52-4	ND	ND	ND	ND	ND	44	ND	ND	ND	ND	ND
Dibenzothiophene	132-65-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9,10-Anthracenedione	84-65-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene, 1-methyl-	90-12-0	1,190	160	120	260	600	740	ND	23	330	19	ND
Ethanol, 2-(2-ethoxyethoxy)	111-90-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Hexadecanoic acid	57-10-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclic octaatomic sulfur	10544-50-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene, 1,3,5-trimethyl-	108-67-8	96	20	ND	ND	81	87	ND	7	38	ND	ND
Benzene, 1,2,4-trimethyl-	95-63-6	340	74	9	12	260	340	ND	10	ND	ND	ND
1,4-Methanonaphthalene, 1,4-	4453-90-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Propanoic acid, 2-methyl-, 1	74381-40-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexasiloxane, dodecamet	540-97-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Decane, 2,6,7-trimethyl-	62108-25-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentadecane, 2,6,10-trimethy	3892-00-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indane	496-11-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,5-Hexandedione	110-13-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1, 8-Naphthalic anhydride	81-84-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclopenta (def) phenanthrenon	5737-13-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dodecanoic acid	143-07-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5, 12-Naphthacenedione	1090-13-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Acenaphthylenedione	82-86-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene, 2,7-dimethyl-	582-16-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2, 5-Hexanedione	110-13-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indene	95-13-6	240	155	19	28	190	ND	ND	29	ND	ND	ND
Acenaphthenone	100012-83-8	ND	86	ND	ND	260	17	ND	ND	30	ND	ND
Benzene, propyl-	103-65-1	ND	ND	ND	ND	21	ND	ND	ND	ND	ND	ND
Cyclohexane, methyl-	108-87-2	ND	ND	ND	ND	ND	ND	ND	ND	17	ND	ND
Unknown	NA	6,777	1,981	373	859	4,641	6,641	ND	289	2,679	344	ND

ND = The material was analyzed for but not detected at, or above, the reporting limit.
NA = Not Applicable.

Table 5-17
Groundwater TIC Summary
Port Jervis MGP Site

Table 5-18
2000 Sediment Sample Results
Port Jervis MGP Site

Sample Name		SED-01			SD1			SD2			SD3			SD4			SD40			DP12 (1-2)		
Date		5/5/1998			10/12/00			10/12/00			10/12/00			10/12/00			10/12/00			10/20/00		
Chemical	**CAS No.**																					
BTEX (mg/Kg)																						
Benzene	71-43-2	<	0.007		<	0.011		<	0.012		<	0.012		<	0.016		<	0.018		<	0.011	
Toluene	108-88-3	<	0.007		<	0.011		<	0.012		<	0.012		<	0.016		<	0.018		<	0.011	
Ethylbenzene	100-41-4	<	0.007		<	0.011		<	0.012		<	0.012		<	0.016		<	0.018		<	0.011	
Xylenes (total)	1330-20-7	<	0.007		<	0.011		<	0.012		<	0.012		<	0.016		<	0.018		<	0.011	
Total BTEX			ND			ND			ND			ND			ND			ND			ND	
Other VOCs (mg/Kg)																						
1,1,2-Trichloroethane	79-00-5	<	0.007		<	0.011		<	0.012		<	0.012		<	0.016		<	0.018		<	0.011	
2-Butanone	78-93-3	<	0.014		<	0.011	J	<	0.012	J	<	0.012	J	<	0.016	J	<	0.018	J	<	0.011	J
Acetone	67-64-1	<	0.014		<	0.011		<	0.012		<	0.012		<	0.016		<	0.008		<	0.011	
Chloroform	67-66-3	<	0.007		<	0.011		<	0.012		<	0.012		<	0.016		<	0.018		<	0.011	
Methylene chloride	75-09-2	<	0.007			0.0013	J	<	0.012			0.0015	J	<	0.016		<	0.018		<	0.011	
Trichloroethene	79-01-6	<	0.007		<	0.011		<	0.012		<	0.012		<	0.016		<	0.018		<	0.011	
Total Other VOCs			ND			0.0013			ND			0.0015			ND			ND			ND	
PAHs (mg/Kg)																						
Naphthalene	91-20-3		0.170	J	<	0.73			0.05	J	<	0.39		<	0.54			0.062	J	<	0.72	
Acenaphthylene	208-96-8		0.57	J		0.57	J		0.27	J		0.16	J		0.15	J		0.27	J		0.13	J
Acenaphthene	83-32-9		0.18	J		0.14	J		0.36	J		0.22	J	<	0.54			0.071	J	<	0.72	
Fluorene	86-73-7		0.32	J		0.36	J		0.32	J		0.35	J		0.081	J		0.11	J	<	0.72	
Phenanthrene	85-01-8		3.4			4.1			1.7			1.2			0.83			1			0.69	J
Anthracene	120-12-7		1.1			0.93			0.46			0.24	J		0.16	J		0.25	J		0.11	J
Fluoranthene	206-44-0		5.2			5.8			3.2			2.6			1.6			2.5			1.8	
Pyrene	129-00-0		4.7			7.6			2.9			2.6			1.7			2.7			1.9	
Benzo(a)anthracene	56-55-3		2.7			3.7			1.6			0.96			0.79			1.4			1	
Chrysene	218-01-9		3.5			4			1.8			1.2			1			1.8			1.3	
Benzo(b)fluoranthene	205-99-2		2.4			3.3			1.7			1			0.82			1.7			1.2	
Benzo(k)fluoranthene	207-08-9		1.9			2.4			1.2			0.82			0.73			1.1			0.96	
Benzo(a)pyrene	50-32-8		2.6			3.6			1.3			0.86			0.81			1.5			1	
Indeno(1,2,3-cd)pyrene	193-39-5		1.3			2.3			0.86			0.61			0.49	J		0.84			1	
Dibenz(a,h)anthracene	53-70-3		0.48			0.76			0.28	J		0.18	J		0.15	J		0.28	J		0.23	J
Benzo(ghi)perylene	191-24-2		1.6			2			0.66			0.5			0.4	J		0.7			0.71	J
Total CPAHs			14.88			20.06			8.74			5.63			4.79			8.62			6.69	
Total PAHs			32.12			41.56			18.66			13.5			9.711			16.283			12.03	
Other SVOCs (mg/Kg)																						
2,4-Dimethylphenol	105-67-9	<	0.900		<	0.73		<	0.4		<	0.39		<	0.54		<	0.6		<	0.72	
2-Chloronaphthalene	91-58-7	<	0.900		<	0.73		<	0.4		<	0.39		<	0.54		<	0.6		<	0.72	
2-Methylnaphthalene	91-57-6		0.14	J	<	0.73		<	0.4		<	0.39		<	0.54		<	0.6		<	0.72	
3,3'-Dichlorobenzidine	91-94-1	<	0.900		<	0.73		<	0.4		<	0.39		<	0.54		<	0.6		<	0.72	
4-Chloroaniline	106-47-8	<	0.900		<	0.73		<	0.4		<	0.39		<	0.54		<	0.6		<	0.72	
4-Methylphenol	106-44-5		0.058	J	<	0.73		<	0.4		<	0.39		<	0.54		<	0.6		<	0.72	
bis(2-Ethylhexyl) phthalate	117-81-7		0.120	J		0.39	J		0.093	J		0.12	J	<	0.54			0.13	J	<	0.72	
Butyl benzyl phthalate	85-68-7		0.090	J	<	0.73		<	0.4		<	0.39		<	0.54		<	0.6		<	0.72	
Carbazole	86-74-8	<	0.900		<	0.73			0.051	J	<	0.39			0.062	J		0.073	J	<	0.72	
Di-n-butyl phthalate	84-74-2	<	0.900		<	0.73		<	0.4		<	0.39		<	0.54		<	0.6		<	0.72	
Di-n-octyl phthalate	117-84-0		0.097	J	<	0.73		<	0.4		<	0.39		<	0.54		<	0.6		<	0.72	
Dibenzofuran	132-64-9		0.160	J		0.085	J		0.056	J		0.063	J	<	0.54		<	0.6		<	0.72	
Pentachlorophenol	87-86-5	<	4.400		<	1.8		<	1		<	0.97		<	1.4		<	1.5		<	1.8	
Phenol	108-95-2	<	0.900		<	0.73		<	0.4		<	0.39		<	0.54		<	0.6		<	0.72	
Total Other SVOCs			0.665			0.475			0.2			0.183			0.062			0.203			ND	
Metals (mg/Kg)																						
Aluminum	7429-90-5		4050			4840			3980			4970			4150			4800			6360	
Antimony	7440-36-0		2.9	B	<	13.2	J		0.52	J	<	14.1	J	<	19.7	J	<	21.7	J		0.48	J
Arsenic	7440-38-2		5.8			3.5			2.5			2.1	J		3.2	J		3.3	J		2.3	
Barium	7440-39-3		48.7			26.7	J		28.6	J		23.3	J		61	J		76.7			26.4	
Beryllium	7440-41-7		0.35	B		0.23	J		0.2	J		0.27	J		0.25	J		0.31	J		0.28	
Cadmium	7440-43-9		0.28			1.1		<	1.2		<	1.2		<	1.6		<	1.8		<	1.1	
Calcium	7440-70-2		2860			3830			2320			489	J		660	J		1070	J		885	
Chromium	7440-47-3		13.5			18.1			8.9			8.2			5.9			7.8			10.7	
Cobalt	7440-48-4		4.7	B		5.3	J		4.6	J		4.5	J		5	J		5.7	J		7	
Copper	7440-50-8		60.1			23.2			18.7			16.4			29.4			39.5			16.5	
Iron	7439-89-6		12,700			14500			17100			14800			9430			10000			16600	
Lead	7439-92-1		114			42.1			32.4			81.4			38.2			43.2			437	
Magnesium	7439-95-4		2,170			3560			1590			2040			1500	J		1690	J		2630	
Manganese	7439-96-5		134			126	J		126	J		105	J		173	J		190	J		143	
Mercury	7439-97-6		0.22		<	0.11		<	0.12		<	0.12		<	0.11		<	0.13		<	0.11	
Nickel	7440-02-0		12			17.4			11.4			11.7			12.1	J		9.4	J		17.6	
Potassium	7440-09-7		357	B		200	J		183	J		198	J		302	J		378	J		459	
Selenium	7782-49-2		1.2	B	<	1.1	J	<	1.2	J	<	1.2	J	<	1.6		<	1.8	J	<	1.1	
Silver	7440-22-4		0.28		<	2.2		<	2.4		<	2.3		<	3.3		<	3.6		<	2.2	
Sodium	7440-23-5		133	B		90.7	J		53.3			49.3	J		60.1	J		67.1	J		74.8	
Thallium	7440-28-0		0.86		<	2.2		<	2.4		<	2.3		<	3.3		<	3.6		<	2.2	
Vanadium	7440-62-2		8.5	B		8.6	J		5.1	J		5.1	J		4.7	J		5.7	J		7.8	
Zinc	7440-66-6		154			185			86.8			63			81.9			85.4			95.9	
PCBs (mg/Kg)																						
Aroclor 1252	11097-69-1	<	0.045			NA			NA			NA			NA			NA			NA	
Aroclor 1260	11096-82-5		0.018	J		NA			NA			NA			NA			NA			NA	
Total PCBs			0.018			NA			NA			NA			NA			NA			NA	
Other Parameters (mg/Kg)																						
Percent Solids			NA			90.6			83.1			85.4			60.9			55.3			91.4	
Total Cyanide	57-12-5	<	0.73		<	0.55		<	0.6		<	0.59		<	0.82		<	0.9		<	0.55	

< = The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J - Estimated Value.
ND - not detected above method reporting limits.
NA - not analyzed

Table 5-19
Background Sediment Sample Results
Port Jervis MGP Site

Sample Designation / Laboratory Identification / Date Sampled	BSD1 C4K020252009 10/26/2004		BSD2 C4K020252002 10/26/2004		BSD3 C4K020252003 10/26/2004		BSD4 C4K020252006 10/26/2004		BSD5 C4K020252010 10/26/2004	
PAH Compounds (ug/Kg)										
2-Methylnaphthalene	410	U	420	U	420	U	420	U	400	U
Acenaphthene	410	U	420	U	420	U	420	U	400	U
Acenaphthylene	410	U	420	U	420	U	420	U	400	U
Anthracene	410	U	420	U	420	U	420	U	400	U
Benzo(a)anthracene	84	J	57	J	420	U	420	U	400	U
Benzo(a)pyrene	69	J	49	J	420	U	420	U	66	J
Benzo(b)fluoranthene	84	J	66	J	420	U	420	U	67	J
Benzo(ghi)perylene	410	U	420	U	420	U	420	U	400	U
Benzo(k)fluoranthene	45	J	420	U	420	U	420	U	400	U
Chrysene	80	J	53	J	420	U	420	U	400	U
Dibenz(a,h)anthracene	410	U	420	U	420	U	420	U	400	U
Fluoranthene	140	J	84	J	420	U	57	J	400	U
Fluorene	410	U	420	U	420	U	420	U	400	U
Indeno(1,2,3-cd)pyrene	48	J	420	U	420	U	420	U	64	J
Naphthalene	410	U	420	U	420	U	420	U	400	U
Phenanthrene	410	U	420	U	420	U	420	U	400	U
Pyrene	120	J	81	J	420	U	58	J	400	U
Total PAHs	**670**		**390**		**-**	U	**115**		**197**	
Total CPAHs	**410**		**225**		**-**	U	**-**		**197**	
TOC	1,780	J	1,900	J	1,530	J	9,350	J	2,850	J
Percent Solids	79.8		78.8		78.1		77.9		83	

Notes:
NA - Not Analyzed
NL - Not Listed
U - The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J - The associated numerical value is an estimated quantity.
Note 1 - NYSDEC Technical Guidance for Screening Contaminated Sediments; Division of Fish, Wildlife, and Marine Resources (NYSDEC, 1999).

Table 5-20
Sediment PAH and TOC Results - 2004
Port Jervis MGP Site

Sample Designation / Laboratory Identification / Date Sampled	SD5 C4K020186008 10/28/2004		SD6 C4K020186009 10/28/2004		SD60 C4K020186002 10/28/2004		SD7 C4K020186005 10/28/2004		SD8 C4K020186007 10/28/2004		SD9 C4K020186001 10/28/2004		SD10 C4K020197005 10/27/2004		SD11 C4K020197002 10/27/2004		SD12 C4K020197001 10/27/2004		SD13 C4K020197003 10/27/2004		SD14 C4K020197006 10/27/2004		SD15 C4K020197004 10/27/2004		SD16 C4K020197007 10/27/2004	
PAH Compounds (ug/Kg)																										
2-Methylnaphthalene	420	U	1300	U	89	J	850	U	400	U	400	U	420	U	420	U	400	U	50	J	410	U	420	U	400	U
Acenaphthene	420	U	1300	U	850	U	850	U	400	U	400	U	420	U	420	U	400	U	40	J	82	J	190	J	400	U
Acenaphthylene	420	U	570	J	330	J	590	J	400	U	250	J	200	J	420	U	400	U	480		61	J	340	J	400	U
Anthracene	420	U	710	J	330	J	600	J	400	U	300	J	140	J	420	U	400	U	210	J	44	J	250	J	400	U
Benzo(a)anthracene	46	J	2200		980		1600		400	U	880		430		420	U	400	U	440		170	J	740		44	J
Benzo(a)pyrene	43	J	2000		850		1400		400	U	790		440		420	U	400	U	550	J	190	J	750	J	400	U
Benzo(b)fluoranthene	53	J	2300		1100		1800		400	U	950		540		420	U	400	U	650	J	210	J	860	J	400	U
Benzo(ghi)perylene	420	U	1600		620	J	1200		400	U	520		370	J	420	U	400	U	430	J	140	J	480	J	400	U
Benzo(k)fluoranthene	420	U	900	J	390	J	580	J	400	U	370	J	200	J	420	U	400	U	180	J	72	J	300	J	400	U
Chrysene	50	J	2100		940		1500		400	U	820		480		420	U	400	U	540	J	160	J	760		400	U
Dibenz(a,h)anthracene	420	U	330	J	140	J	280	J	400	U	110	J	76	J	420	U	400	U	110	J	410	U	130	J	400	U
Fluoranthene	76	J	6600	J	3000	J	5000		400	U	2700		780		51	J	400	U	1400		270	J	1600		74	J
Fluorene	420	U	450	J	220	J	290	J	400	U	200	J	420	U	420	U	400	U	55	J	410	U	79	J	400	U
Indeno(1,2,3-cd)pyrene	420	U	1500		630	J	1200		400	U	530		330	J	420	U	400	U	420	J	120	J	490	J	400	U
Naphthalene	420	U	200	J	190	J	110	J	400	U	57	J	420	U	420	U	400	U	390	U	410	U	95	J	400	U
Phenanthrene	420	U	4700		2100		3400		400	U	1800		410	J	420	U	400	U	610		130	J	700		87	J
Pyrene	71	J	4900	J	2100	J	3400		400	U	1900		550	J	57	J	400	U	810		230	J	820		66	J
Total PAHs (ug/Kg)	**339**		**31,060**		**14,009**		**22,950**		**-**	U	**12,177**		**4,946**		**108**		**-**	U	**6,975**		**1,879**		**8,584**		**271**	
Total CPAHs (ug/Kg)	**192**		**11,330**		**5,030**		**8,360**		**-**	U	**4,450**		**2,496**		**-**	U	**-**	U	**2,890**		**922**		**4,030**		**44**	
TOC (mg/Kg)	**20,700**	**J**	**17,300**	**J**	**61,900**	**J**	**21,000**	**J**	**3,150**	**U**	**3,320**		**6,430**		**723**	**J**	**1,270**	**J**	**5,630**	**J**	**1,260**	**J**	**6,630**	**J**	**1,190**	**J**
Percent Solids	**77.9**		**76.8**		**77.3**		**77.5**		**82.6**		**81.1**		**78.3**		**77.8**		**81.6**		**85.7**		**81**		**79.5**		**82.3**	

Notes:
U - The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J - The associated numerical value is an estimated quantity.

Table 5-20
Sediment PAH and TOC Results - 2004
Port Jervis MGP Site

Sample Designation	SD17		SD18		SD19		SD20		SD21		SD22		SD23		SD24		SD25		SD26		SD27		SD28		SD29	
Laboratory Identification	C4K020197008		C4K020197009		C4K020197010		C4K020197011		C4K020197012		C4K020197013		C4K020197014		C4K020197015		C4K020186013		C4K020186014		C4K020186015		C4K020186016		C4K020186017	
Date Sampled	10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004	
Semi-Volatile Organic Compounds (ug/Kg)																										
2-Methylnaphthalene	340	U	400	U	400	U	400	U	510	U	390	U	100	J	390	U	400	U	380	U	410	U	410	U	410	U
Acenaphthene	340	U	400	U	400	U	400	U	250	J	55	J	250	J	390	U	400	U	380	U	410	U	410	U	410	U
Acenaphthylene	340	U	400	U	59	J	400	U	140	J	390	U	570		390	U	400	U	39	J	94	J	410	U	44	J
Anthracene	340	U	400	U	400	U	400	U	100	J	390	U	370	J	390	U	400	U	380	U	91	J	410	U	83	J
Benzo(a)anthracene	81	J	400	U	160	J	400	U	240	J	390	U	1800		390	U	41	J	130	J	280	J	90	J	180	J
Benzo(a)pyrene	100	J	400	U	150	J	400	U	180	J	390	U	1700	J	390	U	400	U	150	J	250	J	72	J	200	J
Benzo(b)fluoranthene	130	J	400	U	190	J	400	U	200	J	390	U	1800	J	390	U	45	J	130	J	300	J	96	J	210	J
Benzo(ghi)perylene	94	J	400	U	88	J	400	U	150	J	390	U	570	J	390	U	400	U	110	J	220	J	78	J	190	J
Benzo(k)fluoranthene	42	J	400	U	81	J	400	U	66	J	390	U	610	J	390	U	400	U	71	J	120	J	410	U	88	J
Chrysene	91	J	400	U	210	J	400	U	280	J	390	U	1900		390	U	40	J	120	J	280	J	94	J	200	J
Dibenz(a,h)anthracene	340	U	400	U	400	U	400	U	510	U	390	U	170	J	390	U	400	U	380	U	51	J	410	U	410	U
Fluoranthene	150	J	400	U	280	J	400	U	450	J	390	U	3100		390	U	67	J	180	J	830		230	J	280	J
Fluorene	340	U	400	U	400	U	400	U	71	J	390	U	62	J	390	U	400	U	380	U	47	J	410	U	410	U
Indeno(1,2,3-cd)pyrene	76	J	400	U	85	J	400	U	120	J	390	U	600	J	390	U	400	U	94	J	210	J	44	J	150	J
Naphthalene	340	U	400	U	400	U	400	U	78	J	380	J	400	U	390	U	400	U	380	U	410	U	410	U	410	U
Phenanthrene	51	J	400	U	79	J	400	U	280	J	390	U	790		390	U	42	J	46	J	490		150	J	130	J
Pyrene	130	J	400	U	270	J	400	U	480	J	390	U	3800		390	U	65	J	230	J	590		180	J	340	J
Total PAHs (ug/Kg)	**945**		**-**	U	**1,652**		**-**	U	**3,085**		**435**		**18,192**		**-**	U	**300**		**1,300**		**3,853**		**1,034**		**2,095**	
Total CPAHs (ug/Kg)	**520**		**-**	U	**876**		**-**	U	**1,086**		**-**	U	**8,580**		**-**	U	**126**		**695**		**1,491**		**396**		**1,028**	
TOC (mg/Kg)	**1,410**	**J**	**860**	**J**	**1,400**		**915**	**J**	**1,290**	**J**	**1,080**	**J**	**24,600**	**J**	**1,220**		**4,370**		**1,470**		**2,980**		**1,950**		**6,300**	**J**
Percent Solids	**95.7**		**82.8**		**83.3**		**82.1**		**64.5**		**84.3**		**83.4**		**84.4**		**82.1**		**87.9**		**80**		**80.9**		**81.4**	

Notes:
U - The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J - The associated numerical value is an estimated quantity.

Table 5-20
Sediment PAH and TOC Results - 2004
Port Jervis MGP Site

Sample Designation	SD30		SD31		SD32		SD33		SD34		SD35		SD36		SD37		SD38		SD39		SD40		SD41	
Laboratory Identification	C4K020252001		C4K020252008		C4K020252004		C4K020252007		C4K020252005		C4I180236007		C4K020186004		C4K020186006		C4K020186003		C4K020186011		C4K020186010		C4K020186012	
Date Sampled	10/26/2004		10/26/2004		10/26/2004		10/26/2004		10/26/2004		9/17/2004		10/28/2004		10/28/2004		10/28/2004		10/28/2004		10/28/2004		10/28/2004	
Semi-Volatile Organic Compounds (ug/Kg)																								
2-Methylnaphthalene	430	U	420	U	400	U	420	U	450	U	510	U	130	J	350	J	410	U	450	U	480	U	440	U
Acenaphthene	430	U	420	U	400	U	420	U	450	U	510	U	130	J	320	J	410	U	450	U	480	U	440	U
Acenaphthylene	430	U	420	U	400	U	420	U	450	U	510	U	910		1300	J	410	U	49	J	77	J	440	U
Anthracene	99	J	75	J	46	J	420	U	450	U	63	J	1100		2000	J	410	U	46	J	74	J	440	U
Benzo(a)anthracene	340	J	280	J	170	J	55	J	170	J	270	J	2300		3900		410	U	180	J	240	J	73	J
Benzo(a)pyrene	350	J	280	J	150	J	54	J	150	J	290	J	2100		3700		410	U	150	J	230	J	69	J
Benzo(b)fluoranthene	450		400	J	210	J	63	J	190	J	400	J	2400		4300		50	J	170	J	220	J	93	J
Benzo(ghi)perylene	300	J	190	J	140	J	420	U	110	J	270	J	1600		2500		410	U	110	J	160	J	440	U
Benzo(k)fluoranthene	160	J	140	J	75	J	420	U	64	J	150	J	1000		1500	J	410	U	73	J	87	J	440	U
Chrysene	410	J	340	J	200	J	61	J	180	J	340	J	2200		3700		410	U	170	J	230	J	81	J
Dibenz(a,h)anthracene	77	J	49	J	400	U	420	U	450	U	63	J	320	J	350	J	410	U	450	U	480	U	440	U
Fluoranthene	950		680		420		90	J	340	J	700		7000		14000		59	J	330	J	450	J	140	J
Fluorene	43	J	420	U	400	U	420	U	450	U	510	U	950		1900	J	410	U	450	U	480	U	440	U
Indeno(1,2,3-cd)pyrene	270	J	190	J	130	J	420	U	110	J	310	J	1500		2400		410	U	110	J	140	J	52	J
Naphthalene	430	U	420	U	400	U	420	U	450	U	510	U	810		2600		410	U	450	U	480	U	440	U
Phenanthrene	540		370	J	220	J	420	U	160	J	410	J	7000		15000		410	U	160	J	230	J	65	J
Pyrene	620		490		310	J	88	J	310	J	600		5700		11000		50	J	280	J	450	J	120	J
Total PAHs (ug/Kg)	**4,609**		**3,484**		**2,071**		**411**		**1,784**		**3,866**		**37,150**		**70,820**		**159**		**1,828**		**2,588**		**693**	
Total CPAHs (ug/Kg)	**2,057**		**1,679**		**935**		**233**		**1,314**		**1,823**		**11,820**		**19,850**		**50**		**853**		**1,147**		**368**	
TOC (mg/Kg)	**10,100**	**J**	**4,660**	**J**	**10,600**	**J**	**1,570**	**J**	**13,500**	**J**	**1,750**	**J**	**3,960**		**18,300**	**J**	**6,990**		**8,410**	**J**	**45,000**	**J**	**5,890**	
Percent Solids	**77**		**78.1**		**82.3**		**78.4**		**73.4**		**NA**		**82.6**		**71.2**		**80.8**		**73.9**		**68.7**		**74.8**	

Notes:
U - The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J - The associated numerical value is an estimated quantity.

Table 5-21
Sediment TIC Summary
Port Jervis MGP Site
Port Jervis, NY

Compound	CAS Number	SD-1	SD-2	SD-3	SD-4
Cyclic octaatomic sulfur	10544-50-0	780	330	ND	ND
Dibenzothiophene	132-65-0	ND	ND	300	ND
n-Hexadecanoic acid	57-10-3	ND	ND	250	ND
.gamma.-Sitosterol	84-47-6	ND	ND	ND	2000
Stigmast-4-en-3-one	1058-61-3	ND	ND	ND	700
Unknown	NA	72130	28330	10380	18930

ND - Not Detected
NA - Not Applicable

Table 5-22
Sub-Floor Soil Gas Results - 2002
Port Jervis MGP Site

Soil Gas Sample Identification Laboratory Sample Number Sample Collection Date		SG1 0205221-01A 05/09/02		SG2 0205221-02A 05/09/02		SG3 0205221-03A 05/09/02		SG4 0205221-04A Duplicate SG3	
Compound (ug/m^3)	CAS#								
Freon 12 (Dichlorodifluoromethane)	75-71-8	3.8	U	3.8	U	3.8	U	3.8	U
Freon 114 (1,2-Dichlorotetrafluoroethane)	76-14-2	5.4	U	5.4	U	5.4	U	5.4	U
Chloromethane	74-87-3	1.6	U	**6.5**		1.9		1.6	U
Vinyl Chloride	75-01-4	2	U	2	U	2	U	2	U
Bromomethane	74-83-9	3	U	3	U	3	U	3	U
Chloroethane	75-00-3	2	U	2	U	2	U	2	U
Freon 11 (Trichlorofluoromethane)	75-69-4	4.3	U	4.3	U	4.3	U	4.3	U
1,1-Dichloroethene	75-35-4	3.1	U	3.1	U	3.1	U	3.1	U
Freon 113	76-13-1	5.9	U	5.9	U	5.9	U	5.9	U
Methylene Chloride	75-09-2	2.7	U	2.7	U	2.7	U	2.7	U
1,1-Dichloroethane	75-34-3	3.1	U	3.1	U	3.1	U	3.1	U
cis-1,2-Dichloroethene	156-59-2	3.1	U	3.1	U	3.1	U	3.1	U
Chloroform	67-66-3	**4.6**		**22**		**8.5**		**5.6**	
1,1,1-Trichloroethane	71-55-6	4.2	U	4.2	U	4.2	U	4.2	U
Carbon Tetrachloride	56-23-5	4.9	U	4.9	U	4.9	U	4.9	U
Benzene	71-43-2	**8.1**		**14**		**210**		**210**	
1,2-Dichloroethane	107-06-2	3.1	U	3.1	U	3.1	U	3.1	U
Trichloroethene	79-01-6	4.2	U	4.2	U	4.2	U	4.2	U
1,2-Dichloropropane	78-87-5	36	U	36	U	36	U	36	U
cis-1,3-Dichloropropene	10061-01-5	3.5	U	3.5	U	3.5	U	3.5	U
Toluene	108-88-3	**88**		**140**		**86**		**80**	
trans-1,3-Dichloropropene	10061-02-6	3.5	U	3.5	U	3.5	U	3.5	U
1,1,2-Trichloroethane	79-00-5	4.2	U	4.2	U	4.2	U	4.2	U
Tetrachloroethene (PERC)	127-18-4	5.2	U	7.3		5.3		**7**	
Ethylene Dibromide	106-93-4	5.9	U	5.9	U	5.9	U	5.9	U
Chlorobenzene	108-90-7	3.6	U	3.6	U	3.6	U	3.6	U
Ethyl Benzene	100-41-4	**16**		**18**		**12**		**9.9**	
m,p-Xylene	108-38-3/106-42-3	**67**		**67**		**46**		**38**	
o-Xylene	95-47-6	**40**		**31**		**29**		**24**	
Styrene	100-42-5	3.3	U	3.3	U	3.3	U	3.3	U
1,1,2,2-Tetrachloroethane	79-34-5	5.3	U	5.3	U	5.3	U	5.3	U
1,3,5-Trimethylbenzene	108-67-8	**31**		**14**		**26**		**20**	
1,2,4-Trimethylbenzene	95-63-6	**130**		**47**		**100**		**83**	
1,3-Dichlorobenzene	541-73-1	4.6	U	4.6	U	4.6	U	4.6	U
1,4-Dichlorobenzene	106-46-7	**13**		**12**		**95**		**87**	
Chlorotoluene	100-44-7	4	U	4	U	4	U	4	U
1,2-Dichlorobenzene	95-50-1	4.6	U	4.6	U	4.6	U	4.6	U
1,2,4-Trichlorobenzene	120-82-1	23	U	23	U	23	U	23	U
Hexachlorobutadiene	87-68-3	33	U	33	U	33	U	33	U
Propylene	115-07-1	**39**		**7.5**		5.4	U	5.3	U
1,3-Butadiene	106-99-0	6.8	U	6.8	U	6.8	U	6.8	U
Acetone	67-64-1	**100**		**96**		**70**		**160**	
Carbon Disulfide	75-15-0	9.6	U	9.6	U	9.6		**15**	
2-Propanol	67-63-0	**14**		7.7	U	7.7	U	7.6	U
trans-1,2-Dichloroethene	156-60-5	12	U	12	U	12	U	12	U
Vinyl Acetate	108-05-4	11	U	11	U	11	U	11	U
2-Butanone (Methyl Ethyl Ketone)	78-93-3	**46**		**200**		**31**		**36**	
Hexane	110-54-3	**28**		**26**		**48**		**38**	
Tetrahydrofuran	109-99-9	**55**		**58**		**47**		**34**	
Cyclohexane	110-82-7	11	U	11	U	**11**		11	U
1,4-Dioxane	123-91-1	11	U	11	U	11	U	11	U
Bromodichloromethane	75-27-4	21	U	21	U	21	U	21	U
4-Methyl-2-pentanone	108-10-1	13	U	13	U	13	U	13	U
2-Hexanone	591-78-6	13	U	13	U	13	U	13	U
Dibromochloromethane	124-48-1	26	U	26	U	27	U	26	U
Bromoform	75-25-2	32	U	32	U	32	U	32	U
4-Ethyltoluene	622-96-8	**72**		**35**		**55**		**44**	
Ethanol	64-17-5	**53**		**100**		**17**		**31**	
Methyl tert-Butyl Ether	1634-04-4	**35**		11	U	11	U	11	U
Heptane	142-82-5	13	U	13	U	**18**		**19**	
Naphthalene	91-20-3	81	U	81	U	82	U	81	U

U - Not detected at the detection limit indicated.

Bold value - Compound detected.

Table 5-23
Indoor Air Results - 2003
Port Jervis MGP Site

Sample ID Langan Sample Number Lab Sample Number Sampling Date Sampling Depth (feet. bgs) Matrix Dilution Factor Units	New York State Department of Health (NYSDOH) Indoor Air 75th Percentile (Note 1) ug/m³	Environmental Protection Agency (EPA) Indoor Air 75th Percentile (Note 2) ug/m³	Indoor Air (1) 037 H3K030110001 10/30/03 * Air 1.85 ug/m³		DUP (Indoor Air-1) 038 H3K030110002 10/30/03 * Air 1.81 ug/m³		Indoor Air (2) 039 H3K030110003 10/30/03 * Air 1.88 ug/m³		Indoor Air (3) 040 H3K030110004 10/30/03 * Air 1.85 ug/m³		Ambient Air - 8 hr 041 H3K030110005 10/30/03 * Air 1.82 ug/m³	
			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds												
n-Heptane	NA	6	2.9		3.5		3.1		3.1		0.91	J
n-Hexane	3.6	4	3.3		3.1		3.3		3.2		0.95	J
Cumene	<10	0.84	ND	U	ND	U	ND	U	ND	U	ND	U
n-Octane	NA	NA	0.65	J	2.3		2.3		3.6		0.60	J
Pentane	NA	5.3	2.3	J	2.2	J	4.1		4.3		0.97	J
n-Decane	NA	NA	ND	U	2.9		0.59	J	7.5		ND	U
n-Dodecane	NA	NA	ND	U	ND	U	ND	U	2.9	J	ND	U
n-Undecane	NA	NA	ND	U	1.5	J	ND	U	8.2		ND	U
Nonane	NA	NA	ND	U	1.8	J	1.9	J	7.6		0.58	J
n-Butane	NA	NA	4.3	J	2.5	J	9.1	J	5.3	J	1.4	J
Dichlorodifluoromethane	<1	NA	2.9		2.7		3.1		3.0		2.8	
Chloromethane	<2	NA	1.3	J	1.3	J	1.6	J	1.9		1.3	J
1,2-Dichloro-1,1,2,2-tetrafluoroethane	<1.5	NA	ND	U	ND	U	ND	U	ND	U	ND	U
Vinyl chloride	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U
Bromomethane	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U
Chloroethane	<1	NA	ND	U	ND	U	ND	U	0.54	J	ND	U
Trichlorofluoromethane	3.8	NA	3.3		3.4		2.4		2.6		1.9	J
1,1-Dichloroethene	<1	0	ND	U	ND	U	ND	U	ND	U	ND	U
Methylene chloride	5.6	NA	21		10		5.1		5.3		3.0	J
1,1,2-Trichloro-1,2,2-trifluoroethane	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U
1,1-Dichloroethane	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U
cis-1,2-Dichloroethene	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U
Chloroform	4.3	3.4	19		22		9.3		11		5.0	
1,1,1-Trichloroethane	6.7	30	ND	U	ND	U	0.57	J	ND	U	ND	U
Benzene	5	21	1.1	J	1.0	J	1.3		1.2	J	0.69	J
Carbon tetrachloride	<6.2	0.83	ND	U	ND	U	ND	U	ND	U	ND	U
1,2-Dichloropropane	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U
Trichloroethene	<5.3	4.5	1.1	J	0.96	J	ND	U	ND	U	ND	U
cis-1,3-Dichloropropene	<9	NA	ND	U	ND	U	ND	U	ND	U	ND	U
trans-1,3-Dichloropropene	<9	NA	ND	U	ND	U	ND	U	ND	U	ND	U
1,2-Dichloroethane	<1	0	5.4		6.2		2.6		3.2		1.4	J
1,1,2-Trichloroethane	<9	NA	ND	U	ND	U	ND	U	ND	U	ND	U
Toluene	25	0	73		100		50		61		24	
1,2-Dibromoethane (EDB)	<1.5	0	ND	U	ND	U	ND	U	ND	U	ND	U
Tetrachloroethene	<10	11	48		49		54		43		5.6	
Chlorobenzene	<10	0	ND	U	ND	U	ND	U	ND	U	ND	U
Ethylbenzene	4.8	9.6	1.4	J	3.1		3.0		3.5		1.0	J
Styrene	<10	2.8	ND	U	2.8		2.7		4.9		0.84	J
1,1,2,2-Tetrachloroethane	<9	0	ND	U	ND	U	ND	U	ND	U	ND	U
m-Xylene & p-Xylene	9.5	NA	2.3		9.8		8.0		11		3.1	
o-Xylene	5	9.3	0.53	J	3.1		2.5		4.1		0.96	J
1,3,5-Trimethylbenzene	<10	5.4	ND	U	ND	U	ND	U	1.3	J	ND	U
Volatile Organic Compounds												
1,2,4-Trimethylbenzene	7	4	ND	U	1.4	J	0.59	J	3.9		ND	U
1,3-Dichlorobenzene	<8	5.6	ND	U	ND	U	ND	U	ND	U	ND	U
1,4-Dichlorobenzene	<5	5.6	ND	U	6.1		4.3		13		2.7	
1,2-Dichlorobenzene	<6	0	ND	U	ND	U	ND	U	ND	U	ND	
1,2,4-Trichlorobenzene	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U
Hexachlorobutadiene	<2	NA	ND	U	ND	U	ND	U	ND	U	ND	U
Naphthalene	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U
Methyl tert-butyl ether	NA	NA	2.3	J	2.2	J	2.5	J	1.9	J	0.61	J
Tentatively Identified Compounds												
butylcyclohexane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U
indane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U
indene	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U
isopentane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U
1-ethyl-3-methylbenzene	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U
1,2,3-trimethylbenzene	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U
2,2,4-trimethylpentane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U
2,3-dimethylheptane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U
2,3-dimethylpentane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U

Notes:
ND - Not Detected.
U - Indicates that the compound was analyzed for but not detected.
J - Indicates an estimated value.
Q - Qualifier
ug/m³ - micrograms per cubic meters.
* - Field Blank/Indoor Air sample was collected in the ambient air.
(Note 1) - NYSDOH, 1997. Background Indoor/Outdoor Air Levels of Volatile Organic Compounds in Homes Sampled by the New York State Department of Health, 1989-1996, New York State Department of Health, Bureau of Toxic Substance Assessment.
(Note 2) - US EPA, 1988. National Ambient Volatile Organic Compounds (VOCs) Data Base Update. Nero and Associates, Portland OR, for the USEPA Research Triangle Park, NC. EPA PB88-195631.

Table 5-24
Ambient, Indoor Air, and Soil Gas Results - 2004
Operations Center Building
Port Jervis MGP Site

Compound	CAS number	Results in ug/m³									Background Indoor Air Values (Note 1)	
Type of Sample		Ambient Air	Ambient Air	Indoor Air	Indoor Air	Indoor Air-FD	Indoor Air	Soil Gas	Soil Gas	Soil Gas	DOH 75th ug/m³	DOH 95th ug/m³
Sample Location		West of O&R Building	King Street	Break Room	Hallway, in Corner	Field Duplicate	Warehouse	Break Room	Hallway, in Corner	Warehouse		
Sampling Date		6/20/2004	6/20/2004	6/20/2004	6/20/2004	6/20/2004	6/20/2004	6/20/2004	6/20/2004	6/20/2004		
Sample ID		AMB-1	AMB-2	IA-1	IA-2	IA-20	IA-3	SG-1	SG-2	SG-3		
Laboratory ID												
Possibly MGP Related or Other Sources [1]												
1,2,4-Trimethylbenzene	95-63-6	0.80 U	0.79 U	1.2 J	1.4 J	1.8 J	1.6 J	11 J	7.9 J	15 J	7	20
1,3,5-Trimethylbenzene	108-67-8	0.80 U	0.79 U	0.79 U	0.80 U	0.79 U	0.80 U	3.3	2.3	7.5	<10	<10
2,3-Dimethylpentane	565-59-3	3.4 U	3.3 U	3.3 U	3.4 U	3.3 U	3.4 U	3.3 U	3.6 U	8.5 U	NA	NA
2-Hexanone	591-78-6	3.4 U	3.3 U	3.3 U	3.4 U	3.3 U	3.4 U	3.3 U	3.6 U	8.5 U	NA	NA
2-Methylpentane	107-83-5	2.9 U	2.8 U	2.8 U	2.9 U	2.8 U	2.9 U	16	5.8	30	NA	NA
4-Ethyltoluene	622-96-8	4.0 U	3.9 U	3.9 U	4.0 U	3.9 U	4.0 U	9.5	6.3	13	NA	NA
4-Methyl-2-pentanone	108-10-1	3.4 U	3.3 U	3.3 U	3.4 U	3.3 U	3.4 U	3.3 U	3.6 U	8.5 U	NA	NA
Benzene	71-43-2	0.52 U	0.51 U	0.79	0.80	0.87	0.68	29	3.4	400	5	14
Carbon Disulfide	75-15-0	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	9.4	7.1	26	NA	NA
Cyclohexane	110-82-7	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	11	3.0 U	31	NA	NA
Ethylbenzene	100-41-4	0.71 U	0.70 U	0.96	1.1	1.3	0.78	8.4	5.9	25	4.8	6.5
Heptane	142-82-5	3.4 U	3.3 U	3.3 U	3.4 U	3.3 U	3.4 U	8.8	4.9	44	NA	NA
Hexane	110-54-3	2.9 U	2.8 U	2.8 U	2.9 U	2.8 U	2.9 U	16	4.0	52	3.6	14
2,2,4-Trimethylpentane	540-84-1	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	7.2	4.6	9.7 U	NA	NA
Indan	496-11-7	4.0 U	3.9 U	3.9 U	4.0 U	3.9 U	4.0 U	3.9 U	4.2 U	10 U	NA	NA
Indene	95-13-6	3.9 U	3.8 U	3.8 U	3.9 U	3.8 U	3.9 U	3.8 U	4.1 U	9.9 U	NA	NA
Isopentane	78-784	2.4 U	2.4 U	7.0	4.4	4.1	2.7	28	11	31	NA	NA
Naphthalene	91-20-3	4.3 U	4.2 U	7.1	6.4	6.5	6.5	7.6	4.7	11 U	<10	<10
Styrene	100-42-5	0.70 U	0.68 U	1.7 J	1.2 J	1.2 J	0.70 U	1.8 J	1.5 J	14 J	<10	<10
Thiophene	110-02-1	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	3.0 U	7.2 U	NA	NA
Toluene	108-88-3	0.74	0.69	9.3	7.1	7.3	5.6	64	36	260	25	49
m/p-Xylenes	136777-61-2	0.71 U	0.70 U	3.0	3.8	4.2	2.9	30	20	67	9.5	21
o-Xylene	95-47-6	0.71 U	0.70 U	0.88	1.2	1.2	1.0	11	7.3	24	5	7.9
Not MGP Related [2]												
1,1,1-Trichloroethane	71-55-6	0.89 U	0.88 U	0.88 U	0.89 U	0.88 U	0.89 U	1.1	1.7	3.4	6.7	28
1,1,2,2-Tetrachloroethane	79-34-5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	2.9 U	<9	<10
1,1,2-Trichloroethane	79-00-5	0.89 U	0.88 U	0.88 U	0.89 U	0.88 U	0.89 U	0.88 U	0.95 U	2.3 U	<9	<10
1,1-Dichloroethane	75-34-3	0.66 U	0.65 U	0.65 U	0.66 U	0.65 U	0.66 U	0.65 U	0.70 U	1.7 U	<1	<10
1,1-Dichloroethene	75-35-4	0.65 U	0.64 U	0.64 U	0.65 U	0.64 U	0.65 U	0.64 U	0.69 U	1.6 U	<1	<8
1,2,4-Trichlorobenzene	120-82-1	6.1 UJ	6.0 UJ	6.0 UJ	6.1 UJ	6.0 UJ	6.1 UJ	6.0 UJ	6.4 UJ	15 UJ	<10	<10
1,2-Dibromoethane (EDB)	106-93-4	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.3 U	3.2 U	<1.5	<1.5
1,2-Dichlorobenzene	95-50-1	0.98 U	0.96 U	0.96 U	0.98 U	0.96 U	0.98 U	0.96 U	1.0 U	2.5 U	<6	<10
1,2-Dichloroethane	107-06-2	0.66 U	0.65 U	0.65 U	0.66 U	0.65 U	0.66 U	0.65 U	0.70 U	1.7 U	<1	<10
1,2-Dichloropropane	78-87-5	0.76 U	0.74 U	0.74 U	0.76 U	0.74 U	0.76 U	0.74 U	0.80 U	1.9 U	<10	<10
1,3-Butadiene	106-99-0	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	13	1.9 U	7.4	NA	NA
1,3-Dichlorobenzene	541-73-1	0.98 U	0.96 U	0.96 U	0.98 U	0.96 U	0.98 U	0.96 U	1.0 U	2.5 U	<8	<10
1,4-Dichlorobenzene	106-46-7	0.98 U	0.96 U	27	21	21	8.4	1.1	1.3	2.5 U	<5	5.1
1,4-Dioxane	123-91-1	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	3.1 U	7.5 U	NA	NA
2-Butanone (MEK)	78-93-3	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	21	12	22	NA	NA
Acetone	67-64-1	7.0	5.4	19	20	20	15	310 J	180 J	300	NA	NA
Benzyl chloride	100-44-7	0.85 U	0.83 U	0.83 U	0.85 U	0.83 U	0.85 U	0.83 U	0.90 U	2.2 U	<1	<1
Bromodichloromethane	75-27-4	5.5 U	5.4 U	5.4 U	5.5 U	5.4 U	5.5 U	5.4 U	5.8 U	14 U	<10	<10
Bromoform	75-25-2	8.4 U	8.3 U	8.3 U	8.4 U	8.3 U	8.4 U	8.3 U	9.0 U	22 U	<10	<10
Bromomethane	74-83-9	0.64 U	0.62 U	0.62 U	0.64 U	0.62 U	0.64 U	0.62 U	0.67 U	1.6 U	<1	<1
Carbon Tetrachloride	56-23-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	2.6 U	<6.2	<10
Chlorobenzene	108-90-7	0.75 U	0.74 U	0.74 U	0.75 U	0.74 U	0.75 U	0.74 U	0.80 U	1.9 U	<10	<10
Chloroethane	75-00-3	0.43 UJ	0.42 UJ	0.42 UJ	0.43 UJ	0.42 UJ	0.43 UJ	0.42 UJ	0.46 UJ	1.1 UJ	<1	<1
Chloroform	67-66-3	0.80 U	0.78 U	0.78 U	0.80 U	0.78 U	0.80 U	0.78 U	0.85 U	2.0 U	4.3	<10
Chloromethane	74-87-3	1.5	1.1	1.5	1.4	1.4	1.4	0.71	0.56	0.86 U	<2	2.6
cis-1,2-Dichloroethene	156-59-2	0.65 U	0.64 U	0.64 U	0.65 U	0.64 U	0.65 U	0.64 U	0.69 U	1.6 U	<10	<10
cis-1,3-Dichloropropene	10061-01-5	0.74 U	0.73 U	0.73 U	0.74 U	0.73 U	0.74 U	0.73 U	0.79 U	1.9 U	<9	<10
Dibromochloromethane	124-48-1	7.0 U	6.8 U	6.8 U	7.0 U	6.8 U	7.0 U	6.8 U	7.4 U	18 U	<10	<10
Ethanol	64-17-5	1.8 J	1.8 J	78 J	66 J	64 J	26 J	19 J	8.3 J	12 J	NA	NA
Trichlorofluoromethane (Freon 11)	75-69-4	1.7	1.6	2.7	2.2	2.0	1.8	2.1	2.2	2.5	3.8	5.9
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.3 U	3.2 U	<1	<1
1,2-Dichlorotetrafluoroethane	76-14-2	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	2.9 U	<1.5	<1.5
Dichlorodifluoromethane (Freon 12)	75-71-8	3.2	2.8	3.0	3.1	3.1	2.7	2.4	2.7	2.4	<1	<5
Hexachlorobutadiene (C-46)	87-68-3	8.7 U	8.6 U	8.6 U	8.7 U	8.6 U	8.7 U	8.6 U	9.3 U	22 U	<2	<6
Methyl tert-Butyl Ether	1634-04-4	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	24	10	17	NA	NA
Methylene Chloride (Dichloromethane)	75-09-2	0.62	0.68	1.4	2.0	2.0	1.9	0.56 U	0.96	1.6	5.6	45
2-Propanol	67-63-0	2.0 U	2.0 U	20	14	15	5.1	3.9	2.2	5.3	NA	NA
Propene	115-07-1	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	3.6 U	NA	NA
Tetrachloroethene	127-18-4	1.1 U	1.1 U	2.2	3.4	3.4	2.9	2.6	26	33	<10	7.3
Tetrahydrofuran	109-99-9	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	6.2	5.9	13	NA	NA
trans-1,2-Dichloroethene	156-60-5	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.4 U	8.3 U	<10	<10
trans-1,3-Dichloropropene	10061-02-6	0.74 U	0.73 U	0.73 U	0.74 U	0.73 U	0.74 U	0.73 U	0.79 U	1.9 U	<9	<10
Trichloroethene	79-01-6	0.88 U	0.86 U	4.7	1.5	1.4	0.88 U	0.86 U	0.93 U	2.2 U	<5.3	<10
Vinyl Acetate	108-05-4	2.9 U	2.8 U	2.8 U	2.9 U	2.8 U	2.9 U	2.8 U	3.0 U	7.3 U	NA	NA
Vinyl Chloride	75-01-4	0.42 U	0.41 U	0.41 U	0.42 U	0.41 U	0.42 U	0.41 U	0.44 U	1.1 U	<1	<5

Notes:
[1] These compounds may be related to either MGP sources or non-MGP sources, or both. MGP sources include MGP tars and petroleum feedstocks used in MGP processes, such as the carburetted water gas process. Non-MGP sources include cleaning products, floor wax and polish, vehicle exhaust, construction materials, and cigarette smoke.
[2] These compounds are not related to MGP sources and are present due to non-MGP sources, such as vehicle exhaust, heating and air conditioning systems, cleaning agents, art supplies, paints, etc.
NA - Not Available. No data available for background concentrations of these compounds.
U - Not detected at the detection limit indicated.
J - Estimated Concentration.
(Note 1) - NYSDOH, 1997. Background Indoor/Outdoor Air Levels of Volatile Organic Compounds in Homes Sampled by the New York State Department of Health, 1989-1996, New York State Department of Health, Bureau of Toxic Substance Assessment.

Table 5-25
Ambient, Indoor Air, and Soil Gas Results
28 Pike Street
Port Jervis MGP Site

Compound	CAS number	Results in ug/m³							Background Indoor Air Values (Note 1)	
Type of Sample		Ambient Air	Ambient Air	Indoor Air	Indoor Air-FD	Indoor Air	Soil Gas	Soil Gas	DOH 75th ug/m³	DOH 95th ug/m³
Sample Location		Ambient at Pike Street	Ambient at King Street	Basement	Field Duplicate	First Floor	Basement Boiler Room	Basement		
Sampling Date		6/22/2004	6/22/2004	6/22/2004	6/22/2004	6/22/2004	6/22/2004	6/22/2004		
Sample ID		GRAMB-1	GRAMB-2	GRIA-1	GRIA-1 FD	GRIA-2	GRSG-1	GRSG-2		
Laboratory ID										
Possibly MGP Related or Other Sources [1]										
1,2,4-Trimethylbenzene	95-63-6	1.8	2.0	4.5 U	3.6 U	3.5	9.3	8.3	7	20
1,3,5-Trimethylbenzene	108-67-8	0.82 U	0.82 U	4.5 U	3.6 U	1.2	4.0 U	2.6	<10	<10
2,3-Dimethylpentane	565-59-3	3.4 U	3.4 U	19 U	15 U	3.6 U	17 U	8.7 U	NA	NA
2-Hexanone	591-78-6	3.4 U	3.4 U	19 U	15 U	3.6 U	17 U	8.7 U	NA	NA
2-Methylpentane	107-83-5	3.3	3.5	16 U	13 U	9.5	22	16	NA	NA
4-Ethyltoluene	622-96-8	4.1 U	4.1 U	22 U	18 U	4.4 U	20 U	10 U	NA	NA
4-Methyl-2-pentanone	108-10-1	3.4 U	3.4 U	19 U	15 U	3.6 U	17 U	8.7 U	NA	NA
Benzene	71-43-2	3.2	3.0	7.4	6.9	8.7	8.9	7.3	5	14
Carbon Disulfide	75-15-0	6.8	2.6 U	14 U	11 U	2.8 U	13 U	16	NA	NA
Cyclohexane	110-82-7	2.9 U	2.9 U	16 U	12 U	3.1 U	14 U	7.3 U	NA	NA
Ethylbenzene	100-41-4	1.6	1.8	3.9 U	3.2 U	2.0	10	9.7	4.8	6.5
Heptane	142-82-5	3.4 U	3.4 U	19 U	15 U	5.1	17 U	8.7 U	NA	NA
Hexane	110-54-3	2.9 U	2.9 U	16 U	13 U	7.8	14 U	11	3.6	14
2,2,4-Trimethylpentane	540-84-1	3.9 U	3.9 U	21 U	17 U	4.2 U	19 U	10 U	NA	NA
Indan	496-11-7	4.0 U	4.0 U	22 U	18 U	4.3 U	20 U	10 U	NA	NA
Indene	95-13-6	4.0 U	4.0 U	22 U	17 U	4.2 U	19 U	10 U	NA	NA
Isopentane	78-784	11	12	390	350	82	58	46	NA	NA
Naphthalene	91-20-3	4.4 U	4.4 U	24 U	19 U	4.7 U	21 U	11 U	<10	<10
Styrene	100-42-5	0.71 U	0.71 U	5.1	4.8	2.3	3.5 U	1.8 U	<10	<10
Thiophene	110-02-1	2.9 U	2.9 U	16 U	12 U	3.1 U	14 U	7.3 U	NA	NA
Toluene	108-88-3	8.7	8.9	10	9.2	11	69	60	25	49
m/p-Xylenes	136777-61-2	5.3	5.7	7.9	5.9	6.6	27	26	9.5	21
o-Xylene	95-47-6	1.8	1.9	4.0 U	3.2 U	2.4	9.2	8.4	5	7.9
Not MGP Related [2]										
1,1,1-Trichloroethane	71-55-6	0.91 U	0.91 U	5.0 U	4.0 U	0.97 U	4.5 U	2.3 U	6.7	28
1,1,2,2-Tetrachloroethane	79-34-5	1.1 U	1.1 U	6.2 U	5.0 U	1.2 U	5.6 U	2.9 U	<9	<10
1,1,2-Trichloroethane	79-00-5	0.91 U	0.91 U	5.0 U	4.0 U	0.97 U	4.5 U	2.3 U	<9	<10
1,1-Dichloroethane	75-34-3	0.67 U	0.67 U	3.7 U	2.9 U	0.72 U	3.3 U	1.7 U	<1	<10
1,1-Dichloroethene	75-35-4	0.66 U	0.66 U	3.6 U	2.9 U	0.70 U	3.2 U	1.7 U	<1	<8
1,2,4-Trichlorobenzene	120-82-1	6.2 U	6.2 U	34 U	27 U	6.6 U	30 UJ	16 UJ	<10	<10
1,2-Dibromoethane (EDB)	106-93-4	1.3 U	1.3 U	7.0 U	5.6 U	1.4 U	6.3 U	3.3 U	<1.5	<1.5
1,2-Dichlorobenzene	95-50-1	1.0 U	1.0 U	5.5 U	4.4 U	1.1 U	4.9 U	2.6 U	<6	<10
1,2-Dichloroethane	107-06-2	0.67 U	0.67 U	3.7 U	2.9 U	0.72 U	3.3 U	1.7 U	<1	<10
1,2-Dichloropropane	78-87-5	0.77 U	0.77 U	4.2 U	3.4 U	0.82 U	3.8 U	2.0 U	<10	<10
1,3-Butadiene	106-99-0	1.8 U	1.8 U	10 U	8.0 U	3.0	9.0 U	4.7 U	NA	NA
1,3-Dichlorobenzene	541-73-1	1.0 U	1.0 U	5.5 U	4.4 U	1.1 U	4.9 U	2.6 U	<8	<10
1,4-Dichlorobenzene	106-46-7	1.0 U	1.0 U	5.5 U	4.4 U	1.1 U	4.9 U	2.6 U	<5	5.1
1,4-Dioxane	123-91-1	3.0 U	3.0 U	16 U	13 U	3.2 U	15 U	7.7 U	NA	NA
2-Butanone (MEK)	78-93-3	2.5	3.2	13 U	11 U	3.3	22	19	NA	NA
Acetone	67-64-1	13	19	27	24	23	120	110	NA	NA
Benzyl Chloride	100-44-7	0.86 U	0.86 U	4.7 U	3.8 U	0.92 U	4.2 U	2.2 U	<1	<1
Bromodichloromethane	75-27-4	5.6 U	5.6 U	30 U	24 U	6.0 U	27 U	14 U	<10	<10
Bromoform	75-25-2	8.6 U	8.6 U	47 U	38 U	9.2 U	42 U	22 U	<10	<10
Bromomethane	74-83-9	0.65 U	0.65 U	3.5 U	2.8 U	0.69 U	3.2 U	1.6 U	<1	<1
Carbon Tetrachloride	56-23-5	1.0 U	1.0 U	5.7 U	4.6 U	1.1 U	5.1 U	2.7 U	<6.2	<10
Chlorobenzene	108-90-7	0.77 U	0.77 U	4.2 U	3.4 U	0.82 U	3.8 U	2.0 U	<10	<10
Chloroethane	75-00-3	0.44 U	0.44 U	2.4 U	1.9 U	0.47 U	2.2 U	1.1 U	<1	<1
Chloroform	67-66-3	0.81 U	0.81 U	4.4 U	3.6 U	1.3	4.0 U	3.8	4.3	<10
Chloromethane	74-87-3	1.2	1.4	3.5	1.5 U	1.8	1.7 U	0.88 U	<2	2.6
cis-1,2-Dichloroethene	156-59-2	0.66 U	0.66 U	3.6 U	2.9 U	0.70 U	3.2 U	1.7 U	<10	<10
cis-1,3-Dichloropropene	10061-01-5	0.76 U	0.76 U	4.1 U	3.3 U	0.81 U	3.7 U	1.9 U	<9	<10
Dibromochloromethane	124-48-1	7.1 U	7.1 U	39 U	31 U	7.6 U	35 U	18 U	<10	<10
Ethanol	64-17-5	6.1	7.5	740 J	790 J	1200 J	7.7 U	11	NA	NA
Trichlorofluoromethane (Freon 11)	75-69-4	1.8	1.9	6.9	6.8	7.6	61	130	3.8	5.9
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	1.3 U	1.3 U	7.0 U	5.6 U	1.4 U	6.3 U	3.3 U	<1	<1
1,2-Dichlorotetrafluoroethane	76-14-2	1.2 U	1.2 U	6.4 U	5.1 U	1.2 U	5.7 U	3.0 U	<1.5	<1.5
Dichlorodifluoromethane (Freon 12)	75-71-8	2.6	4.0	13	12	19	7.9	11	<1	<5
Hexachlorobutadiene (C-46)	87-68-3	8.9 U	8.9 U	48 U	39 U	9.5 U	44 UJ	23 UJ	<2	<6
Methyl tert-Butyl Ether	1634-04-4	3.0 U	3.3	16 U	13 U	3.2 U	15 U	9.0	NA	NA
Methylene Chloride (Dichloromethane)	75-09-2	0.97	0.81	3.2 U	2.5 U	0.84	5.3	1.5 U	5.6	45
2-Propanol	67-63-0	2.0 U	2.0 U	11 U	8.9 U	3.1	13	13	NA	NA
Propene	115-07-1	1.4 U	1.4 U	7.8 U	6.3 U	1.5 U	7.0 U	3.7 U	NA	NA
Tetrachloroethene	127-18-4	1.1 U	1.1 U	6.2 U	18	1.2 U	28	24	<10	7.3
Tetrahydrofuran	109-99-9	2.4 U	2.4 U	13 U	11 U	2.6 U	19	13	NA	NA
trans-1,2-Dichloroethene	156-60-5	3.3 U	3.3 U	18 U	14 U	3.5 U	16 U	8.5 U	<10	<10
trans-1,3-Dichloropropene	10061-02-6	0.76 U	0.76 U	4.1 U	3.3 U	0.81 U	3.7 U	1.9 U	<9	<10
Trichloroethene	79-01-6	0.90 U	0.90 U	4.9 U	3.9 U	0.96 U	4.4 U	2.3 U	<5.3	<10
Vinyl Acetate	108-05-4	2.9 U	2.9 U	16 U	13 U	3.1 U	14 U	7.5 U	NA	NA
Vinyl Chloride	75-01-4	0.43 U	0.43 U	2.3 U	1.9 U	0.45 U	2.1 U	1.1 U	<1	<5

Notes:

[1] These compounds may be related to either MGP sources or non-MGP sources, or both. MGP sources include MGP tars and petroleum feedstocks used in MGP processes, such as the carburetted water gas process. Non-MGP sources include cleaning products, floor wax and polish, vehicle exhaust, construction materials, and cigarette smoke.

[2] These compounds are not related to MGP sources and are present due to non-MGP sources, such as vehicle exhaust, heating and air conditioning systems, cleaning agents, art supplies, paints, etc.

NA - Not Available. No data available for background concentrations of these compounds.

U - Not detected at the detection limit indicated.

J - Estimated Concentration.

(Note 1) - NYSDOH, 1997. Background Indoor/Outdoor Air Levels of Volatile Organic Compounds in Homes Sampled by the New York State Department of Health, 1989-1996, New York State Department of Health, Bureau of Toxic Substance Assessment.

Table 5-26
Ambient, Indoor Air, and Soil Gas Results
9 Pike Street
Port Jervis MGP Site

Compound	CAS number	Sample Number, Location, and Results in ug/m3								Background Indoor Air Values[3]	
Type of Sample		Ambient	Ambient	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Soil Gas	Soil Gas	DOH 75th ug/m3	DOH 90th ug/m3
Sample Location		9 Pike Street	9 Pike Street	9 Pike Street Basement	9 Pike Street First Floor	9 Pike Street Field Duplicate	9 Pike Street School	9 Pike Street Residence	9 Pike Street School		
Sampling Date		3/30/2005	3/30/2005	3/30/2005	3/30/2005	3/30/2005	3/30/2005	3/30/2005	3/30/2005		
Sample ID		AMB-1	AMB-2	RES-IA-1	RES-IA-2	RES-IA-2 Duplicate	GH-IA-1	SG-8	SG-9		
Possibly MGP Related or Other Sources [1]											
1,2,4-Trimethylbenzene	95-63-6	0.75 U	0.65 U	4.7	1.0 U	1.0 U	0.75 U	0.78 U	0.85	4.4	11
1,3,5-Trimethylbenzene	108-67-8	0.75 U	0.65 U	0.86	1.0 U	1.0 U	0.75 U	0.78 U	0.78 U	1.7	3.8
2,3-Dimethylpentane	565-59-3	3.2	2.7 U	3.4 U	4.4 U	4.4 U	3.1 U	3.2 U	3.2 U	2.1	7.9
2-Hexanone	591-78-6	3.1 U	2.7 U	3.4 U	4.4 U	4.4 U	3.1 U	3.2 U	3.2 U	NA	NA
2-Methylpentane	107-83-5	6.8	4.5	2.9 U	3.8 U	3.8 U	2.7 U	2.8 U	2.8 U	NA	NA
4-Ethyltoluene	622-96-8	3.7 U	3.2 U	4.0 U	5.3 U	5.3 U	3.7 U	3.9 U	3.9 U	NA	NA
4-Methyl-2-pentanone	108-10-1	3.1 U	2.7 U	3.4 U	4.4 U	4.4 U	3.1 U	3.2 U	3.2 U	0.98	3
Benzene	71-43-2	3.0	3.4	7.3	2.2	1.8	1.2	0.50 U	0.52	5.7	15
Carbon Disulfide	75-15-0	2.4 U	2.0 U	2.6 U	3.3 U	3.3 U	2.4 U	2.5 U	2.5 U	NA	NA
Cyclohexane	110-82-7	2.6 U	2.3 U	2.8 U	3.7 U	3.7 U	2.6 U	2.7 U	2.7 U	2.9	9.1
Ethylbenzene	100-41-4	0.66 U	0.61	4.5	0.93 U	0.93 U	0.66 U	0.69 U	0.69 U	2.8	7.3
Heptane	142-82-5	3.1 U	2.7 U	3.4 U	4.4 U	4.4 U	3.1 U	3.2 U	3.2 U	7.7	19
Hexane	110-54-3	4.0	2.3 U	2.9 U	3.8 U	3.8 U	2.7 U	2.8 U	2.8 U	6.5	19
2,2,4-Trimethylpentane	540-84-1	3.6 U	3.1 U	3.8 U	5.0 U	5.0 U	3.6 U	3.7 U	3.7 U	2.6	7.3
Indan	496-11-7	3.7 U	3.2 U	4.0 U	5.2 U	5.2 U	3.7 U	3.8 U	3.8 U	NA	NA
Indene	95-13-6	3.6 U	3.1 U	3.9 U	5.1 U	5.1 U	3.6 U	3.8 U	3.8 U	NA	NA
Isopentane	78-784	21	8.3	4.4	4.3	4.3	6.1	2.3 U	2.3 U	NA	NA
Naphthalene	91-20-3	4.0 U	3.4 U	4.3 U	5.6 U	5.6 U	4.0 U	4.1 U	4.1 U	NA	NA
Styrene	100-42-5	0.65 U	0.56 U	0.70 U	0.91 U	0.91 U	0.65 U	0.67 U	0.67 U	0.68	1.3
Thiophene	110-02-1	2.6 U	2.3 U	2.8 U	3.7 U	3.7 U	2.6 U	2.7 U	2.7 U	NA	NA
Toluene	108-88-3	4.0	1.4	29	2.9	2.8	1.5	0.92	0.60 U	25	59
m/p-Xylenes	136777-61-2	1.1	2.0	28	1.4	1.3	0.87	1.4 U	1.4 U	4.7	12
o-Xylene	95-47-6	0.66 U	0.57 U	9.3	0.93 U	0.93 U	0.66 U	0.69 U	0.69 U	3.1	7.9
Not MGP Related [2]											
1,1,1-Trichloroethane	71-55-6	0.83 U	0.72 U	0.89 U	1.2 U	1.2 U	0.83 U	0.86 U	0.86 U	1.4	3.5
1,1,2,2-Tetrachloroethane	79-34-5	1.0 U	0.91 U	1.1 U	1.5 U	1.5 U	1.0 U	1.1 U	1.1 U	0.2	0.23
1,1,2-Trichloroethane	79-00-5	0.83 U	0.72 U	0.89 U	1.2 U	1.2 U	0.83 U	0.86 U	0.86 U	0.2	0.24
1,1-Dichloroethane	75-34-3	0.62 U	0.53 U	0.66 U	0.87 U	0.87 U	0.62 U	0.64 U	0.64 U	0.19	0.23
1,1-Dichloroethene	75-35-4	0.60 U	0.52 U	0.65 U	0.85 U	0.85 U	0.60 U	0.63 U	0.63 U	0.19	0.23
1,2,4-Trichlorobenzene	120-82-1	5.6 U	4.9 U	6.1 U	7.9 U	7.9 U	5.6 U	5.9 U	5.9 U	0.24	3
1,2-Dibromoethane (EDB)	106-93-4	1.2 U	1.0 U	1.3 U	1.6 U	1.6 U	1.2 U	1.2 U	1.2 U	0.19	0.23
1,2-Dichlorobenzene	95-50-1	0.91 U	0.79 U	0.99 U	1.3 U	1.3 U	0.91 U	0.95 U	0.95 U	0.24	0.78
1,2-Dichloroethane	107-06-2	0.62 U	0.53 U	0.66 U	0.87 U	0.87 U	0.62 U	0.64 U	0.64 U	0.19	0.22
1,2-Dichloropropane	78-87-5	0.70 U	0.61 U	0.76 U	0.99 U	0.99 U	0.70 U	0.73 U	0.73 U	0.2	0.24
1,3-Butadiene	106-99-0	1.7 U	1.5 U	1.8 U	2.4 U	2.4 U	1.7 U	1.7 U	1.7 U	NA	NA
1.3-Dichlorobenzene	541-73-1	0.91 U	0.79 U	0.99 U	1.3 U	1.3 U	0.91 U	0.95 U	0.95 U	0.24	0.66
1,4-Dichlorobenzene	106-46-7	0.91 U	0.79 U	0.99 U	1.3 U	1.3 U	0.91 U	0.95 U	0.95 U	0.54	1.3
1,4-Dioxane	123-91-1	2.7 U	2.4 U	3.0 U	3.8 U	3.8 U	2.7 U	2.8 U	2.8 U	NA	NA
2-Butanone (MEK)	78-93-3	2.2 U	1.9 U	2.4 U	3.2 U	3.2 U	2.2 U	4.0	3.4	7.5	14
Acetone	67-64-1	7.6	5.5	4.6	21	20	6.5	18	7.0	46	110
Benzyl chloride	100-44-7	0.79 U	0.68 U	0.85 U	1.1 U	1.1 U	0.79 U	0.82 U	0.82 U	NA	NA
Bromodichloromethane	75-27-4	5.1 U	4.4 U	5.5 U	7.2 U	7.2 U	5.1 U	5.3 U	5.3 U	NA	NA
Bromoform	75-25-2	7.8 U	6.8 U	8.5 U	11 U	11 U	7.8 U	8.2 U	8.2 U	NA	NA
Bromomethane	74-83-9	0.59 U	0.51 U	0.64 U	0.83 U	0.83 U	0.59 U	0.61 U	0.61 U	0.24	0.58
Carbon Tetrachloride	56-23-5	0.96 U	0.83 U	1.0 U	1.3 U	1.3 U	0.96 U	0.99 U	0.99 U	0.68	0.87
Chlorobenzene	108-90-7	0.70 U	0.61 U	0.76 U	0.98 U	0.98 U	0.70 U	0.73 U	0.73 U	0.19	0.23
Chloroethane	75-00-3	0.40 U	0.35 U	0.43 U	0.56 U	0.56 U	0.42	0.42 U	0.42 U	0.2	0.25
Chloroform	67-66-3	0.74 U	0.64 U	0.80 U	1.0 U	1.0 U	0.74 U	0.77 U	0.77 U	0.54	1.4
Chloromethane	74-87-3	1.2	1.1	0.98	1.3	1.3	1.1	0.33 U	0.33 U	2	3.3
cis-1,2-Dichloroethene	156-59-2	0.60 U	0.52 U	0.65 U	0.85 U	0.85 U	0.60 U	0.63 U	0.63 U	0.2	0.24
cis-1,3-Dichloropropene	10061-01-5	0.69 U	0.60 U	0.74 U	0.97 U	0.97 U	0.69 U	0.72 U	0.72 U	0.2	0.24
Dibromochloromethane	124-48-1	6.5 U	5.6 U	7.0 U	9.1 U	9.1 U	6.5 U	6.7 U	6.7 U	NA	NA
Ethanol	64-17-5	2.5	1.2 U	3.6	110	110	7.3	2.6	1.5 U	610	1600
Trichlorofluoromethane (Freon 11)	75-69-4	1.3	1.2	1.3	1.9	2.0	1.4	1.1	1.4	5.5	17
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	1.2 U	1.0 U	1.2 U	1.6 U	1.6 U	1.2 U	1.2 U	1.2 U	1.1	1.8
1,2-Dichlorotetrafluoroethane	76-14-2	1.1 U	0.92 U	1.1 U	1.5 U	1.5 U	1.1 U	1.1 U	1.1 U	0.21	0.63
Dichlorodifluoromethane (Freon 12)	75-71-8	2.8	2.6	2.8	2.6	2.7	2.8	2.8	2.6	5.6	15
Hexachlorobutadiene (C-46)	87-68-3	8.1 U	7.0 U	8.7 U	11 U	11 U	8.1 U	8.4 U	8.4 U	0.25	4.8
Methyl tert-Butyl Ether	1634-04-4	2.7 U	2.4 U	3.0 U	3.8 U	3.8 U	2.7 U	2.8 U	2.8 U	6.7	27
Methylene Chloride (Dichloromethane)	75-09-2	0.59	0.46 U	0.57 U	0.74 U	0.74 U	0.76	0.55 U	5.1	6.3	22
2-Propanol	67-63-0	1.9 U	1.6 U	2.0 U	3.4	2.6 U	1.9 U	1.9 U	1.9 U	NA	NA
Propene	115-07-1	1.3 U	1.1 U	1.4 U	1.8 U	1.8 U	1.3 U	1.4 U	1.4	NA	NA
Tetrachloroethene	127-18-4	1.0 U	1.4	1.1 U	1.4 U	1.4 U	1.0 U	7.1	1.1 U	1.2	2.9
Tetrahydrofuran	109-99-9	2.2 U	1.9 U	2.4 U	3.2 U	3.2 U	2.2 U	2.3 U	2.3 U	0.32	3.3
Trans-1,2-Dichloroethene	156-60-5	3.0 U	2.6 U	3.2 U	4.2 U	4.2 U	3.0 U	3.1 U	3.1 U	NA	NA
Trans-1,3-Dichloropropene	10061-02-6	0.69 U	0.60 U	0.74 U	0.97 U	0.97 U	0.69 U	0.72 U	0.72 U	0.18	0.22
Trichloroethene	79-01-6	0.82 U	0.71 U	0.88 U	1.2 U	1.2 U	0.82 U	0.85 U	0.85 U	0.23	0.48
Vinyl Chloride	75-01-4	0.39 U	0.34 U	0.42 U	0.55 U	0.55 U	0.39 U	0.40 U	0.40 U	0.2	0.23

Notes:

[1] These compounds may be related to either MGP sources or non-MGP sources, or both. MGP sources include MGP tars and petroleum feedstocks used in MGP processes, such as the carburetted water gas process. Non-MGP sources include cleaning products, floor wax and polish, vehicle exhaust, construction materials, and cigarette smoke.

[2] These compounds are not related to MGP sources and are present due to non-MGP sources, such as vehicle exhaust, heating and air conditioning systems, cleaning agents, art supplies, paints, etc.

[3] New York State Department of Health, Study of Volatile Organic Chemicals(VOCs) in Air of Fuel Heated Homes, Revised November 16, 2004.

NA - Not Available. No data available for background concentrations of these compounds.

U - Not detected at the detection limit indicated.

J - Estimated Concentration.

Table 5-27
Soil Gas Results - 2003
Port Jervis MGP Site

Sample ID	New York State Department of Health (NYSDOH) Indoor Air 75th Percentile (Note 1)	Environmental Protection Agency (EPA) Indoor Air 75th Percentile (Note 2)	LSG-5		LSG-5		LSG-6		LSG-6		LSG-7		LSG-7		LSG-8		DUP (LSG-8)	
Langan Sample Number			001		002		003		004		005		006		042		043	
Lab Sample Number			H3J290123001		H3J290123002		H3J290123003		H3J290123004		H3J290123005		H3J290123006		H3K030110006		H3K030110007	
Sampling Date			10/27/03		10/27/03		10/27/03		10/27/03		10/27/03		10/27/03		10/30/03		10/30/03	
Sampling Depth (feet. bgs)			5		13		5		13		5		13		5		8	
Matrix			Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas	
Dilution Factor			1.48		68.63		1.60		1.58		71.81		1.52		1.69		1.69	
Units	ug/m^3	ug/m^3	ug/m^3		ug/m^3		ug/m^3		ug/m^3		ug/m^3		ug/m^3		ug/m^3		ug/m^3	
			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds																		
n-Heptane	NA	6	2.7		ND	U	3.9		4.0		ND	U	3.1		2.4		1.3	J
n-Hexane	3.6	4	2.8		**15**	J	**4.1**		**5.3**		ND	U	**5.2**		2.8		1.2	J
Cumene	<10	0.84	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
n-Octane	NA	NA	2.0		ND	U	3.0		3.3		ND	U	2.6		2.0		0.91	J
Pentane	NA	5.3	1.7	J	**37**	J	4.0		**8.6**		ND	U	**6.2**		**6.2**		1.6	J
n-Decane	NA	NA	5.8		ND	U	7.2		7.6		ND	U	5.1		2.7		3.0	
n-Dodecane	NA	NA	4.4	J	ND	U	2.4	J	4.2	J	ND	U	2.1	J	1.4	J	1.5	J
n-Undecane	NA	NA	6.5		ND	U	6.7		7.2		ND	U	3.4		2.2		3.0	
Nonane	NA	NA	2.1		ND	U	1.9		2.2		ND	U	1.6		2.9		1.2	J
n-Butane	NA	NA	2.5	J	73	J	8.1	J	18	J	9.5	J	16	J	9.8	J	2.9	J
Dichlorodifluoromethane	<1	NA	**3.9**		ND	U	**3.4**		**3.4**		ND	U	**2.5**		**3.0**		**3.0**	
Chloromethane	<2	NA	0.52	J	ND	U	ND	U	1.9		ND	U	ND	U	ND	U	1.2	J
1,2-Dichloro-1,1,2,2-tetrafluoroethane	<1.5	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Vinyl chloride	<1	NA	ND	U	**110**		0.74	J	0.52	J	**44**		**1.4**		ND	U	0.36	J
Bromomethane	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Chloroethane	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Trichlorofluoromethane	3.8	NA	**5.7**		ND	U	**5.5**		**5**		ND	U	2.3		1.9		1.8	J
1,1-Dichloroethene	<1	0	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Methylene chloride	5.6	NA	**8.0**		ND	U	**18**		**12**		ND	U	**17**		ND	U	2.9	J
1,1,2-Trichloro-1,2,2-trifluoroethane	<1	NA	0.62	J	ND	U	ND	U	ND	U	ND	U	0.66	J	ND	U	ND	U
1,1-Dichloroethane	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
cis-1,2-Dichloroethene	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Chloroform	4.3	3.4	**18**		**20**	J	**23**		**25**		**27**	J	**24**		2.8		**5.3**	
1,1,1-Trichloroethane	6.7	30	**34**		ND	U	2.5		**7.0**		ND	U	1.1	J	ND	U	ND	U
Benzene	5	21	0.69	J	ND	U	1.3		2.5		ND	U	2.6		**6.0**		1.1	J
Carbon tetrachloride	<6.2	0.83	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2-Dichloropropane	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Trichloroethene	<5.3	4.5	0.69	J	ND	U	1.0	J	0.93	J	ND	U	0.74	J	ND	U	ND	U
cis-1,3-Dichloropropene	<9	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
trans-1,3-Dichloropropene	<9	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2-Dichloroethane	<1	0	**4.4**		ND	U	**6.8**		**5.8**		ND	U	**4.2**		0.40	J	**1.7**	
1,1,2-Trichloroethane	<9	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Toluene	25	0	**68**		**6400**		**110**		**99**		**4800**		**71**		14		**31**	
1,2-Dibromoethane (EDB)	<1.5	0	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Tetrachloroethene	<10	11	**21**		ND	U	**29**		**29**		ND	U	**23**		**62**		7.6	
Chlorobenzene	<10	0	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Ethylbenzene	4.8	9.6	2.4		ND	U	3.8		3.5		ND	U	2.8		0.56	J	1.4	J
Styrene	<10	2.8	3.2		ND	U	4.7		4.3		ND	U	3.3		0.77	J	1.7	
1,1,2,2-Tetrachloroethane	<9	0	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
m-Xylene & p-Xylene	9.5	NA	7.7		ND	U	**11**		**11**		ND	U	7.6		2.1		4.2	
o-Xylene	5	9.3	2.3		ND	U	3.2		3.2		ND	U	2.3		0.7	J	1.3	J
1,3,5-Trimethylbenzene	<10	5.4	0.62	J	ND	U	0.77	J	0.69	J	ND	U	0.56	J	ND	U	ND	U
Volatile Organic Compounds																		
1,2,4-Trimethylbenzene	7	4	2.0		ND	U	2.2		2.2		ND	U	1.8		0.63	J	1.1	J
1,3-Dichlorobenzene	<8	5.6	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,4-Dichlorobenzene	<5	5.6	**8.5**		ND	U	**11**		**10**		ND	U	**7.9**		2.6		4.8	
1,2-Dichlorobenzene	<6	0	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2,4-Trichlorobenzene	<10	NA	ND	U	**31**	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Hexachlorobutadiene	<2	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Naphthalene	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Methyl tert-butyl ether	NA	NA	1.1	J	ND	U	ND	U	15		ND	U	0.89	J	ND	U	1.1	J
Tentatively Identified Compounds																		
butylcyclohexane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
indane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
indene	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
isopentane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1-ethyl-3-methylbenzene	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2,3-trimethylbenzene	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
2,2,4-trimethylpentane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
2,3-dimethylheptane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
2,3-dimethylpentane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U

Sample ID	LSG-8		LSG-9		LSG-9		LSG-10		LSG-10		LSG-11		LSG-11		LSG-12		LSG-12		LSG-13	
Langan Sample Number	044		010		011		034		035		047		048		063		064		045	
Lab Sample Number	H3K030110008		H3J300144003		H3J300144004		H3J310251006		H3J310251007		H3K030110011		H3K030110012		H3K050169001		H3K050169002		H3K030110009	
Sampling Date	10/30/03		10/28/03		10/28/03		10/29/03		10/29/03		10/30/03		10/30/03		11/4/03		11/4/03		10/30/03	
Sampling Depth (feet. bgs)	8		5		12		5		12		5		13		5		12		5	
Matrix	Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas	
Dilution Factor	1.76		18.90		1.89		16.92		70.42		1.64		1.71		1.69		1.92		1.78	
Units	ug/m^3		ug/m^3		ug/m^3		ug/m^3		ug/m^3		ug/m^3		ug/m^3		ug/m^3		ug/m^3		ug/m^3	
	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds																				
n-Heptane	1.6		ND	U	ND	U	ND	U	ND	U	2.0		**6.9**		3.7		2.7		3.0	
n-Hexane	1.1	J	ND	U	ND	U	ND	U	ND	U	2.2		**5.8**		3.0		3.5		2.9	
Cumene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	0.99	J	0.95	J	ND	U
n-Octane	0.87	J	ND	U	ND	U	ND	U	ND	U	1.3	J	3.2		6.5		3.6		1.9	
Pentane	2.0	J	ND	U	0.80	J	ND	U	ND	U	3.5		**11**		2.0	J	ND	U	4.3	
n-Decane	3.3		ND	U	ND	U	ND	U	ND	U	4.2		3.7		0.62	J	7.0		3.2	
n-Dodecane	1.6	J	ND	U	ND	U	ND	U	ND	U	2.9	J	1.7	J	ND	U	ND	U	ND	U
n-Undecane	3.0		ND	U	ND	U	ND	U	ND	U	5.0		4.1		ND	U	3.7		2.1	J
Nonane	2.2		ND	U	ND	U	ND	U	ND	U	0.71	J	1.9		6.2		8.1		1.2	J
n-Butane	3.1	J	3.2	J	7.0	J	15	J	19	J	7.8	J	20	J	3.6	J	17	J	6.7	J
Dichlorodifluoromethane	**2.8**		**14**	J	**20**		ND	U	ND	U	**3.7**		**3.3**		**7.8**		**14**		**8.0**	
Chloromethane	1.3	J	ND	U	0.64	J	ND	U	ND	U	ND	U	1.2	J	ND	U	**6.1**		ND	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Vinyl chloride	0.53	J	ND	U	ND	U	ND	U	ND	U	ND	U	**11**		ND	U	ND	U	ND	U
Bromomethane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Chloroethane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Trichlorofluoromethane	2.0		**5.9**	J	**4.9**		ND	U	ND	U	**4.7**		3.2		**4.8**		**6.3**		3.4	
1,1-Dichloroethene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Methylene chloride	2.4	J	ND	U	5.5		ND	U	ND	U	**6.0**		4.3		**11**		4.8		5.6	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,1-Dichloroethane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
cis-1,2-Dichloroethene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Chloroform	**5.0**		**27**		**15**		**20**		ND	U	**16**		**11**		**24**		**7.9**		**12**	
1,1,1-Trichloroethane	ND	U	**17**	J	3.8		ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Benzene	0.99	J	4.0	J	ND	U	ND	U	ND	U	1.1		3.5		2.0		2.7		**22**	
Carbon tetrachloride	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2-Dichloropropane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Trichloroethene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	0.64	J	1.3	J	ND	U	ND	U
cis-1,3-Dichloropropene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
trans-1,3-Dichloropropene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2-Dichloroethane	**1.7**		**5.1**	J	0.55	J	ND	U	ND	U	**3.7**		**2.6**		**3.6**		**1.1**	J	**3.5**	
1,1,2-Trichloroethane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Toluene	**32**		**1100**		3.9		**1000**		**5800**		**61**		**47**		**67**		**32**		**72**	
1,2-Dibromoethane (EDB)	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Tetrachloroethene	7.3		**21**	J	ND	U	**23**	J	**60**	J	**16**		**12**		**17**		**14**		**25**	
Chlorobenzene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Ethylbenzene	1.3	J	ND	U	ND	U	ND	U	ND	U	2.2		2.3		**5.7**		4.4		2.2	
Styrene	1.5		ND	U	ND	U	ND	U	ND	U	3.0		2.7		1.3	J	2.1		2.2	
1,1,2,2-Tetrachloroethane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
m-Xylene & p-Xylene	4.0		9.5	J	ND	U	5.2	J	ND	U	6.6		6.4		9.1		8.8		8.1	
o-Xylene	1.2	J	ND	U	ND	U	ND	U	ND	U	2.0		2.0		1.8		2.2		2.0	
1,3,5-Trimethylbenzene	ND	U	ND	U	ND	U	ND	U	ND	U	0.51	J	ND	U	0.51	J	3.1		ND	U
Volatile Organic Compounds																				
1,2,4-Trimethylbenzene	1.0	J	ND	U	ND	U	ND	U	ND	U	1.9	J	1.7	J	0.44	J	6.0		1.3	J
1,3-Dichlorobenzene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,4-Dichlorobenzene	4.0		**6.4**	J	ND	U	**5.4**	J	ND	U	**7.2**		**6.8**		1.3	J	**5.9**		**5.8**	
1,2-Dichlorobenzene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2,4-Trichlorobenzene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Hexachlorobutadiene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Naphthalene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Methyl tert-butyl ether	0.93	J	ND	U	ND	U	ND	U	ND	U	ND	U	1.1	J	0.60	J	0.91	J	ND	U
Tentatively Identified Compounds																				
butylcyclohexane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
indane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
indene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
isopentane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1-ethyl-3-methylbenzene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2,3-trimethylbenzene	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
2,2,4-trimethylpentane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
2,3-dimethylheptane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
2,3-dimethylpentane	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U

Notes:
NA - Not Available.
U - Indicates that the compound was analyzed for but not detected.
J - Indicates an estimated value.
Q - Qualifier
ug/m^3 - micrograms per cubic meters.
ND - Not Detected.
* - Field Blank/Indoor Air sample was collected in the ambient air.
LSG - Soil-Gas Location.
bgs - Below ground surface.
FB - Field Blank.
(Note 1) - NYSDOH, 1997. Background Indoor/Outdoor Air Levels of Volatile Organic Compounds in Homes Sampled by the New York State Department of Health, 1989-1996, New York State Department of Health, Bureau of Toxic Substance Assessment.
(Note 2) - US EPA, 1988. National Ambient Volatile Organic Compounds (VOCs) Data Base Update. Nero and Associates, Portland OR, for the USEPA Research Triangle Park, NC. EPA PB88-195631.
Indicates the compound exceeds either NYSDOH (75th percentile) criteria if available OR exceeds EPA (75th percentile) criteria.

Table 5-27
Soil Gas Results - 2003
Port Jervis MGP Site

Sample ID	New York State Department of Health (NYSDOH) Indoor Air 75th Percentile (Note 1)	Environmental Protection Agency (EPA) Indoor Air 75th Percentile (Note 2)	LSG-13		LSG-14		LSG-14		LSG-15		LSG-15		LSG-16		LSG-16		LSG-17		LSG-17		DUP (LSG-17)		LSG-18		LSG-18		Ambient Air (2)		Ambient Air		Ambient Air - 8 hr		Ambient Air (5)	
Langan Sample Number			046		032		033		049		050		065		066		029		030		031		008		009		012		036		041		067	
Lab Sample Number			H3K030110010		H3J310251004		H3J310251005		H3K030110013		H3K030110014		H3K050169003		H3K050169004		H3J310251001		H3J310251002		H3J310251003		H3J300144001		H3J300144002		H3J300144005		H3J310251008		H3K030110005		H3K050169005	
Sampling Date			10/30/03		10/29/03		10/29/03		10/30/03		10/30/03		11/4/03		11/4/03		10/29/03		10/29/03		10/29/03		10/28/03		10/28/03		10/28/03		10/29/03		10/30/03		11/4/03	
Sampling Depth (feet. bgs)			11.5		5		12		13		5		5		13		5		13		13		5		13		*		*		*		*	
Matrix			Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Soil Gas		Air		Air		Air		Air	
Dilution Factor			1.77		67.92		61.67		56.47		54.06		1.76		1.99		73.18		73.64		32.80		65.00		1.80		1.83		1.60		1.82		1.84	
Units	ug/m3	ug/m3	ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3		ug/m3	
			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organic Compounds																																		
n-Heptane	NA	6	1.7		ND	U	ND	U	ND	U	ND	U	3.2		3.1		ND	U	ND	U	ND	U	ND	U	2.7		3.0		0.51	J	0.91	J	0.49	J
n-Hexane	3.6	4	1.7		ND	U	ND	U	ND	U	ND	U	2.8		5.1		ND	U	ND	U	ND	U	ND	U	4.1		5.9		0.56	J	0.95	J	1.7	
Cumene	<10	0.84	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
n-Octane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	1.3	J	0.44	J	ND	U	ND	U	ND	U	ND	U	2.5		1.6	J	ND	U	0.60	J	ND	U
Pentane	NA	5.3	2.5	J	17	J	ND	U	15	J	ND	U	5.0		5.1		ND	U	ND	U	9.7	J	ND	U	ND	U	12		0.93	J	0.97	J	2.2	J
n-Decane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	0.71	J	ND	U	ND	U	ND	U	ND	U	ND	U	3.9		3.0		0.93	J	ND	U	3.3	
n-Dodecane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	1.8	J	ND	U	ND	U	1.1	J
n-Undecane	NA	NA	0.70	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	1.5	J	3.1		1.1	J	ND	U	1.7	J
Nonane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	1.1	J	ND	U	ND	U	ND	U	ND	U	ND	U	5.3		1.8	J	0.55	J	0.58	J	1.7	J
n-Butane	NA	NA	4.8	J	51	J	8.4	J	50	J	ND	U	9.9	J	8.8	J	45	J	30	J	33	J	11	J	16	J	11	J	2.1	J	1.4	J	3.0	J
Dichlorodifluoromethane	<1	NA	11		ND	U	ND	U	ND	U	ND	U	3.7		3.3		ND	U	ND	U	ND	U	ND	U	5.6		230		3.0		2.8		3.1	
Chloromethane	<2	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	1.6	J	1.7		1.3	J	1.3	J
1,2-Dichloro-1,1,2,2-tetrafluoroethane	<1.5	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Vinyl chloride	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	11	J	13	J	ND	U	0.24	J	ND	U	ND	U	ND	U	ND	U
Bromomethane	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Chloroethane	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Trichlorofluoromethane	3.8	NA	4.3		ND	U	ND	U	ND	U	ND	U	4.7		8.1		ND	U	ND	U	ND	U	ND	U	12		3.0		1.8		1.9	J	1.9	J
1,1-Dichloroethene	<1	0	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Methylene chloride	5.6	NA	7.5		ND	U	ND	U	ND	U	ND	U	3.7		6.8		ND	U	ND	U	ND	U	ND	U	19		28		ND	U	3.0	J	ND	U
1,1,2-Trichloro-1,2,2-trifluoroethane	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,1-Dichloroethane	<1	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
cis-1,2-Dichloroethene	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Chloroform	4.3	3.4	150		22	J	160		ND	U	ND	U	12		24		ND	U	ND	U	ND	U	ND	U	8.8		3.1		1.5	J	5.0		0.43	J
1,1,1-Trichloroethane	6.7	30	0.51	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	170		ND	U	ND	U	ND	U	ND	U
Benzene	5	21	1.2		ND	U	ND	U	ND	U	ND	U	1.6		1.6		ND	U	ND	U	ND	U	ND	U	1.8		6.9		1.1		0.69	J	1.7	
Carbon tetrachloride	<6.2	0.83	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2-Dichloropropane	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Trichloroethene	<5.3	4.5	1.1	J	ND	U	ND	U	ND	U	ND	U	ND	U	1.3	J	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
cis-1,3-Dichloropropene	<9	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
trans-1,3-Dichloropropene	<9	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2-Dichloroethane	<1	0	3.1		ND	U	ND	U	ND	U	ND	U	3.4		5.9		ND	U	ND	U	ND	U	ND	U	3.3		1.1	J	0.41	J	1.4	J	ND	U
1,1,2-Trichloroethane	<9	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Toluene	25	0	45		4000		1900		39	J	28	J	61		84		4000		1600		1700		4400		77		36		9.0		24		8.9	
1,2-Dibromoethane (EDB)	<1.5	0	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Tetrachloroethene	<10	11	72		ND	U	33	J	ND	U	ND	U	18		21		ND	U	ND	U	ND	U	ND	U	18		4.5		3.4		5.6		ND	U
Chlorobenzene	<10	0	ND	U	ND	U	ND	U	ND	U	ND	U	14		ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Ethylbenzene	4.8	9.6	0.93	J	ND	U	ND	U	ND	U	ND	U	2.7		1.0	J	ND	U	ND	U	ND	U	ND	U	2.6		3.9		0.59	J	1.0	J	0.78	J
Styrene	<10	2.8	ND	U	ND	U	ND	U	ND	U	ND	U	0.63	J	ND	U	ND	U	ND	U	ND	U	ND	U	2.6		1.6		0.92	J	0.84	J	ND	U
1,1,2,2-Tetrachloroethane	<9	0	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
m-Xylene & p-Xylene	9.5	NA	1.4	J	ND	U	ND	U	ND	U	ND	U	4.5		1.5	J	ND	U	ND	U	ND	U	ND	U	7.5		13		1.6		3.1		2.5	
o-Xylene	5	9.3	0.40	J	ND	U	ND	U	ND	U	ND	U	0.99	J	ND	U	ND	U	ND	U	ND	U	ND	U	2.1		4.4		0.55	J	0.96	J	0.86	J
1,3,5-Trimethylbenzene	<10	5.4	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	1.1	J	ND	U	ND	U	ND	U
Volatile Organic Compounds																																		
1,2,4-Trimethylbenzene	7	4	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	1.3	J	2.8		0.72	J	ND	U	1.1	J
1,3-Dichlorobenzene	<8	5.6	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,4-Dichlorobenzene	<5	5.6	ND	U	ND	U	ND	U	ND	U	ND	U	0.81	J	ND	U	ND	U	ND	U	ND	U	ND	U	5.7		6.0		3.2		2.7		2.1	J
1,2-Dichlorobenzene	<6	0	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND		ND	U
1,2,4-Trichlorobenzene	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Hexachlorobutadiene	<2	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
Naphthalene	<10	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	J	ND	U
Methyl tert-butyl ether	NA	NA	ND	U	ND	U	ND	U	2200		1900		ND	U	0.88	J	ND	U	ND	U	ND	U	ND	U	ND	U	13		ND	U	0.61	J	1.3	J
Tentatively Identified Compounds																																		
butylcyclohexane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
indane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
indene	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
isopentane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	18	J	ND	U	ND	U	ND	U
1-ethyl-3-methylbenzene	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
1,2,3-trimethylbenzene	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
2,2,4-trimethylpentane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
2,3-dimethylheptane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U
2,3-dimethylpentane	NA	NA	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U	ND	U

Notes:
NA - Not Available.
U - Indicates that the compound was analyzed for but not detected.
J - Indicates an estimated value.
Q - Qualifier
ug/m^3 - micrograms per cubic meters.
ND - Not Detected.
* - Field Blank/Indoor Air sample was collected in the ambient air.
LSG - Soil-Gas Location.
bgs - Below ground surface.
FB - Field Blank.
(Note 1) - NYSDOH, 1997. Background Indoor/Outdoor Air Levels of Volatile Organic Compounds in Homes Sampled by the New York State Department of Health, 1989-1996, New York State Department of Health, Bureau of Toxic Substance Assessment.
(Note 2) - US EPA, 1988. National Ambient Volatile Organic Compounds (VOCs) Data Base Update. Nero and Associates, Portland OR, for the USEPA Research Triangle Park, NC. EPA PB88-195631.
[box] Indicates the compound exceeds either NYSDOH (75th percentile) criteria if available OR exceeds EPA (75th percentile) criteria.

Table 5-28
Soil Gas Sample Results - 2004
Port Jervis MGP Site

Compound	CAS number	Results in ug/m³									Background Indoor Air Values[3]	
Type of Sample		Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	DOH 75th ug/m³	DOH 90th ug/m³
Sample Location		15/17 Pike Street	15/17 Pike Street	16 Brown Street	16 Brown Street	12 Brown Street	12 Brown Street	8 Brown Street	8 Brown Street	8 Brown Street		
Sampling Date		3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005	3/15/2005		
Sample ID		SG4S	SG4D	SG5S	SG5D	SG6S	SG6D	SG7S	SG7D	SG7D Duplicate		
Possibly MGP Related or Other Sources [1]												
1,2,4-Trimethylbenzene	95-63-6	7.4	3.0 U	0.71 U	10	12	17	13	11	12	4.4	11
1,3,5-Trimethylbenzene	108-67-8	4.9 U	3.0 U	0.71 U	3.1	3.3	6.2	3.7	3.5	3.7	1.7	3.8
2,3-Dimethylpentane	565-59-3	37	12 U	3.0 U	4.5 U	4.4 U	12	17	4.5 U	4.5 U	2.1	7.9
2-Hexanone	591-78-6	20 U	12 U	2.9 U	4.5 U	4.4 U	4.6 U	4.6 U	4.5 U	4.5 U	NA	NA
2-Methylpentane	107-83-5	18 U	11 U	2.5 U	3.9 U	3.8 U	10	12	3.9 U	3.9 U	NA	NA
4-Ethyltoluene	622-96-8	24 U	15 U	3.5 U	11	13	19	14	14	15	NA	NA
4-Methyl-2-pentanone	108-10-1	20 U	12 U	2.9 U	4.5 U	4.4 U	4.6 U	4.6 U	4.5 U	4.5 U	0.98	3
Benzene	71-43-2	4.3	2.3	0.74	1.2	1.4	2.3	8	1.8	2.0	5.7	15
Carbon Disulfide	75-15-0	15 UJ	9.5 UJ	2.2 UJ	3.4 UJ	3.4 UJ	3.5 UJ	11J	3.4 UJ	3.4 UJ	NA	NA
Cyclohexane	110-82-7	17 UJ	10 UJ	2.5 UJ	3.8 UJ	3.7 UJ	3.9 UJ	3.9 UJ	3.8 UJ	3.8 UJ	2.9	9.1
Ethylbenzene	100-41-4	6.6	2.6 U	0.62 U	5.8	5.6	10	11	8	8	2.8	7.3
Heptane	142-82-5	20 UJ	12 U	3.0 U	4.5 U	4.4 U	4.8	6.5	4.5 U	4.5 U	7.7	19
Hexane	110-54-3	17 U	11 U	2.5 U	3.9 U	3.8 U	7	11	3.9 U	3.9 U	6.5	19
2,2,4-Trimethylpentane	540-84-1	23 U	14 U	3.4 U	5.2 U	5.1 U	5.3 U	15	5.2 U	5.2 U	2.6	7.3
Indan	496-11-7	24 U	15 U	3.5 U	5.3 U	5.2 U	5.5 U	5.5 U	5.3 U	5.3 U	NA	NA
Indene	95-13-6	24 U	14 U	3.4 U	5.2 U	5.2 U	5.4 U	5.4 U	5.2 U	5.2 U	NA	NA
Isopentane	78-784	15 U	9.0 U	2.1 U	3.3 U	6.0	19	6.0	4.6	5.0	NA	NA
Naphthalene	91-20-3	26 U	16 U	3.8 U	5.8 U	5.7 U	5.9 U	5.9 U	5.8 U	5.8 U	NA	NA
Styrene	100-42-5	4.2 U	2.6 U	0.61 U	1.1	0.92 U	1.4	1.2	1.2	1.3	0.68	1.3
Thiophene	110-02-1	17 U	10 U	2.5 U	3.8 U	3.7 U	3.9 U	3.9 U	3.8 U	3.8 U	NA	NA
Toluene	108-88-3	17	16	0.98	21	12	19	16	16	16	25	59
m/p-Xylenes	136777-61-2	14	3.9	0.74	18	19	30	34	25	25	4.7	12
o-Xylene	95-47-6	7.3	2.6 U	0.62 U	7.4	7.6	11	9.8	9.7	9.6	3.1	7.9
Not MGP Related [2]												
1,1,1-Trichloroethane	71-55-6	5.4 U	3.3 U	0.78 U	1.2 U	4.8	8.8	26	62	66	1.4	3.5
1,1,2,2-Tetrachloroethane	79-34-5	6.8 U	4.2 U	0.99 U	1.5 U	1.5 U	1.6 U	1.6 U	1.5 U	1.5 U	0.2	0.23
1,1,2-Trichloroethane	79-00-5	5.4 U	3.3 U	0.78 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	0.2	0.24
1,1-Dichloroethane	75-34-3	4.0 U	2.5 U	0.58 U	0.89 U	0.88 U	0.91 U	0.91 U	0.89 U	0.89 U	0.19	0.23
1,1-Dichloroethene	75-35-4	3.9 U	2.4 U	0.57 U	0.88 U	0.86 U	0.90 U	0.90 U	0.88 U	0.88 U	0.19	0.23
1,2,4-Trichlorobenzene	120-82-1	37 U	22 U	5.3 U	8.2 U	8.0 U	8.4 U	8.4 U	8.2 U	8.2 U	0.24	3
1,2-Dibromoethane (EDB)	106-93-4	7.6 U	4.7 U	1.1 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	0.19	0.23
1,2-Dichlorobenzene	95-50-1	6.0 U	3.6 U	0.86 U	1.3 U	1.3 U	1.4 U	1.4 U	1.3 U	1.3 U	0.24	0.78
1,2-Dichloroethane	107-06-2	4.0 U	2.5 U	0.58 U	0.89 U	0.88 U	0.91 U	0.91 U	0.89 U	0.89 U	0.19	0.22
1,2-Dichloropropane	78-87-5	4.6 U	2.8 U	0.66 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2	0.24
1,3-Butadiene	106-99-0	11 UJ	6.7 UJ	1.6 UJ	2.4 UJ	2.4 UJ	2.5 UJ	2.5 UJ	2.4 UJ	2.4 UJ	NA	NA
1.3-Dichlorobenzene	541-73-1	6.0 U	3.6 U	0.86 U	1.9	1.4	2.8	1.4 U	2.7	2.9	0.24	0.66
1,4-Dichlorobenzene	106-46-7	6.0 U	3.6 U	0.86 U	1.3 U	1.3 U	1.4 U	1.4 U	1.3 U	1.3 U	0.54	1.3
1,4-Dioxane	123-91-1	18 U	11 U	2.6 U	4.0 U	3.9 U	4.1 U	4.1 U	4.0 U	4.0 U	NA	NA
2-Butanone (MEK)	78-93-3	15 U	9.0 U	2.9	7.2	6.3	8.8	9.1	11	12	7.5	14
Acetone	67-64-1	46	25	13	110	160	180	110	210	220 J	46	110
Benzyl chloride	100-44-7	5.1 U	3.1 U	0.74 U	1.1 U	1.1 U	1.2 U	1.2 U	1.1 U	1.1 U	NA	NA
Bromodichloromethane	75-27-4	33 UJ	20 UJ	4.8 UJ	7.4 UJ	7.3 UJ	7.6 UJ	7.6 UJ	7.4 UJ	7.4 UJ	NA	NA
Bromoform	75-25-2	51 UJ	31 UJ	7.4 UJ	11 UJ	11 UJ	12 UJ	12 UJ	11 UJ	11 UJ	NA	NA
Bromomethane	74-83-9	3.8 U	2.4 U	0.56 U	0.86 U	0.84 U	0.88 U	0.88 U	0.86 U	0.86 U	0.24	0.58
Carbon Tetrachloride	56-23-5	6.2 U	3.8 U	0.91 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	0.68	0.87
Chlorobenzene	108-90-7	4.6 U	2.8 U	0.66 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.19	0.23
Chloroethane	75-00-3	2.6 U	1.6 U	0.38 U	0.58 U	0.57 U	0.60 U	0.60 U	0.58 U	0.58 U	0.2	0.25
Chloroform	67-66-3	4.8 U	42	0.70 U	1.1 U	1.0 U	1.1 U	1.1 U	1.1 U	1	0.54	1.4
Chloromethane	74-87-3	2.0 U	1.2 U	0.96	0.46 U	0.45 U	0.47 U	0.47 U	0.46 U	0.46 U	2	3.3
cis-1,2-Dichloroethene	156-59-2	3.9 U	2.4 U	0.57 U	0.88 U	0.86 U	0.90 U	0.90 U	0.88 U	0.88 U	0.2	0.24
cis-1,3-Dichloropropene	10061-01-5	4.5 U	2.8 U	0.65 U	1.0 U	0.98 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2	0.24
Dibromochloromethane	124-48-1	42 UJ	26 UJ	6.1 UJ	9.4 UJ	9.2 UJ	9.6 UJ	9.6 UJ	9.4 UJ	9.4 UJ	NA	NA
Ethanol	64-17-5	19	5.7 U	4.9	40	36	50	24	38	38	610	1600
Trichlorofluoromethane (Freon 11)	75-69-4	5.6 U	4.6	1.3	1.2	3.2	3.7	4.7	9.8	11	5.5	17
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	7.6 U	4.6 U	1.1 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.1	1.8
1,2-Dichlorotetrafluoroethane	76-14-2	6.9 U	4.2 U	1.0 U	1.5 U	1.5 U	1.6 U	1.6 U	1.5 U	1.5 U	0.21	0.63
Dichlorodifluoromethane (Freon 12)	75-71-8	4.9 U	11	2.2	2.2	2.9	2.6	2.6	3.0	3.2	5.6	15
Hexachlorobutadiene (C-46)	87-68-3	53 U	32 U	7.7 U	12 U	12 U	12 U	12 U	12 U	12 U	0.25	4.8
Methyl tert-Butyl Ether	1634-04-4	18 U	11 U	2.6 U	4.0 U	3.9 U	4.1 U	4.1 U	4.0 U	4.0 U	6.7	27
Methylene Chloride (Dichloromethane)	75-09-2	3.4 U	2.1 U	0.50 U	0.77 U	0.75 U	0.78 U	0.78 U	0.77 U	0.77 U	6.3	22
2-Propanol	67-63-0	14	7.5 U	1.8 U	32	17	25	9.1	13	16	NA	NA
Propene	115-07-1	15	27	1.2 U	15	1.9 U	12	7.5	17	18	NA	NA
Tetrachloroethene	127-18-4	6.7 U	20	0.98 U	1.5 U	1.5 U	1.5 U	1.5 U	2.1	1.9	1.2	2.9
Tetrahydrofuran	109-99-9	15 U	9.0 U	2.1 U	3.2 U	3.2 U	3.3 U	3.3 U	3.2 U	3.2 U	0.32	3.3
Trans-1,2-Dichloroethene	156-60-5	20 UJ	12 UJ	2.8 UJ	4.4 UJ	4.3 UJ	4.5 UJ	4.5 UJ	4.4 UJ	4.4 UJ	NA	NA
Trans-1,3-Dichloropropene	10061-02-6	4.5 U	2.8 U	0.65 U	1.0 U	0.98 U	1.0 U	1.0 U	1.0 U	1.0 U	0.18	0.22
Trichloroethene	79-01-6	5.3 U	3.3 U	0.77 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	0.23	0.48
Vinyl Chloride	75-01-4	2.5 U	1.6 U	0.37 U	0.56 U	0.55 U	0.58 U	0.58 U	0.56 U	0.56 U	0.2	0.23

Notes:

[1] These compounds may be related to either MGP sources or non-MGP sources, or both. MGP sources include MGP tars and petroleum feedstocks used in MGP processes, such as the carburetted water gas process. Non-MGP sources include cleaning products, floor wax and polish, vehicle exhaust, construction materials, and cigarette smoke.

[2] These compounds are not related to MGP sources and are present due to non-MGP sources, such as vehicle exhaust, heating and air conditioning systems, cleaning agents, art supplies, paints, etc.

[3] New York State Department of Health, Study of Volatile Organic Chemicals(VOCs) in Air of Fuel Heated Homes, Revised November 16, 2004.

NA - Not Available. No data available for background concentrations of these compounds.

U - Not detected at the detection limit indicated.

J - Estimated Concentration.

Table 5-29
Summary Table of NAPL Results
Port Jervis MGP Site

Compound	CAS number	Results in ug/m^3	Results Normalized to Benzene	Percentage of Total VOCs
Type of Sample		NAPL	NAPL	NAPL
Sample Location		Vapor Headspace of NAPL at MW-1	Vapor Headspace of NAPL at MW-1	Vapor Headspace of NAPL at MW-1
Sampling Date		6/21/2004	6/21/2004	6/21/2004
Sample ID		MW1SNAPL	MW1SNAPL	MW1SNAPL
Laboratory ID				
Possibly MGP Related or Other Sources [1]				
1,2,4-Trimethylbenzene	95-63-6	140000 J	22.6	10.2%
1,3,5-Trimethylbenzene	108-67-8	41000	6.6	3.0%
2,3-Dimethylpentane	565-59-3	---	---	---
2-Hexanone	591-78-6	---	---	---
2-Methylpentane	107-83-5	---	---	---
4-Ethyltoluene	622-96-8	120000	19.4	8.7%
4-Methyl-2-pentanone	108-10-1	---	---	---
Benzene	71-43-2	6200	1.0	0.5%
Carbon Disulfide	75-15-0	---	---	---
Cyclohexane	110-82-7	---	---	---
Ethylbenzene	100-41-4	76000	12.3	5.5%
Heptane	142-82-5	10000	1.6	0.7%
Hexane	110-54-3	---	---	---
2,2,4-Trimethylpentane	540-84-1	---	---	---
Indan	496-11-7	120000	19.4	8.7%
Indene	95-13-6	80000	12.9	5.8%
Isopentane	78-784	---	---	---
Naphthalene	91-20-3	650000 J	104.8	47.2%
Styrene	100-42-5	---	---	---
Thiophene	110-02-1	---	---	---
Toluene	108-88-3	1100	0.18	0.1%
m/p-Xylenes	136777-61-2	55000	8.9	4.0%
o-Xylene	95-47-6	77000	12.4	5.6%
Not MGP Related [2]				
1,1,1-Trichloroethane	71-55-6	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	---	---	---
1,1,2-Trichloroethane	79-00-5	---	---	---
1,1-Dichloroethane	75-34-3	---	---	---
1,1-Dichloroethene	75-35-4	---	---	---
1,2,4-Trichlorobenzene	120-82-1	---	---	---
1,2-Dibromoethane (EDB)	106-93-4	---	---	---
1,2-Dichlorobenzene	95-50-1	---	---	---
1,2-Dichloroethane	107-06-2	---	---	---
1,2-Dichloropropane	78-87-5	---	---	---
1,3-Butadiene	106-99-0	---	---	---
1,3-Dichlorobenzene	541-73-1	---	---	---
1,4-Dichlorobenzene	106-46-7	---	---	---
1,4-Dioxane	123-91-1	---	---	---
2-Butanone (MEK)	78-93-3	---	---	---
Acetone	67-64-1	---	---	---
Benzyl Chloride	100-44-7	---	---	---
Bromodichloromethane	75-27-4	---	---	---
Bromoform	75-25-2	---	---	---
Bromomethane	74-83-9	---	---	---
Carbon Tetrachloride	56-23-5	---	---	---
Chlorobenzene	108-90-7	---	---	---
Chloroethane	75-00-3	---	---	---
Chloroform	67-66-3	---	---	---
Chloromethane	74-87-3	---	---	---
cis-1,2-Dichloroethene	156-59-2	---	---	---
cis-1,3-Dichloropropene	10061-01-5	---	---	---
Dibromochloromethane	124-48-1	---	---	---
Ethanol	64-17-5	---	---	---
Trichlorofluoromethane (Freon 11)	75-69-4	---	---	---
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	---	---	---
1,2-Dichlorotetrafluoroethane	76-14-2	---	---	---
Dichlorodifluoromethane (Freon 12)	75-71-8	---	---	---
Hexachlorobutadiene (C-46)	87-68-3	---	---	---
Methyl tert-Butyl Ether	1634-04-4	---	---	---
Methylene Chloride (Dichloromethane)	75-09-2	---	---	---
2-Propanol	67-63-0	---	---	---
Propene	115-07-1	---	---	---
Tetrachloroethene	127-18-4	---	---	---
Tetrahydrofuran	109-99-9	---	---	---
trans-1,2-Dichloroethene	156-60-5	---	---	---
trans-1,3-Dichloropropene	10061-02-6	---	---	---
Trichloroethene	79-01-6	---	---	---
Vinyl Acetate	108-05-4	---	---	---
Vinyl Chloride	75-01-4	---	---	---

Notes:

[1] These compounds may be related to either MGP sources or non-MGP sources, or both. MGP sources include MGP tars and petroleum feedstocks used in MGP processes, such as the carburetted water gas process. Non-MGP sources include cleaning products, floor wax and polish, vehicle exhaust, construction materials, and cigarette smoke.

[2] These compounds are not related to MGP sources and are present due to non-MGP sources, such as vehicle exhaust, heating and air conditioning systems, cleaning agents, art supplies, paints, etc.

J - Estimated Concentration.

Table 5-30
Storm Sewer Water Results
Port Jervis MGP Site

Sample Designation / Laboratory Identification	SSUP C4F220259001		SSDN C4F220259003	
BTEX Compounds (ug/L)				
Benzene	10	U	10	U
Toluene	10	U	10	U
Ethylbenzene	10	U	10	U
Xylenes (total)	10	U	10	U
Total BTEX Compounds (ug/L)	-	U	-	U
Other VOCs				
1,1,1-Trichloroethane	10	U	10	U
1,1,2,2-Tetrachloroethane	10	U	10	U
1,1,2-Trichloro-1,2,2-trifluoroethane	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U
1,1-Dichloroethane	10	U	10	U
1,1-Dichloroethene	10	U	10	U
1,2,4-Trichlorobenzene	10	UJ	10	UJ
1,2-Dibromo-3-chloropropane	10	UJ	10	UJ
1,2-Dibromoethane	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U
1,2-Dichloroethane	10	U	10	U
1,2-Dichloropropane	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U
2-Butanone	10	U	10	U
2-Hexanone	10	U	10	U
4-Methyl-2-pentanone	10	U	10	U
Acetone	10	U	10	U
Bromodichloromethane	10	U	10	U
Bromoform	10	U	10	U
Bromomethane	10	U	10	U
Carbon disulfide	10	U	10	U
Carbon tetrachloride	10	U	10	U
Chlorobenzene	10	U	10	U
Chloroethane	10	UJ	10	UJ
Chloroform	10	U	10	U
Chloromethane	10	U	10	U
cis-1,2-Dichloroethene	10	U	10	U
cis-1,3-Dichloropropene	10	U	10	U
Cyclohexane	10	U	10	U
Dibromochloromethane	10	U	10	U
Dichlorodifluoromethane	10	U	10	U
Isopropylbenzene	10	U	10	U
Methyl acetate	10	U	10	U
Methyl tert-butyl ether	10	U	10	U
Methylcyclohexane	10	U	10	U
Methylene chloride	10	U	10	U
Styrene	10	U	10	U
Tetrachloroethene	10	U	10	U
trans-1,2-Dichloroethene	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U
Trichloroethene	10	U	10	U
Trichlorofluoromethane	10	U	10	U
Vinyl chloride	10	U	10	U
Total VOCs (ug/L)	-	U	-	U

Sample Identification / Laboratory Identification	SSUP C4F220259001		SSDN C4F220259003	
PAH Compounds (ug/L)				
2-Methylnaphthalene	11	U	9.9	U
Acenaphthene	11	U	9.9	U
Acenaphthylene	11	U	9.9	U
Anthracene	11	U	9.9	U
Benzo(a)anthracene	11	U	9.9	U
Benzo(a)pyrene	11	U	9.9	U
Benzo(b)fluoranthene	11	U	9.9	U
Benzo(ghi)perylene	11	U	9.9	U
Benzo(k)fluoranthene	11	U	9.9	U
Chrysene	11	U	9.9	U
Dibenz(a,h)anthracene	11	U	9.9	U
Fluoranthene	11	U	9.9	U
Fluorene	11	U	9.9	U
Indeno(1,2,3-cd)pyrene	11	U	9.9	U
Naphthalene	11	U	9.9	U
Phenanthrene	11	U	9.9	U
Pyrene	11	U	9.9	U
Total PAHs (ug/L)	-	U	-	U
Total cPAHs (ug/L)	-	U	-	U
Other SVOCs				
1,1'-Biphenyl	11	U	9.9	U
2,2'-oxybis(1-Chloropropane)	11	U	9.9	U
2,4,5-Trichlorophenol	28	U	25	U
2,4,6-Trichlorophenol	11	U	9.9	U
2,4-Dichlorophenol	11	U	9.9	U
2,4-Dimethylphenol	11	U	9.9	U
2,4-Dinitrophenol	28	U	25	U
2,4-Dinitrotoluene	11	U	9.9	U
2,6-Dinitrotoluene	11	U	9.9	U
2-Chloronaphthalene	11	U	9.9	U
2-Chlorophenol	11	U	9.9	U
2-Methylphenol	11	U	9.9	U
2-Nitroaniline	28	U	25	U
2-Nitrophenol	11	U	9.9	U
3,3'-Dichlorobenzidine	11	U	9.9	U
3-Nitroaniline	28	U	25	U
4,6-Dinitro-2-methylphenol	28	U	25	U
4-Bromophenyl phenyl ether	11	U	9.9	U
4-Chloro-3-methylphenol	11	U	9.9	U
4-Chloroaniline	11	U	9.9	U
4-Chlorophenyl phenyl ether	11	U	9.9	U
4-Methylphenol	11	U	9.9	U
4-Nitroaniline	28	U	25	U
4-Nitrophenol	28	U	25	U
Acetophenone	11	U	9.9	U
Atrazine	11	U	9.9	U
Benzaldehyde	11	U	9.9	U
bis(2-Chloroethoxy)methane	11	U	9.9	U
bis(2-Chloroethyl) ether	11	U	9.9	U
bis(2-Ethylhexyl) phthalate	1.6	J	74	
Butyl benzyl phthalate	11	U	9.9	U
Caprolactam	11	U	9.9	U
Carbazole	11	U	9.9	U
Di-n-butyl phthalate	11	U	9.9	U
Di-n-octyl phthalate	11	U	9.9	U
Dibenzofuran	11	U	9.9	U
Diethyl phthalate	11	U	9.9	U
Dimethyl phthalate	11	U	9.9	U
Hexachlorobenzene	11	U	9.9	U
Hexachlorobutadiene	11	U	9.9	U
Hexachlorocyclopentadiene	11	U	9.9	U
Hexachloroethane	11	U	9.9	U
Isophorone	11	U	9.9	U
N-Nitrosodi-n-propylamine	11	U	9.9	U
N-Nitrosodiphenylamine	11	U	9.9	U
Nitrobenzene	11	U	9.9	U
Pentachlorophenol	28	U	25	U
Phenol	11	U	9.9	U
Total SVOCs (ug/L) (Note 1)	1.6		74	

Sample Identification / Laboratory Identification	SSUP C4F220259001		SSDN C4F220259003	
Metals (ug/L)				
Aluminum	200	U	200	U
Antimony	60	U	60	U
Arsenic	10	U	10	U
Barium	200	U	200	U
Beryllium	5	U	5	U
Cadmium	5	U	5	U
Calcium	15400		14500	
Chromium	10	U	10	U
Cobalt	50	U	50	U
Copper	1.1	J	6.1	J
Iron	813		726	
Lead	3	U	2.2	J
Magnesium	5000	U	5000	U
Manganese	74.2		47.5	
Mercury	0.22		0.2	U
Nickel	40	U	40	U
Potassium	500	U	5000	U
Selenium	2.2	J	5	U
Silver	10	U	10	U
Sodium	24500		23400	
Thallium	5.9	J	10	U
Vanadium	50	U	50	U
Zinc	34.6		64.8	
Total Cyanide (ug/L)	**10**	**U**	**10**	**U**

Notes:
U = The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
(Note 1) - Total for SVOCs inlcudes PAHs.

Table 5-31
Storm Sewer Sediment Results
Port Jervis MGP Site

Sample Designation / Laboratory Identification	SSSED-UP C4F220259002	
BTEX Compounds (ug/Kg)		
Benzene	15	U
Toluene	6.3	J
Ethylbenzene	15	U
Xylenes (total)	15	U
Total BTEX Compounds (ug/Kg)	6.3	
Other VOCs		
1,1,1-Trichloroethane	15	U
1,1,2,2-Tetrachloroethane	15	U
1,1,2-Trichloro-1,2,2-trifluoroethane	15	U
1,1,2-Trichloroethane	15	U
1,1-Dichloroethane	15	U
1,1-Dichloroethene	15	U
1,2,4-Trichlorobenzene	15	U
1,2-Dibromo-3-chloropropane	15	U
1,2-Dibromoethane	15	U
1,2-Dichlorobenzene	15	U
1,2-Dichloroethane	15	U
1,2-Dichloropropane	15	U
1,3-Dichlorobenzene	15	U
1,4-Dichlorobenzene	15	U
2-Butanone	15	U
2-Hexanone	15	U
4-Methyl-2-pentanone	15	U
Acetone	5.2	J
Bromodichloromethane	15	U
Bromoform	15	U
Bromomethane	15	U
Carbon disulfide	15	U
Carbon tetrachloride	15	U
Chlorobenzene	15	U
Chloroethane	15	UJ
Chloroform	15	U
Chloromethane	15	U
cis-1,2-Dichloroethene	15	U
cis-1,3-Dichloropropene	15	U
Cyclohexane	15	U
Dibromochloromethane	15	U
Dichlorodifluoromethane	15	U
Isopropylbenzene	15	U
Methyl acetate	15	U
Methyl tert-butyl ether	15	U
Methylcyclohexane	15	U
Methylene chloride	15	U
Styrene	15	U
Tetrachloroethene	15	U
trans-1,2-Dichloroethene	15	U
trans-1,3-Dichloropropene	15	U
Trichloroethene	15	U
Trichlorofluoromethane	15	U
Vinyl chloride	15	U
Total VOCs (ug/Kg)	**11.5**	

Sample Identification / Laboratory Identification	SSSED-UP C4F220259002	
PAH Compounds (ug/Kg)		
2-Methylnaphthalene	140	J
Acenaphthene	180	J
Acenaphthylene	690	J
Anthracene	690	J
Benzo(a)anthracene	2500	
Benzo(a)pyrene	2500	
Benzo(b)fluoranthene	3000	
Benzo(ghi)perylene	1500	
Benzo(k)fluoranthene	1200	
Chrysene	3300	
Dibenz(a,h)anthracene	100	J
Fluoranthene	9700	
Fluorene	610	J
Indeno(1,2,3-cd)pyrene	1700	
Naphthalene	400	J
Phenanthrene	7100	
Pyrene	7300	
Total PAHs (ug/Kg)	**42,470**	
Total CPAHs (ug/Kg)	**14,300**	
Other SVOCs		
1,1'-Biphenyl	960	U
2,2'-oxybis(1-Chloropropane)	960	U
2,4,5-Trichlorophenol	2400	U
2,4,6-Trichlorophenol	960	U
2,4-Dichlorophenol	960	U
2,4-Dimethylphenol	960	U
2,4-Dinitrophenol	2400	U
2,4-Dinitrotoluene	960	U
2,6-Dinitrotoluene	960	U
2-Chloronaphthalene	960	U
2-Chlorophenol	960	U
2-Methylphenol	960	U
2-Nitroaniline	2400	U
2-Nitrophenol	960	U
3,3'-Dichlorobenzidine	960	U
3-Nitroaniline	2400	U
4,6-Dinitro-2-methylphenol	2400	U
4-Bromophenyl phenyl ether	960	U
4-Chloro-3-methylphenol	960	U
4-Chloroaniline	960	U
4-Chlorophenyl phenyl ether	960	U
4-Methylphenol	110	J
4-Nitroaniline	960	U
4-Nitrophenol	960	U
Acetophenone	960	U
Atrazine	960	U
Benzaldehyde	970	U
bis(2-Chloroethoxy)methane	960	U
bis(2-Chloroethyl) ether	960	U
bis(2-Ethylhexyl) phthalate	2000	
Butyl benzyl phthalate	150	J
Caprolactam	240	J
Carbazole	610	J
Di-n-butyl phthalate	960	U
Di-n-octyl phthalate	150	J
Dibenzofuran	310	J
Diethyl phthalate	960	U
Dimethyl phthalate	960	U
Hexachlorobenzene	960	U
Hexachlorobutadiene	960	U
Hexachlorocyclopentadiene	960	UJ
Hexachloroethane	960	U
Isophorone	960	U
N-Nitrosodi-n-propylamine	960	U
N-Nitrosodiphenylamine	960	U
Nitrobenzene	960	U
Pentachlorophenol	2400	U
Phenol	960	U
Total SVOCs (Note 1)	**46,040**	

Sample Identification / Laboratory Identification	SSSED-UP C4F220259002	
Metals (ug/L)		
Aluminum	5620	
Antimony	17.5	U
Arsenic	4.9	
Barium	58.2	U
Beryllium	1.5	U
Cadmium	1.5	U
Calcium	4820	J
Chromium	19.5	
Cobalt	5.8	B
Copper	56.5	
Iron	17000	
Lead	238	J
Magnesium	4110	
Manganese	145	
Mercury	0.15	J
Nickel	17.2	
Potassium	1460	U
Selenium	1.5	U
Silver	2.9	U
Sodium	1460	U
Thallium	2.9	U
Vanadium	14.6	U
Zinc	195	
Percent Solids (%)	68.7	
Total Cyanide	1.1	J
Total Organic Carbon	64100	

Notes:
U = The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
(Note 1) - Total for SVOCs inlcudes PAHs.

Table 5-32
TIC Summary Table
Port Jervis MGP Site

Compound	CAS Number	Number of Detections	Comments
2-Pentanone, 4-hydroxy-4-methyl	123-42-2	25	Acetone-based solvent
Biphenyl	95-52-4	5	Used in organic syntheses, heat transfer fluids, dye carriers, food preservatives, intermediate for PCBs, etc.
Dibenzothiophene	132-65-0	3	Coal tar compound
9,10-Anthracenedione	84-65-1	6	Used in the production of dyes
Naphthalene, 1-methyl-	90-12-0	22	Coal tar compound
Ethanol, 2-(2-ethoxyethoxy)	111-90-0	4	Use as a solvent for esters, in laquer and thinner formulations, in quick-drying varnishes and enamels, for dyestuffs and wood stains
n-Hexadecanoic acid	57-10-3	14	Occurs as the glyceryl ester in oils and fats
Cyclic octaatomic sulfur	10544-50-0	4	
Benzene, 1,3,5-trimethyl-	108-67-8	12	Coal tar and petroleum compound
Benzene, 1,2,4-trimethyl-	95-63-6	18	Coal tar and petroleum compound
1,4-Methanonaphthalene, 1,4-	4453-90-1	1	
Propanoic acid, 2-methyl-, 1	74381-40-1	1	
Cyclohexasiloxane, dodecamet	540-97-6	4	Isolated from the hydrolysis product of dimethyldichlorosilane
Decane, 2,6,7-trimethyl-	62108-25-2	1	
Pentadecane, 2,6,10-trimethy	3892-00-0	1	
Indane	496-11-7	1	Coal tar compound
2,5-Hexanedione	110-13-4	1	Prepared by the decarboxylation of sodium acetoacetic ester and iodine
1, 8-Naphthalic anhydride	81-84-5	4	
Cyclopenta (def) phenanthrenon	5737-13-3	1	
Dodecanoic acid	143-07-7	1	Isolated from coconut oil and arecanut fat
5, 12-Naphthacenedione	1090-13-7	1	
1,2-Acenaphthylenedione	82-86-0	1	
Naphthalene, 2,7-dimethyl-	582-16-1	1	
Indene	95-13-6	6	Coal tar and petroleum compound
Acenaphthenone	100012-83-8	4	
Benzene, propyl-	103-65-1	1	Used in textile dyeing and printing as well as a solvent for cellulose acetate
Cyclohexane, methyl-	108-87-2	1	Used as a solvent to manufacture organic chemicals
Anthracene, 2-methyl-	613-12-7	1	
Benz[c]acridine	225-51-4	1	
Stigmast-4-en-3-one	1058-61-3	5	
Phenol, 4,4"-(1-methylethylidine) bis-	80-05-7	2	Produced from phenol and acetone
.gamma.-Sitosterol	83-47-6	4	Found in soybean oil
2-Phenanthrenol, 4b,5,6,7,8,	511-15-9	2	
Unknown	NA	40	

Table 5-33
Field Quality Control Sample Summary
Port Jervis MGP Site

Sample Name		EB(10-12-00)	TB(10-12-00)	EB (10-20-00)	TB (10-20-00)	EB (10-24-00)	TB(10-24-00)	EB (11-6-00)	EB(11-29-00)	TB(11-29-00)	EB(11-30-00)	TB(11-30-00)	TB (12-1-00)
Lab ID		C0J140138006	C0J140138007	C0J240275003	C0J240275004	C0J260293001	C0J260293002	C0K080236012	C0K300165005	C0K300165006	C0L010264006	C0L010264011	C0L020139005
Date		10/12/2000	10/12/2000	10/20/2000	10/20/2000	10/24/2000	10/24/2000	11/6/2000	11/29/2000	11/29/2000	11/30/2000	11/30/2000	12/1/2000
Sample Type		Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation	Investigation
	CAS No.												
BTEX (ug/L)													
Benzene	71-43-2	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Toluene	108-88-3	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Ethylbenzene	100-41-4	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Xylenes (total)	1330-20-7	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Total BTEX													
Other VOCs (ug/L)													
1,1,1-Trichloroethane	171-55-6	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane	79-34-5	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	79-00-5	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethane	75-34-3	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethene	75-35-4	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
1,2-Dichloroethane	107-06-2	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
1,2-Dichloroethene (total)	540-59-0	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
1,2-Dichloropropane	78-87-5	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
2-Butanone	78-93-3	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
2-Hexanone	591-78-6	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	108-10-1	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Acetone	67-64-1	2.6 J B	2.9 J B	7.4 J B	4.1 J B	5.8 J B	4.9 J B	NA	3.2 J B	4.3 J B	3.6 J B	3.2 J B	4.3 J B
Bromodichloromethane	75-27-4	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Bromoform	75-25-2	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Bromomethane	74-83-9	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Carbon disulfide	75-15-0	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Carbon tetrachloride	56-23-5	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Chlorobenzene	108-90-7	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Chloroethane	75-00-3	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Chloroform	67-66-3	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Chloromethane	74-87-3	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	10061-01-5	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Dibromochloromethane	124-48-1	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Methylene chloride	75-09-2	< 10	< 10	< 10	< 10	< 10	< 10	NA	1.5 J	< 10	< 10	< 10	< 10
Styrene	100-42-5	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene	127-18-4	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene	10061-02-6	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Trichloroethene	79-01-6	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Vinyl chloride	75-01-4	< 10	< 10	< 10	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10
Total Other VOCs													
PAHs (ug/L)													
Naphthalene	91-20-3	< 10		< 10		< 10		< 10	< 10		< 10		
Acenaphthylene	208-96-8	< 10		< 10		< 10		< 10	< 10		< 10		
Acenaphthene	83-32-9	< 10		< 10		< 10		< 10	< 10		< 10		
Fluorene	86-73-7	< 10		< 10		< 10		< 10	< 10		< 10		
Phenanthrene	85-01-8	< 10		< 10		< 10		< 10	< 10		< 10		
Anthracene	120-12-7	< 10		< 10		< 10		< 10	< 10		< 10		
Fluoranthene	206-44-0	< 10		< 10		< 10		< 10	< 10		< 10		
Pyrene	129-00-0	< 10		< 10		< 10		< 10	< 10		< 10		
Benzo(a)anthracene	56-55-3	< 10		< 10		< 10		< 10	< 10		< 10		
Chrysene	218-01-9	< 10		< 10		< 10		< 10	< 10		< 10		
Benzo(b)fluoranthene	205-99-2	< 10		< 10		< 10		< 10	< 10		< 10		
Benzo(k)fluoranthene	207-08-9	< 10		< 10		< 10		< 10	< 10		< 10		
Benzo(a)pyrene	50-32-8	< 10		< 10		< 10		< 10	< 10		< 10		
Indeno(1,2,3-cd)pyrene	193-39-5	< 10		< 10		< 10		< 10	< 10		< 10		
Dibenz(a,h)anthracene	53-70-3	< 10		< 10		< 10		< 10	< 10		< 10		
Benzo(ghi)perylene	191-24-2	< 10		< 10		< 10		< 10	< 10		< 10		
Total CPAHs													
Total PAHs													
Other SVOCs (ug/L)													
1,2,4-Trichlorobenzene	1120-82-1	< 10		< 10		< 10		< 10	< 10		< 10		
1,2-Dichlorobenzene	95-50-1	< 10		< 10		< 10		< 10	< 10		< 10		
1,3-Dichlorobenzene	541-73-1	< 10		< 10		< 10		< 10	< 10		< 10		
1,4-Dichlorobenzene	106-46-7	< 10		< 10		< 10		< 10	< 10		< 10		
2,2'-oxybis(1-Chloropropane)	108-60-1	< 10		< 10		< 10		< 10	< 10		< 10		
2,4,5-Trichlorophenol	95-95-4	< 25		< 25		< 25		< 25	< 25		< 25		
2,4,6-Trichlorophenol	88-06-2	< 10		< 10		< 10		< 10	< 10		< 10		
2,4-Dichlorophenol	120-83-2	< 10		< 10		< 10		< 10	< 10		< 10		
2,4-Dimethylphenol	105-67-9	< 10		< 10		< 10		< 10	< 10		< 10		
2,4-Dinitrophenol	51-28-5	< 25		< 25		< 25		< 25	< 25		< 25		
2,4-Dinitrotoluene	121-14-2	< 10		< 10		< 10		< 10	< 10		< 10		
2,6-Dinitrotoluene	606-20-2	< 10		< 10		< 10		< 10	< 10		< 10		
2-Chloronaphthalene	91-58-7	< 10		< 10		< 10		< 10	< 10		< 10		
2-Chlorophenol	95-57-8	< 10		< 10		< 10		< 10	< 10		< 10		
2-Methylnaphthalene	91-57-6	< 10		< 10		< 10		< 10	< 10		< 10		
2-Methylphenol	95-48-7	< 10		< 10		< 10		< 10	< 10		< 10		
2-Nitroaniline	88-74-4	< 25		< 25		< 25		< 25	< 25		< 25		
2-Nitrophenol	88-75-5	< 10		< 10		< 10		< 10	< 10		< 10		
3,3'-Dichlorobenzidine	91-94-1	< 10		< 10		< 10		< 10	< 10		< 10		
3-Nitroaniline	99-09-2	< 25		< 25		< 25		< 25	< 25		< 25		
4,6-Dinitro-2-methylphenol	534-52-1	< 25		< 25		< 25		< 25	< 25		< 25		
4-Bromophenyl phenyl ether	101-55-3	< 10		< 10		< 10		< 10	< 10		< 10		
4-Chloro-3-methylphenol	59-50-7	< 10		< 10		< 10		< 10	< 10		< 10		
4-Chloroaniline	106-47-8	< 10		< 10		< 10		< 10	< 10		< 10		
4-Chlorophenyl phenyl ether	7005-72-3	< 10		< 10		< 10		< 10	< 10		< 10		
4-Methylphenol	106-44-5	< 10		< 10		< 10		< 10	< 10		< 10		
4-Nitroaniline	100-01-6	< 25		< 25		< 25		< 25	< 25		< 25		
4-Nitrophenol	100-02-7	< 25		< 25		< 25		< 25	< 25		< 25		
bis(2-Chloroethoxy)methane	111-91-1	< 10		< 10		< 10		< 10	< 10		< 10		
bis(2-Chloroethyl) ether	111-44-4	< 10		< 10		< 10		< 10	< 10		< 10		
bis(2-Ethylhexyl) phthalate	117-81-7	< 10		1.1 J		3.6 J		< 10	< 10		< 10		
Butyl benzyl phthalate	85-68-7	< 10		< 10		< 10		< 10	< 10		< 10		
Carbazole	86-74-8	< 10		< 10		< 10		< 10	< 10		< 10		
Di-n-butyl phthalate	84-74-2	< 10		< 10		< 10		< 10	< 10		< 10		
Di-n-octyl phthalate	117-84-0	< 10		< 10		< 10		< 10	< 10		< 10		
Dibenzofuran	132-64-9	< 10		< 10		< 10		< 10	< 10		< 10		
Diethyl phthalate	84-66-2	< 10		1.3 J		1.8 J		< 10	< 10		< 10		
Dimethyl phthalate	131-11-3	< 10		< 10		< 10		< 10	< 10		< 10		
Hexachlorobenzene	118-74-1	< 10		< 10		< 10		< 10	< 10		< 10		
Hexachlorobutadiene	87-68-3	< 10		< 10		< 10		< 10	< 10		< 10		
Hexachlorocyclopentadiene	77-47-4	< 10		< 10		< 10		< 10	< 10		< 10		
Hexachloroethane	67-72-1	< 10		< 10		< 10		< 10	< 10		< 10		
Isophorone	78-59-1	< 10		< 10		< 10		< 10	< 10		< 10		
N-Nitrosodi-n-propylamine	621-64-7	< 10		< 10		< 10		< 10	< 10		< 10		
N-Nitrosodiphenylamine	86-30-6	< 10		< 10		< 10		< 10	< 10		< 10		
Nitrobenzene	98-95-3	< 10		< 10		< 10		< 10	< 10		< 10		
Pentachlorophenol	87-86-5	< 25		< 25		< 25		< 25	< 25		< 25		
Phenol	108-95-2	< 10		< 10		< 10		< 10	< 10		< 10		
Total Other SVOCs													
Metals (ug/L)													
Aluminum	7429-90-5	< 200		< 200		< 200		< 200	< 200		< 200		
Antimony	7440-36-0	< 60		< 60		< 60		< 60	< 60		< 60		
Arsenic	7440-38-2	< 10		< 10		< 10		< 10	< 10		< 10		
Barium	7440-39-3	0.54 B		< 200		< 200		< 200	1 B		< 200		
Beryllium	7440-41-7	< 5		< 5		< 5		< 5	< 5		< 5		
Cadmium	7440-43-9	< 5		< 5		< 5		< 5	< 5		< 5		
Calcium	7440-70-2	139 B		23.1 B		15.6 B		< 5000	81.5 B		132 B		
Chromium	7440-47-3	< 10		< 10		< 10		< 10	< 10		< 10		
Cobalt	7440-48-4	< 50		< 50		< 50		< 50	< 50		< 50		
Copper	7440-50-8	< 25		< 25		< 25		< 25	< 25		< 25		
Iron	7439-89-6	20.8 B		8.4 B		< 100		25.7 B	48.6 B		< 100		
Lead	7439-92-1	< 3		< 3		< 3		< 3	< 3		< 3		
Magnesium	7439-95-4	< 5000		< 5000		< 5000		< 5000	< 5000		< 5000		
Manganese	7439-96-5	0.75 B		< 15		< 15		< 15	1 B		0.77 B		
Mercury	7439-97-6	0.078 B		0.051 B		0.045 B		< 0.2	0.057 B		0.043 B		
Nickel	7440-02-0	< 40		< 40		< 40		< 40	< 40		< 40		
Potassium	7440-09-7	< 5000		< 5000		< 5000		< 5000	< 5000		< 5000		
Selenium	7782-49-2	< 5		< 5		< 5		< 5	< 5		< 5		
Silver	7440-22-4	< 10		< 10		< 10		< 10	< 10		< 10		
Sodium	7440-23-5	105 B		33.4 B		< 5000		38.5 B	29.6 B		194 B		
Thallium	7440-28-0	< 10		< 10		9.5 B		< 10	< 10		< 10		
Vanadium	7440-62-2	< 50		< 50		< 50		< 50	< 50		< 50		
Zinc	7440-66-6	5.3 B		< 20		< 20		< 20	6.4 B		< 20		
Miscellaneous Parameters (ug/L)													
Total Cyanide	57-12-5	< 10		< 10		< 10		< 10	< 10		< 10		

Notes:
ND - Not detected
J - Indicates an estimated value.
< - The material was analyzed for, but not detected at or above the reporting limit. The associated numerical value is the sample quantitation limit.

Table 6-1
Exposure Pathway Analysis - Potential On-Site Receptors
Port Jervis MGP Site

Receptor	Exposure Medium	Exposure Pathway	Pathway Not Considered Complete	Pathway Considered Potentially Complete, But Not Likely to Result in Exposure	Pathway Potentially Complete and Will Be Addressed in the Feasibility Study for the Site	Rationale for Inclusion or Exclusion
On-site Outdoor Maintainence Worker						
On-site Outdoor Maintainence Worker	On-site Surface Soil (0-2 inches)	Ingestion	X	---	---	Outdoor Maintenance Workers who mow the grass on the site may be exposed to residuals in surface soil or particulates, therefore the exposure pathway is considered potentially complete. Since the site is covered with grass, the tar materials and NAPL are covered with pavement or buildings, and the workers would only be on site for a short time, exposure is not likely.
		Dermal Contact	---	X	---	
		Inhalation of Particulates	---	X	---	
		Inhalation of Volatiles in Ambient Air	---	X	---	Outdoor Maintenance Workers may be infrequently exposed to ambient air VOCs emanating from on-site tar materials and NAPL near the surface; however, exposure is not likely due to pavement cover, atmospheric mixing, and dilution of the VOCs in ambient air.
	On-site Subsurface Soil (>2 inches)	Ingestion	X	---	---	Outdoor Maintenance Workers are not likely to contact subsurface soils during their workday.
		Dermal Contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Groundwater	Ingestion	X	---	---	Outdoor Maintenance Workers are not likely to contact groundwater during their workday.
		Dermal contact	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Surface Water	Ingestion	---	X	---	Outdoor Maintenance Workers may be exposed to surface water during storm events; however, exposure is not likely as it is unlikely that the grass mowing or other maintenance work would be performed where surface water is present. In addition, the majority of the site is paved, which would serve to limit surface water contact with residuals.
		Dermal contact	---	X	---	
On-site Outdoor Subsurface Utility Worker						
On-site Outdoor Subsurface Utility Workers	On-site Surface Soil (0-2 inches)	Ingestion	---	X	---	Outdoor Utility Workers who repair or maintain equipment at the site may be exposed to residuals in surface soil or particulates, therefore the exposure pathway is considered potentially complete. Since the site is covered with pavement, buildings and grass and the tar materials and NAPL are covered, and the workers would only be on site for a short time, exposure is not likely.
		Dermal contact	---	X	---	
		Inhalation of Particulates	---	X	---	
		Inhalation of Volatiles in Ambient Air	---	X	---	
	On-site Subsurface Soil (>2 inches)	Ingestion	---	X	---	Outdoor Subsurface Utility Workers may be exposed to tar and MGP related residuals in subsurface soil, dust, or VOCs in ambient air while completing excavation work to repair or replace subsurface utilities or other equipment that is present at the site. Therefore, the pathway will be addressed in the FS evaluation of potential remedial actions for the site.
		Dermal contact	---	---	X	
		Inhalation of Particulates	---	---	X	
		Inhalation of Volatiles in Ambient Air	---	---	X	
	Groundwater	Ingestion	---	X	---	Outdoor Subsurface Utility Workers may be exposed to residuals in groundwater and VOCs in ambient air while completing excavation work to repair or replace gas pipes or other equipment that is present at the site. Therefore, the pathway will be addressed in the FS evaluation of potential remedial actions for the site.
		Dermal contact	---	---	X	
		Inhalation of Volatiles in Ambient Air	---	---	X	
	Surface Water	Ingestion	---	X	---	Surface water does not collect or pool in the on-site areas, therfore subsurface utility repair work is unlikely to involve contact with this media.
		Dermal contact	---	X	---	
On-site Building Workers						
On-site Building Workers	On-site Surface Soil (0-2 inches)	Ingestion	---	X	---	On-site Building Workers may be exposed to residuals in surface soil while working at the site; however, the area along Pike Street is covered with grass and other impacted areas are covered with pavement and buildings, therefore exposure is not likely.
		Dermal contact	---	X	---	
		Inhalation of Particulates	---	X	---	
		Inhalation of Volatiles in Ambient Air	---	X	---	
	On-site Subsurface Soil (>2 inches)	Ingestion	X	---	---	On-site Building Workers would not be exposed to subsurface soil while working at the site. On-site Building Workers may be exposed to impacted vapors from impacted subsurface soil at the site; however a vapor intrusion pathway analyses was performed and indoor air is not adversly impacted in the building.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	---	X	---	
	Groundwater	Ingestion	X	---	---	On-site Building Workers would not be exposed to groundwater while working at the site. On-site Building Workers may be exposed to impacted vapors from impacted groundwater at the site; however a vapor intrusion pathway analysis was performed and indoor air is not adversly impacted in the building.
		Dermal contact	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	---	X	---	
	Surface Water	Ingestion	X	---	---	On-site Building Workers may potentially be exposed to surface water while visiting the site; however, surface water does not pool on the site, therefore exposure is not likely.
		Dermal contact	X	---	---	
On-site Visitor or Tresspassor						
Site Visitor or Tresspassor	On-site Surface Soil (0-2 inches)	Ingestion	---	X	---	On-site Visitors and Tresspassors may be exposed to residuals in surface soil and VOCs in ambient air while visiting the site; however, the site is covered with grass or pavement, the Visitors or Tresspassors would only be on site for a short time, and the site is secured and is an active facility with on-site personnel, therefore, exposure is not likely.
		Dermal contact	---	X	---	
		Inhalation of Particulates	---	X	---	
		Inhalation of Volatiles in Ambient Air	---	X	---	
	On-site Subsurface Soil (>2 inches)	Ingestion	X	---	---	On-site Visitors or Tresspassors would not be exposed to subsurface soil while visiting the site.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Groundwater	Ingestion	X	---	---	On-site Visitors or Tresspassors would not be exposed to groundwater while visiting the site.
		Dermal contact	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Surface Water	Ingestion	X	---	---	On-site Visitors or Tresspassors may potentially be exposed to surface water while visiting the site; however, surface water does not pool on the site, and any contact would be likely to be for only a brief period of time, therefore exposure is not likely.
		Dermal contact	X	---	---	

Table 6-2
Exposure Pathway Analysis - Potential Off-Site Receptors
Port Jervis MGP Site

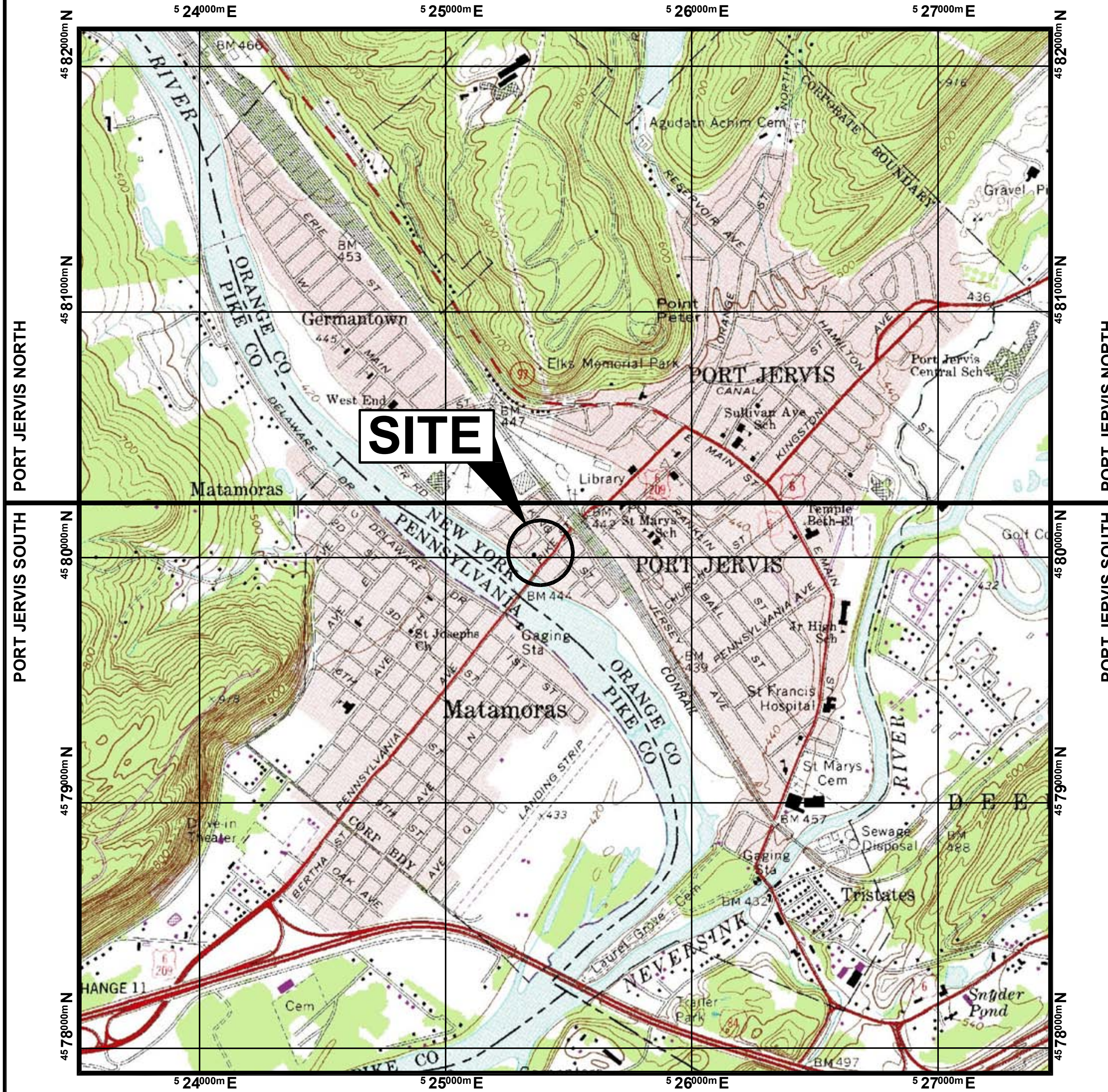
Receptor	Exposure Medium	Exposure Pathway	Pathway Not Considered Complete	Pathway Considered Potentially Complete, But Not Likely to Result in Exposure	Pathway Potentially Complete and Will Be Addressed in the Feasibility Study for the Site	Rationale for Inclusion or Exclusion
Off-site Area - Brown Street ROW and Roadway						
Utility Workers	Surface Soil (0-2 inches)	Ingestion	X	---	---	Surface soil covered by pavement or sidewalk in majority of area. Near surface soils with residuals may be encountered during excavation work. Pathway considered potentially complete.
		Dermal Contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Subsurface Soil (>2 inches)	Ingestion	---	X	---	Elevated concentrations of constituents of interest and NAPL detected in subsurface soil. Subsurface utility work will likely encounter these materials. The pathway will be addressed in the FS.
		Dermal Contact	---	---	X	
		Inhalation of Particulates	---	---	X	
		Inhalation of Volatiles in Ambient Air	---	---	X	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Groundwater	Ingestion	---	X	---	Elevated concentrations of constituents of interest detected in groundwater. Subsurface utility work will likely encounter residuals. The pathway will be addressed in the FS.
		Dermal contact	---	---	X	
		Inhalation of Volatiles in Ambient Air	---	---	X	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Surface Water	Ingestion	X	---	---	Surface water not present at this location.
		Dermal contact	X	---	---	
Off-site Residential Area North of Brown Street						
Residents	Surface Soil (0-2 inches)	Ingestion	X	---	---	Surface soil sampling not preformed on the properties. Subsurface soils were not impacted by constituents of interest so impacts to surface soils are not expected.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Subsurface Soil (>2 inches)	Ingestion	X	---	---	Elevated concentrations of constituents of interest not detected in subsurface soil or soil gas samples. The pathway is not considered complete.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Groundwater	Ingestion	X	---	---	Elevated concentrations of constituents of interest not detected in groundwater samples. The pathway is not considered complete.
		Dermal contact	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Surface Water	Ingestion	X	---	---	Surface water not present at this location.
		Dermal contact	X	---	---	
Off-site Area - King Street ROW and Roadway and Commercial/Residential Properties						
Residents, Indoor Workers, and Outdoor Maintenance Workers	Surface Soil (0-2 inches)	Ingestion	X	---	---	Surface soil sampling not preformed on the properties. Subsurface soils were not impacted by constituents at site's northeastern bounday so impacts to surface soils are not expected further to the east.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Subsurface Soil (>2 inches)	Ingestion	X	---	---	Elevated concentrations of constituents of interest not detected in subsurface soil or soil gas samples at the site's northeastern boundary. The pathway is not considered complete.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Groundwater	Ingestion	X	---	---	Elevated concentrations of constituents of interest not detected in groundwater samples at the site's northeastern boundary. The pathway is not considered complete.
		Dermal contact	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Surface Water	Ingestion	X	---	---	Surface water not present at this location.
		Dermal contact	X	---	---	
Off-site Area - 28 Pike Street Property						
Residents, Indoor Workers, Outdoor Maintenance Workers, and Site Visitors	Surface Soil (0-2 inches)	Ingestion	---	---	X	PAH and metal compounds detected in a surface soil sample in concentrations greater than health-based screening criteria or background concentraions. The pathway will be addressed in an IRM and the FS Evaluation.
		Dermal contact	---	---	X	
		Inhalation of Particulates	---	---	X	
		Inhalation of Volatiles in Ambient Air	---	X	---	
	Subsurface Soil (>2 inches)	Ingestion	X	---	---	Elevated concentrations of constituents of interest not detected in soil gas or indoor air samples. The pathway considered complete potentially complete, exposure is not likely.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	---	X	---	
		Inhalation of Volatiles in Indoor Air	---	X	---	
	Groundwater	Ingestion	X	---	---	Elevated concentrations of constituents of interest not detected in soil gas or indoor air samples. The pathway considered complete potentially complete, exposure is not likely.
		Dermal contact	X	---	---	
		Inhalation of Volatiles in Ambient Air	---	X	---	
		Inhalation of Volatiles in Indoor Air	---	X	---	
	Surface Water	Ingestion	X	---	---	Surface water not present at this location.
		Dermal contact	X	---	---	

Table 6-2 (Continued)
Exposure Pathway Analysis - Potential Off-Site Receptors
Port Jervis MGP Site

Receptor	Exposure Medium	Exposure Pathway	Pathway Not Considered Complete	Pathway Considered Potentially Complete, But Not Likely to Result in Exposure	Pathway Potentially Complete and Will Be Addressed in the Feasibility Study for the Site	Rationale for Inclusion or Exclusion
Off-site Area - Water Street ROW and Roadway						
Utility Workers	Surface Soil (0-2 inches)	Ingestion	X	---	---	Surface soil covered by pavement or sidewalk in majority of area. Near surface soils with residuals may be encountered during excavation work. Pathway not considered complete.
		Dermal Contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Subsurface Soil (>2 inches)	Ingestion	---	X	---	Elevated concentrations of constituents of interest detected in subsurface soil in adjacent on-site well. Subsurface utility work will likely encounter impacted materials in the southeast portion of the roadway. The pathway will be addressed in the FS.
		Dermal Contact	---	---	X	
		Inhalation of Particulates	---	---	X	
		Inhalation of Volatiles in Ambient Air	---		X	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Groundwater	Ingestion	---	X	---	Elevated concentrations of constituents of interest detected in groundwater in adjacent on-site well. Subsurface utility work will likely encounter impacted materials in the southeast portion of the roadway. The pathway will be addressed in the FS.
		Dermal contact	---	---	X	
		Inhalation of Volatiles in Ambient Air	---	---	X	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Surface Water	Ingestion	X	---	---	Surface water not present at this location.
		Dermal contact	X	---	---	
Off-site Area - 2 Pike Street Restaurant Property						
Indoor Workers, Outdoor Maintenance Workers, and Site Visitors	Surface Soil (0-2 inches)	Ingestion	X	---	---	Surface soil not sampled in this area of interest. Significant concentrations of constituents of interest not detected in subsurface soil samples.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Subsurface Soil (>2 inches)	Ingestion	---	X	---	Significant concentrations of constituents of interest not detected in subsurface soil samples. Soil gas sampling did not indicate significant potential for vapor intrucion. The pathway is considered potentially complete; however exposure is likely to be low.
		Dermal contact	---	X	---	
		Inhalation of Particulates	---	X	---	
		Inhalation of Volatiles in Indoor Air	---	X	---	
		Inhalation of Volatiles in Ambient Air	---	X	---	
	Groundwater	Ingestion	---	X	---	Significant concentrations of constituents of interest not detected in groundwater samples with the exception of low-level concentrations is an intermediate well. Property is outside of the groundwater plume. Soil gas sampling did not indicate significant potential for vapor intrusion. The pathway is consired potentially complete; however exposure is likely to be low.
		Dermal contact	---	X	---	
		Inhalation of Volatiles in Indoor Air	X	---		
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Surface Water	Ingestion	X	---	---	Surface water is not present at this location.
		Dermal contact	X	---	---	
Off-site Area - O&R Apartment Lot						
Utility Workers	Surface Soil (0-2 inches)	Ingestion	X	---	---	Surface soil is covered with grass in this area, therefore exposure is not likely.
		Dermal contact	---	X	---	
		Inhalation of Particulates	---	X	---	
		Inhalation of Volatiles in Ambient Air	---	X	---	
	Subsurface Soil (>2 inches)	Ingestion	---	X	---	Potential receptors may be exposed to VOCs in ambient air from impacted subsurface soil at the property. Based on vapor intrusion analyses performed at the O&R Operations building, potential for indoor air impacts is low. Impacts on the property will be addressed in the FS Evaluation.
		Dermal contact	---	---	X	
		Inhalation of Particulates	---	---	X	
		Inhalation of Volatiles in Ambient Air	---	---	X	
		Inhalation of Volatiles in Indoor Air	---	---	X	
	Groundwater	Ingestion	X	---	---	Potential receptors may be exposed to VOCs in ambient air from NAPL and impacted groundwater at the property. Based on vapor intrusion analyses performed at the O&R Operations building, potential for indoor air impacts is low. Impacts on the property will be addressed in the FS Evaluation.
		Dermal contact	X	---	X	
		Inhalation of Volatiles in Ambient Air	---	---	X	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Surface Water	Ingestion	X	---	---	Surface water is not present at this location.
		Dermal contact	X	---	---	
Off-site Area - Pike Street ROW and Roadway						
Utility Workers	Surface Soil (0-2 inches)	Ingestion	X	---	---	Surface soil covered by pavement or sidewalk in majority of area. Near surface soils with residuals may be encountered during excavation work. Pathway considered potentially complete.
		Dermal Contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Subsurface Soil (>2 inches)	Ingestion	---	X	---	Elevated concentrations of constituents of interest and NAPL detected in subsurface soil. Subsurface utility work will likely encounter these materials. The pathway is considered potentially complete and will be addressed in the FS.
		Dermal Contact	---	---	X	
		Inhalation of Particulates	---	---	X	
		Inhalation of Volatiles in Ambient Air	---	---	X	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Groundwater	Ingestion	---	X	---	Elevated concentrations of constituents of interest detected in groundwater. Subsurface utility work will likely encounter residuals. The pathway is considered potentially complete and will be addressed in the FS.
		Dermal contact	---	---	X	
		Inhalation of Volatiles in Ambient Air	---	---	X	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Surface Water	Ingestion	X	---	---	Surface water not present at this location.
		Dermal contact	X	---	---	

Table 6-2 (Continued)
Exposure Pathway Analysis - Potential Off-Site Receptors
Port Jervis MGP Site

Receptor	Exposure Medium	Exposure Pathway	Pathway Not Considered Complete	Pathway Considered Potentially Complete, But Not Likely to Result in Exposure	Pathway Potentially Complete and Will Be Addressed in the Feasibility Study for the Site	Rationale for Inclusion or Exclusion
Off-site Residential Area - 19/21 Pike Street						
Residents, Indoor Workers, Outdoor Maintenance Workers, and Site Visitors	Surface Soil (0-2 inches)	Ingestion	X	---	---	Surface soil sampling not preformed on the property. Subsurface soils were not impacted by constituents of interest at adjacent property so impacts to surface soils are not expected.
		Dermal Contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Subsurface Soil (>2 inches)	Ingestion	X	---	---	Elevated concentrations of constituents of interest not detected in subsurface soil or soil gas samples at adjacent property to the southwest. The pathway is not considered complete, and the potential for exposure is low.
		Dermal Contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Groundwater	Ingestion	X	---	---	Elevated concentrations of constituents of interest not detected in a groundwater sample collected to the southwest of the property and the property is believed to be located outside of the groundwater plume. The potential pathway is considered complete, and the potential for exposure low.
		Dermal contact	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	X	---	---	
	Surface Water	Ingestion	X	---	---	Surface water not present at this location.
		Dermal contact	X	---	---	
Off-site Residential Areas - 9-15/17 Pike Street						
Residents, Indoor Workers, Outdoor Maintenance Workers, and Site Visitors	Surface Soil (0-2 inches)	Ingestion	X	---	---	Surface soil sampling not preformed on the property. Given distance from site, impacts to surface soils are not expected.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Subsurface Soil (>2 inches)	Ingestion	---	X	---	Elevated concentrations of constituents of interest detected in subsurface soil. Vapor intrusion pathway evaluation did not indicate evidence of impacted indoor air at the properties. The potential pathway for residents to contact impacted subsurface soil is considered complete and potential remedial actions for this area will be addressed in the FS.
		Dermal contact	---	---	X	
		Inhalation of Particulates	---	X	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	---	X	---	
	Groundwater	Ingestion	---	X	---	Elevated concentrations of constituents of interest detected in groundwaterl. Vapor intrusion pathway evaluation did not indicate evidence of impacted indoor air at the properties. The potential pathway for residents to contact impacted groundwater is considered complete and potential remedial actions for this area will be addressed in the FS.
		Dermal contact	---	---	X	
		Inhalation of Volatiles in Ambient Air	---	X	---	
		Inhalation of Volatiles in Indoor Air	---	X	---	
	Surface Water	Ingestion	X	---	---	Surface water not present at this location.
		Dermal contact	X	---	---	
Off-site Area - Delaware River Area						
Recreational Users	Surface Soil or Sediment	Ingestion	X	---	---	Surface soil not sampled in the Delaware River area. Surface sediments have PAH compounds present in low concentrations. Contact by a potential recreational user would be infrequent and for a very short duration, therefore potential exposure is not likely.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
	Surface Water	Ingestion	---	X	---	Surface water is not likely to be impacted at the shoreline area due to the low concentrations detected at the groundwater plume location and dilution. Contact by a potential recreational user would be infrequent and for a short duration, therefore potential exposure is not likely.
		Dermal contact	---	X	---	



SCALE 1:24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

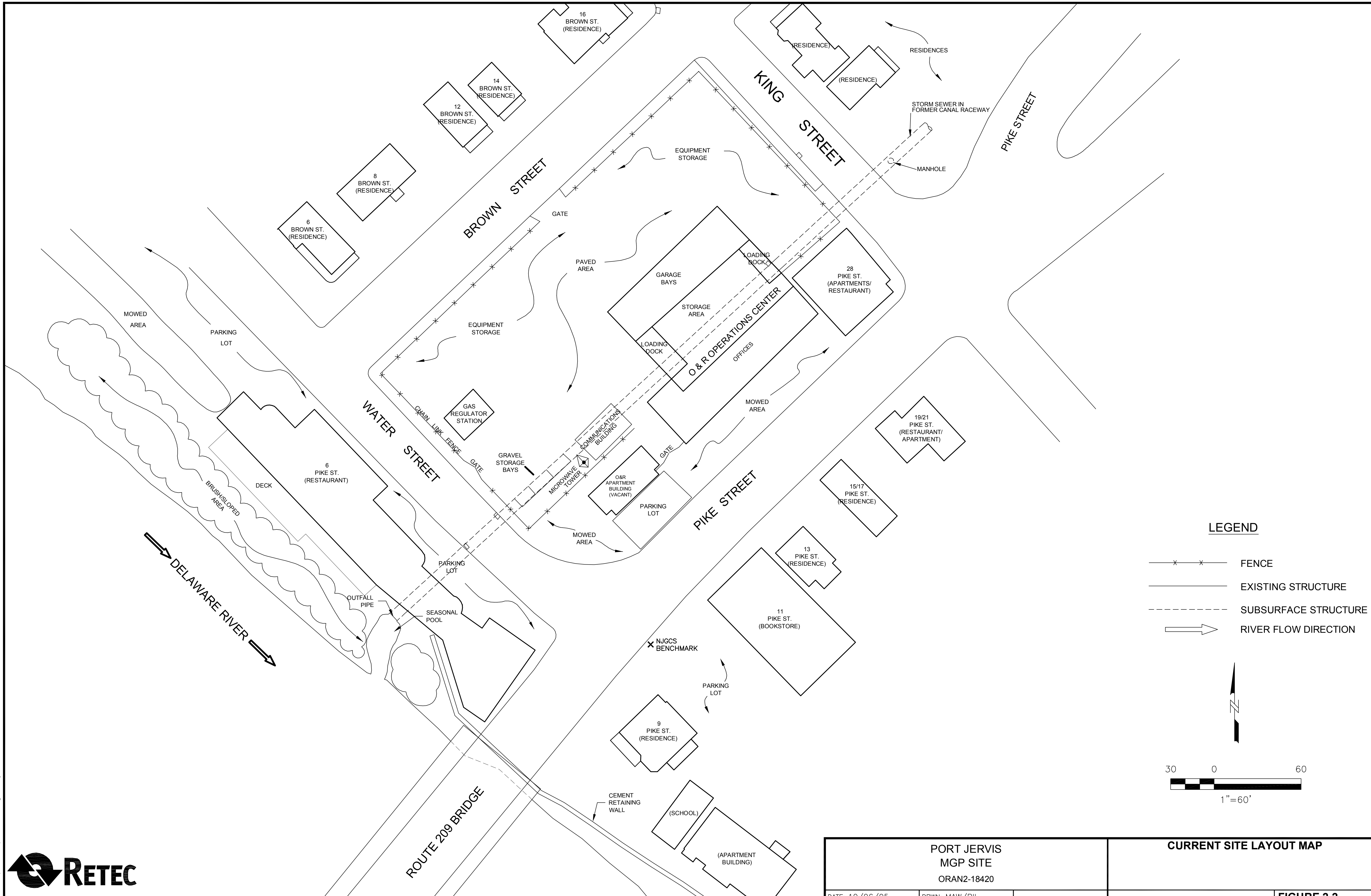
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UNITED STATES GEOLOGIC SURVEY
PORT JERVIS NORTH QUADRANGLE
PORT JERVIS SOUTH QUADRANGLE
PORT JERVIS, NEW YORK

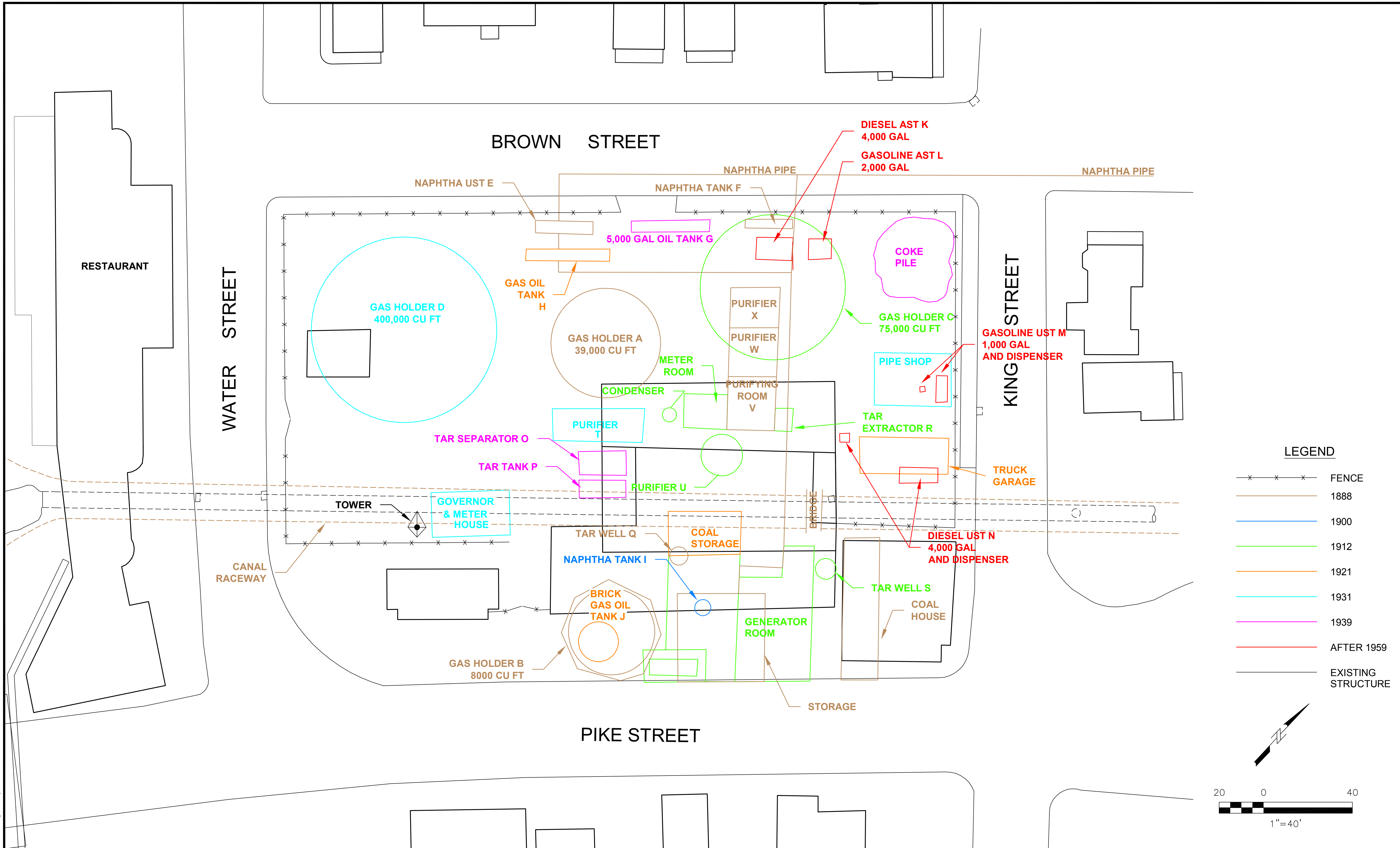
7.5 MINUTE SERIES (TOPOGRAPHIC)

PORT JERVIS MGP SITE ORAN2-18420	SITE LOCATION MAP
DATE: 10/06/05 DRWN: MAW/BIL	FIGURE 2-1

File: J:\18420\FIG2-1.dwg Layout: Retec-Bill User: mwilliamson Plotted: Oct 06, 2005 - 10:58am Xref's:



File: J:\18420\FIG2-2.dwg Layout: Retec-Bl User: mwilliamson Plotted: Oct 06, 2005 - 10:58am Xref's:



File: J:\18420\FIG2-3.dwg Layout: Retec-DI User: mwilliamson Plotted: Oct 06, 2005 - 10:58am Xref's:

RETEC

PORT JERVIS MGP SITE ORAN2-18420	SITE LAYOUT AND HISTORICAL FEATURES MAP
DATE: 10/06/05 DRWN: MAW/BIL	FIGURE 2-3

LEGEND

MW13	MONITORING WELL
RBB2/TW4	TEMPORARY WELL
T14	SEDIMENT TRANSECT LOCATION
DP18/SB18	SOIL BORING LOCATION
SS13	SURFACE SOIL SAMPLE
SD11	SEDIMENT SAMPLE
SG1	STAFF GAUGE LOCATION
LSG15	SOIL GAS OR SUB-FLOOR SOIL GAS SAMPLE LOCATION
IA2	INDOOR AIR SAMPLE LOCATION
AMB3	AMBIENT AIR SAMPLE LOCATION
	FENCE
TP4	TEST PIT LOCATION
	EXISTING STRUCTURES
	SUBSURFACE OR HISTORIC STRUCTURES
	RIVER FLOW DIRECTION

20 0 40

1"=40'

NOTE: SEE FIGURE 4-9 FOR ADDITIONAL RIVER AREA DETAILS.

SOURCE: DONALD STEDGE PLS: 2000
LANGAN ENGINEERS PLS: 2003
ROBERT MURRAY PLS: 2004

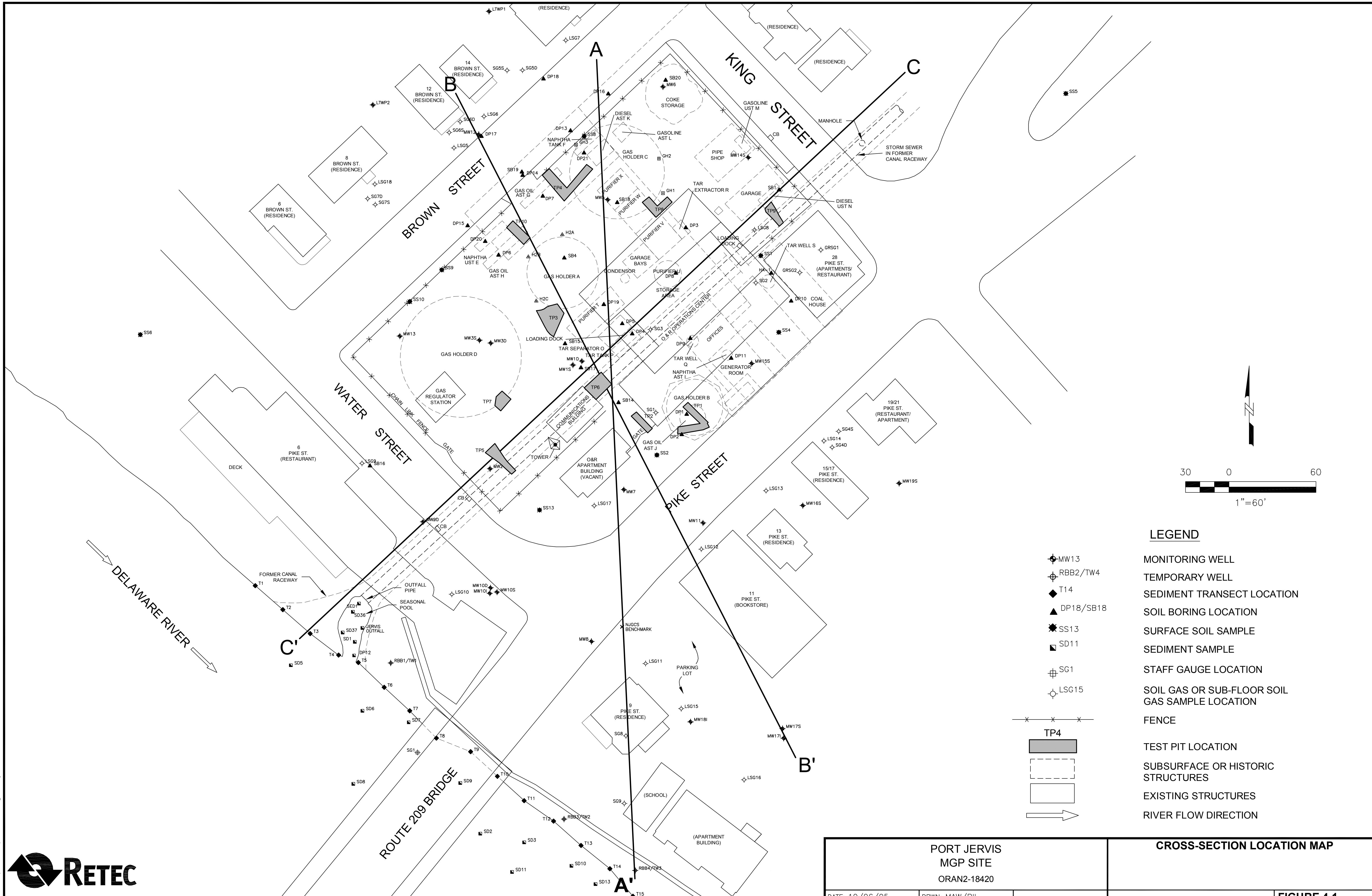
RETEC

PORT JERVIS
MGP SITE
ORAN2-18420

DATE: 10/06/05 | DRWN: MAW/BIL

SITE PLAN WITH SAMPLE LOCATIONS

FIGURE 3-1



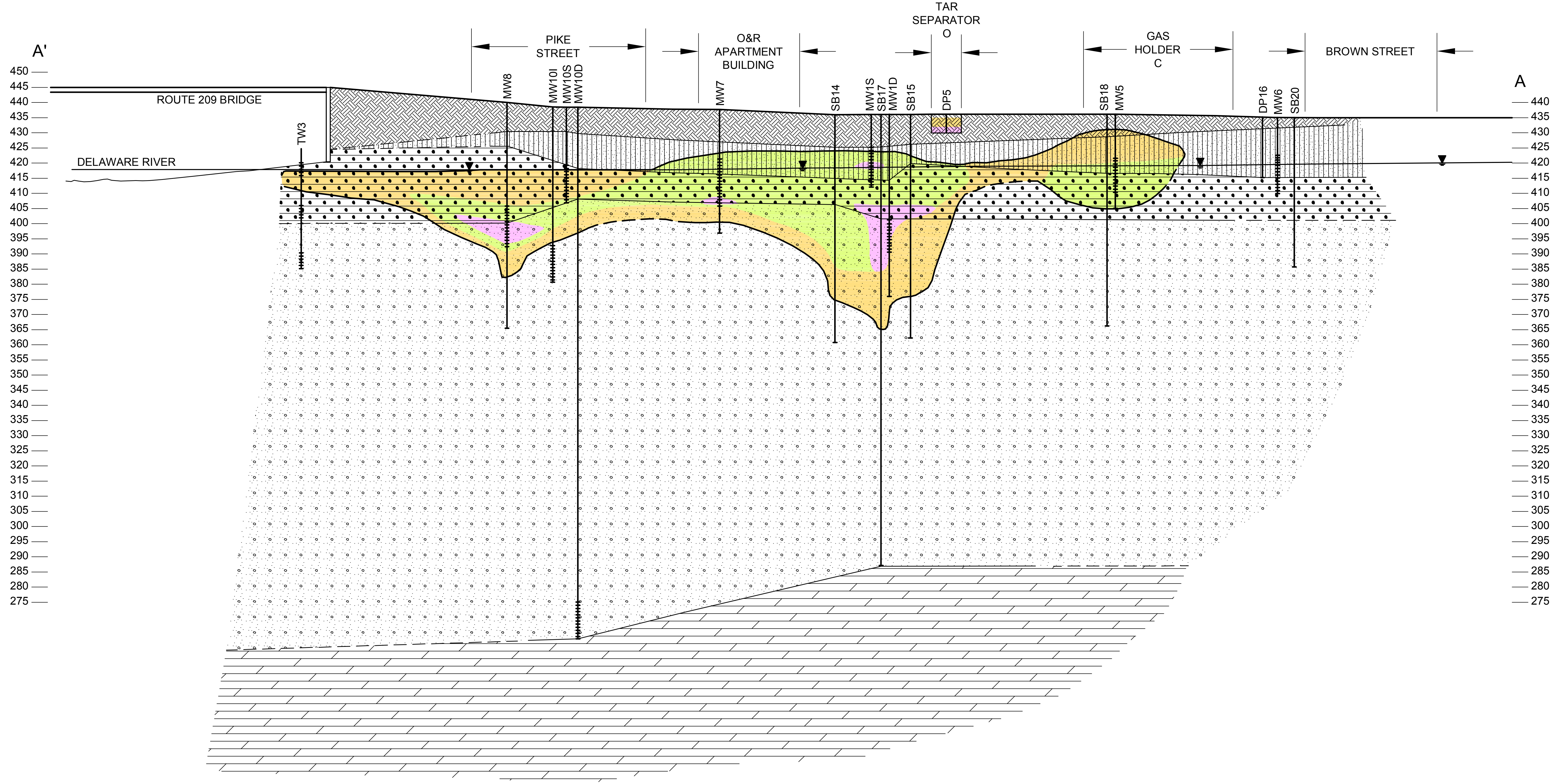
PORT JERVIS
MGP SITE
ORAN2-18420

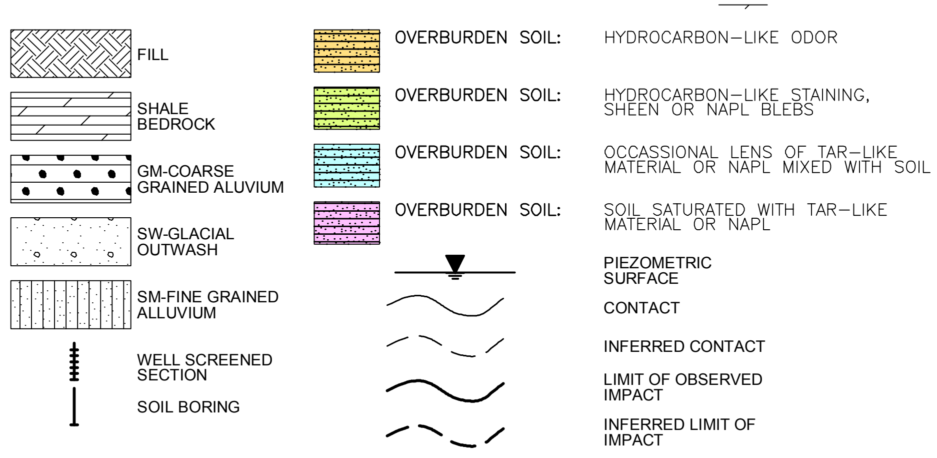
DATE: 10/06/05 DRWN: MAW/BIL

CROSS-SECTION LOCATION MAP

FIGURE 4-1

File: J:\18420\FIG4-1.dwg Layout: Retec-BI User: mwilliamson Plotted: Oct 06, 2005 - 10:58am Xref's:



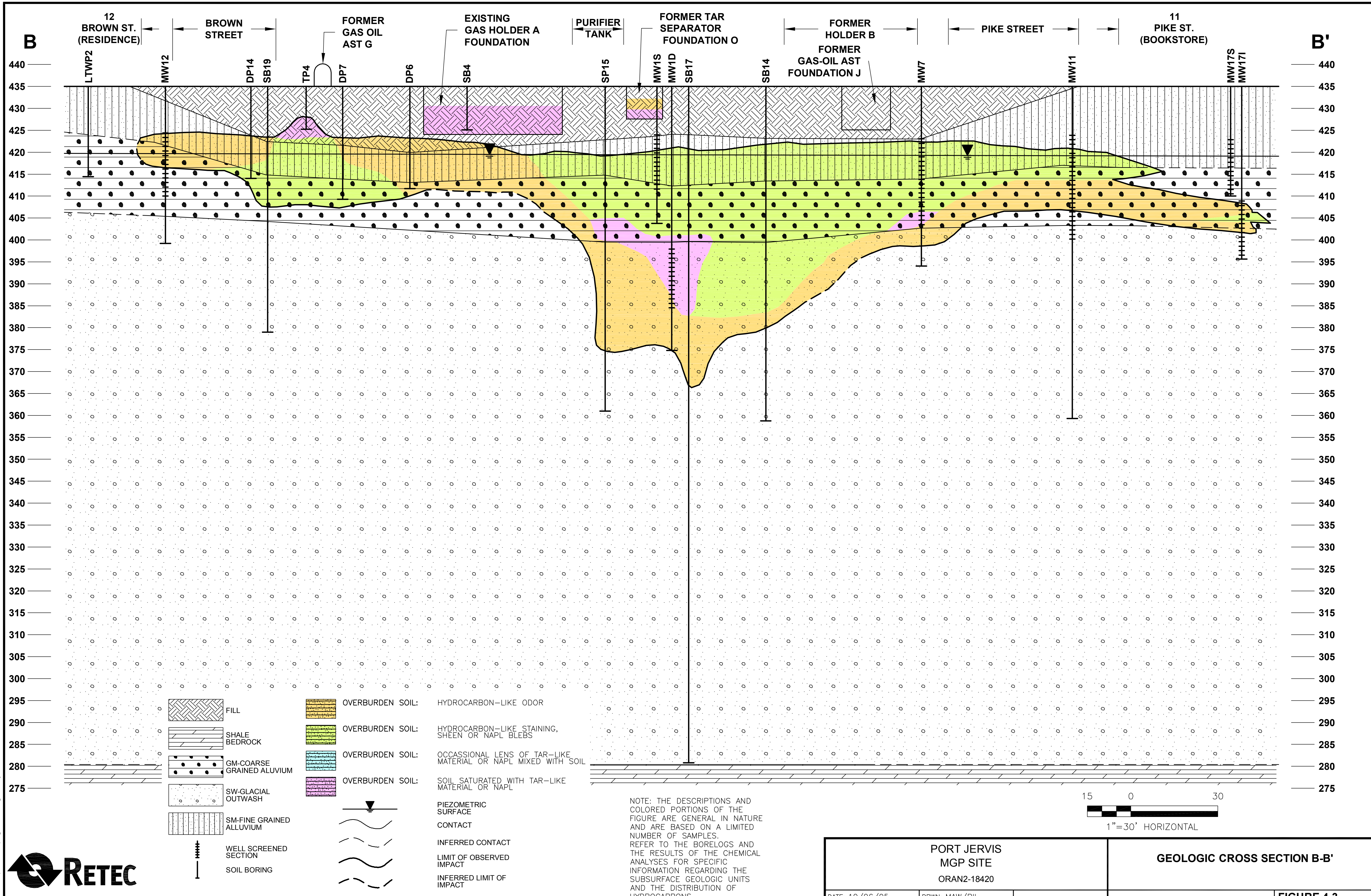


NOTE: THE DESCRIPTIONS AND COLORED PORTIONS OF THE FIGURE ARE GENERAL IN NATURE AND ARE BASED ON A LIMITED NUMBER OF SAMPLES.
REFER TO THE BORELOGS AND THE RESULTS OF THE CHEMICAL ANALYSES FOR SPECIFIC INFORMATION REGARDING THE SUBSURFACE GEOLOGIC UNITS AND THE DISTRIBUTION OF HYDROCARBONS.

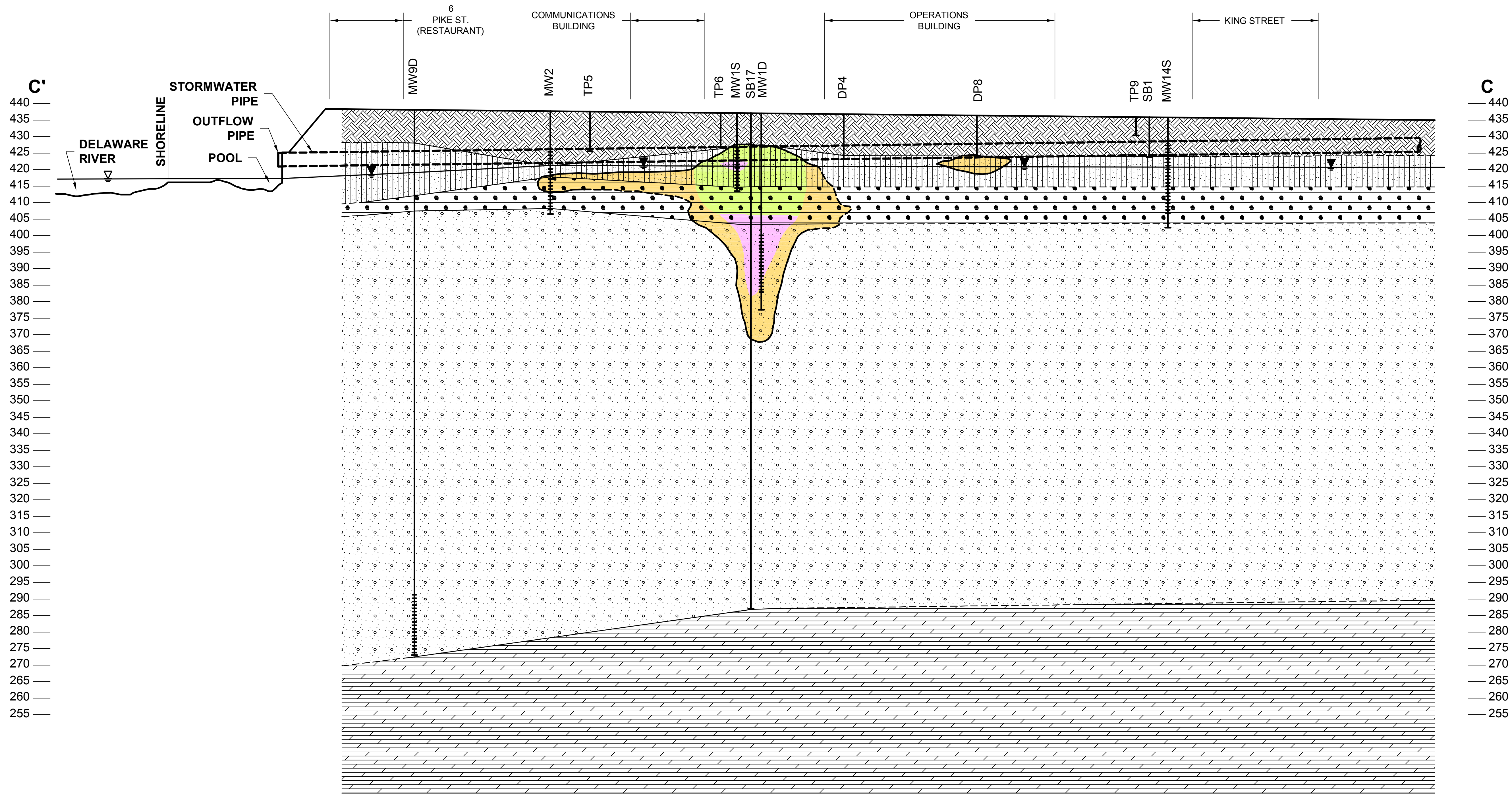
RETEC

PORT JERVIS MGP SITE ORAN2-18420	**GEOLOGIC CROSS SECTION A-A'**
DATE: 10/06/05 DRWN: MAW/BIL	**FIGURE 4-2**

File: J:\18420\FIG4-2.dwg Layout: Retec-Bill User: mwilliamson Plotted: Oct 06, 2005 - 10:58am Xref's:



File: J:\18420\Fig4-3.dwg Layout: Retec-Bill User: mwilliamson Plotted: Oct 06, 2005 – 10:59am Xref's:



FILL

SHALE BEDROCK

GM-COARSE GRAINED ALUVIUM

SW-GLACIAL OUTWASH

SM-FINE GRAINED ALLUVIUM

WELL SCREENED SECTION

SOIL BORING

OVERBURDEN SOIL: HYDROCARBON–LIKE ODOR

OVERBURDEN SOIL: HYDROCARBON–LIKE STAINING, SHEEN OR NAPL BLEBS

OVERBURDEN SOIL: OCCASSIONAL LENS OF TAR–LIKE MATERIAL OR NAPL MIXED WITH SOIL

OVERBURDEN SOIL: SOIL SATURATED WITH TAR–LIKE MATERIAL OR NAPL

PIEZOMETRIC SURFACE

CONTACT

INFERRED CONTACT

LIMIT OF OBSERVED IMPACT

INFERRED LIMIT OF IMPACT

NOTE: THE DESCRIPTIONS AND COLORED PORTIONS OF THE FIGURE ARE GENERAL IN NATURE AND ARE BASED ON A LIMITED NUMBER OF SAMPLES. REFER TO THE BORELOGS AND THE RESULTS OF THE CHEMICAL ANALYSES FOR SPECIFIC INFORMATION REGARDING THE SUBSURFACE GEOLOGIC UNITS AND THE DISTRIBUTION OF HYDROCARBONS.

25 0 50

1"=50' HORIZONTAL

RETEC

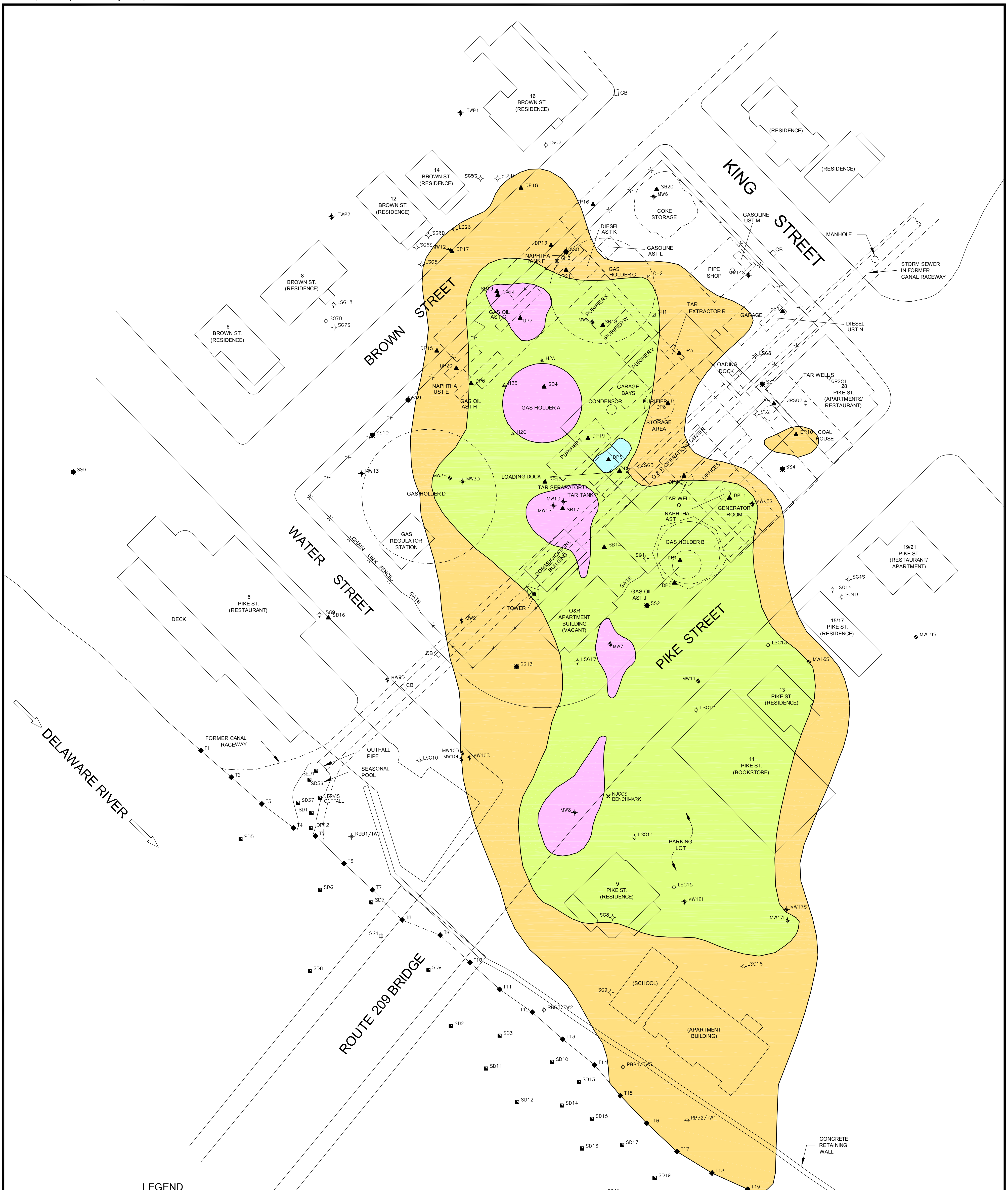
PORT JERVIS
MGP SITE
ORAN2-18420

DATE: 10/06/05 DRWN: MAW/BIL

GEOLOGIC CROSS SECTION C-C'

FIGURE 4-4

File: J:\18420\FIG4-4.dwg Layout: Layout1-Retec-Bill User: mwilliamson Plotted: Oct 06, 2005 - 10:59am Xref's:



LEGEND

Symbol	Description
MW13	MONITORING WELL (CONCENTRATION OF TOTAL PAHs (µg/L))
RBB2/TW4	TEMPORARY WELL
T14	SEDIMENT TRANSECT LOCATION
DP18/SB18	SOIL BORING LOCATION
SS13	SURFACE SOIL SAMPLE
SD11	SEDIMENT SAMPLE
SG1	STAFF GAUGE LOCATION
LSG15	SOIL GAS OR SUB-FLOOR SOIL GAS SAMPLE LOCATION
	FENCE
	EXISTING STRUCTURES
	SUBSURFACE OR HISTORIC STRUCTURES
	LIMIT OF OBSERVED IMPACT
	INFERRED LIMIT OF IMPACT
	RIVER FLOW DIRECTION

OVERBURDEN SOIL:	HYDROCARBON-LIKE ODOR
OVERBURDEN SOIL:	HYDROCARBON-LIKE STAINING, SHEEN OR NAPL BLEBS
OVERBURDEN SOIL:	OCCASSIONAL LENS OF TAR-LIKE MATERIAL OR NAPL MIXED WITH SOIL
OVERBURDEN SOIL:	SOIL SATURATED WITH TAR-LIKE MATERIAL OR NAPL
	PIEZOMETRIC SURFACE
	CONTACT
	INFERRED CONTACT
	LIMIT OF OBSERVED IMPACT
	INFERRED LIMIT OF IMPACT

NOTE: THE DESCRIPTIONS AND COLORED PORTIONS OF THE FIGURE ARE GENERAL IN NATURE AND ARE BASED ON A LIMITED NUMBER OF SAMPLES. REFER TO THE BORELOGS AND THE RESULTS OF THE CHEMICAL ANALYSES FOR SPECIFIC INFORMATION REGARDING THE SUBSURFACE GEOLOGIC UNITS AND THE DISTRIBUTION OF HYDROCARBONS.

30 0 60

1"=60'

N

RETEC

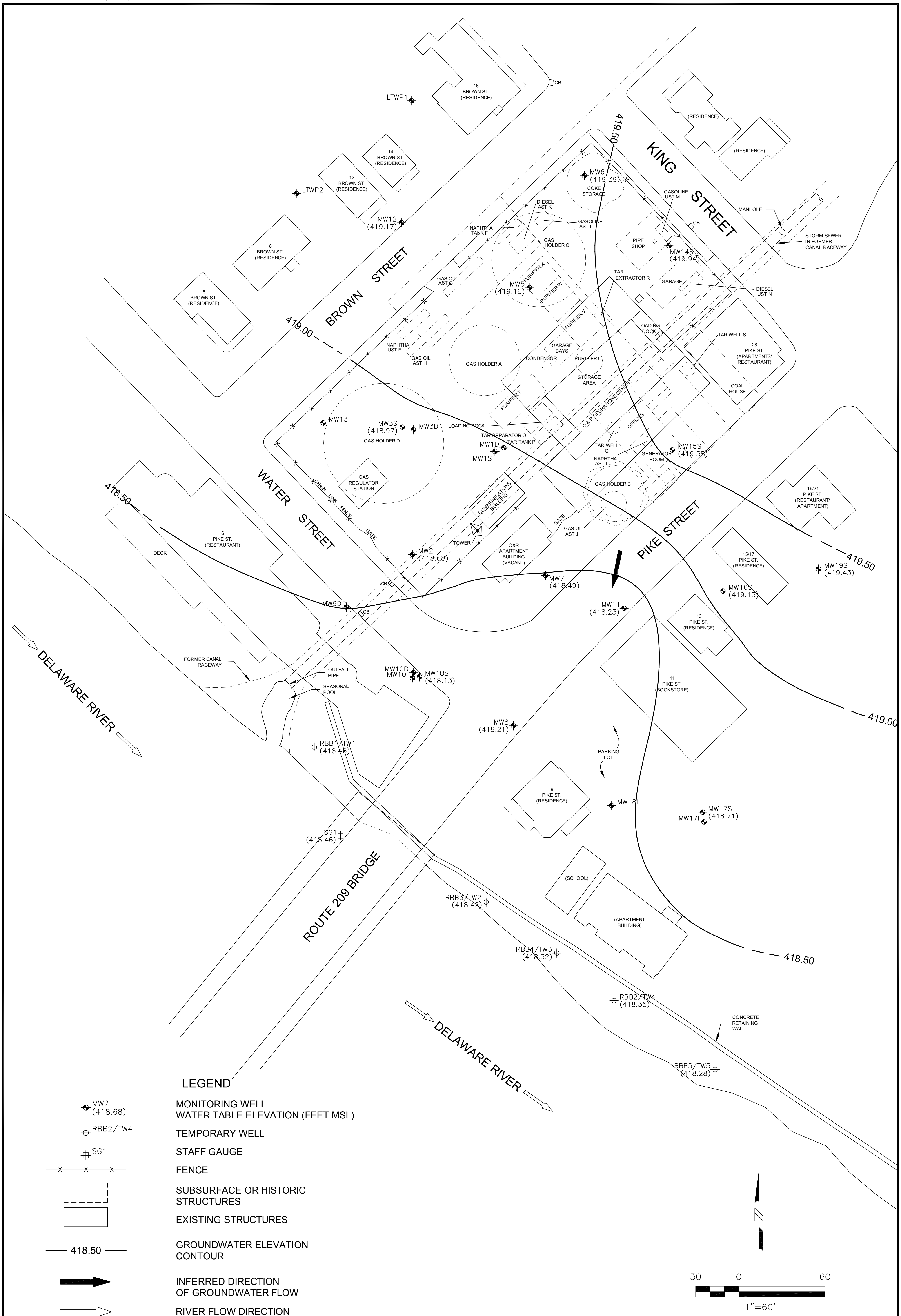
PORT JERVIS
MGP SITE
ORAN2-18420

AREAL EXTENT OF OBSERVED HYDROCARBON IMPACTS

DATE: 11/17/05 DRWN: MAW/BIL

FIGURE 4-5

File: J:\18420\FIG4-6.dwg Layout: Retec-BI User: mwilliamson Plotted: Oct 06, 2005 - 10:59am Xref's:



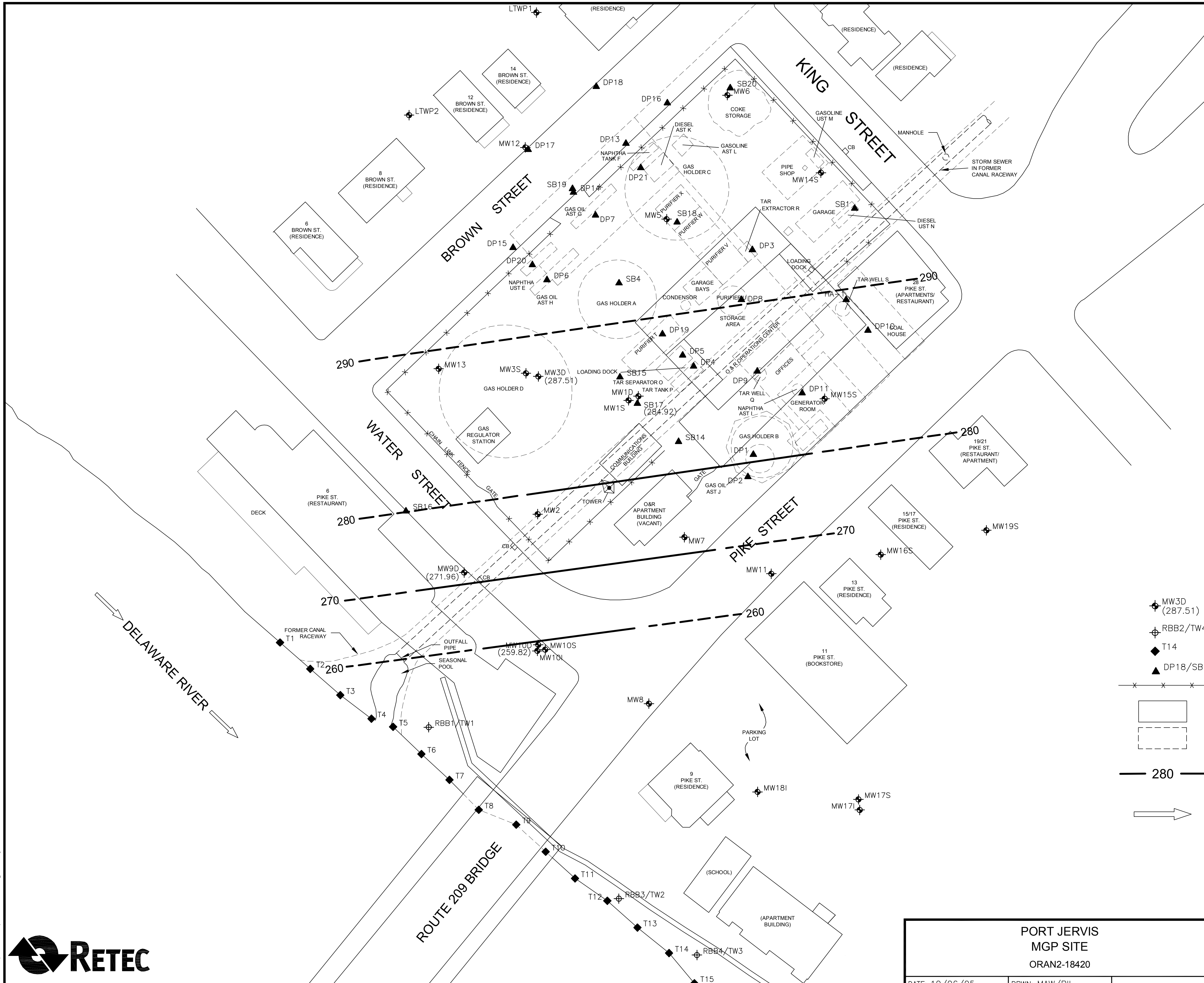
RETEC

PORT JERVIS
MGP SITE
ORAN2-18420

DATE: 10/06/05 DRWN: MAW/BIL

WATER TABLE MAP
NOVEMBER 5, 2004

FIGURE 4-6



LEGEND

MW3D (287.51)	MONITORING WELL BEDROCK ELEVATION (FEET MSL)
RBB2/TW4	TEMPORARY WELL
T14	SEDIMENT TRANSECT LOCATION
DP18/SB18	SOIL BORING LOCATION
	FENCE
	EXISTING STRUCTURES
	SUBSURFACE OR HISTORIC STRUCTURES
280	BEDROCK SURFACE CONTOUR ELEVATION (DASHED WHERE INFERRED)
	RIVER FLOW DIRECTION

RETEC

PORT JERVIS MGP SITE

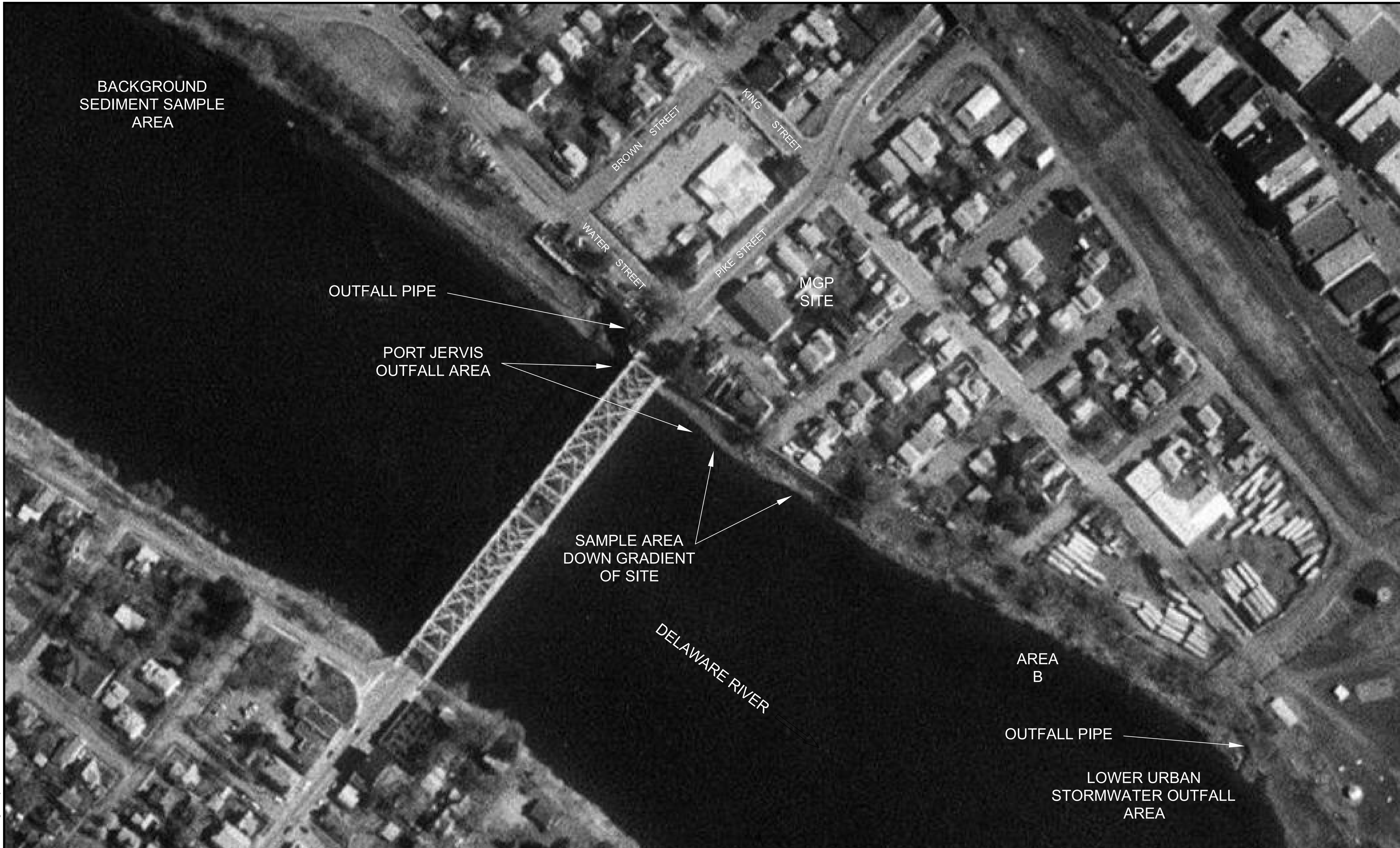
ORAN2-18420

TOP OF BEDROCK CONTOUR MAP

DATE: 10/06/05 DRWN: MAW/BIL

FIGURE 4-7

File: J:\18420\FIG4-7.dwg Layout: Retec-BI User: mwilliamson Plotted: Oct 06, 2005 - 10:59am Xref's:



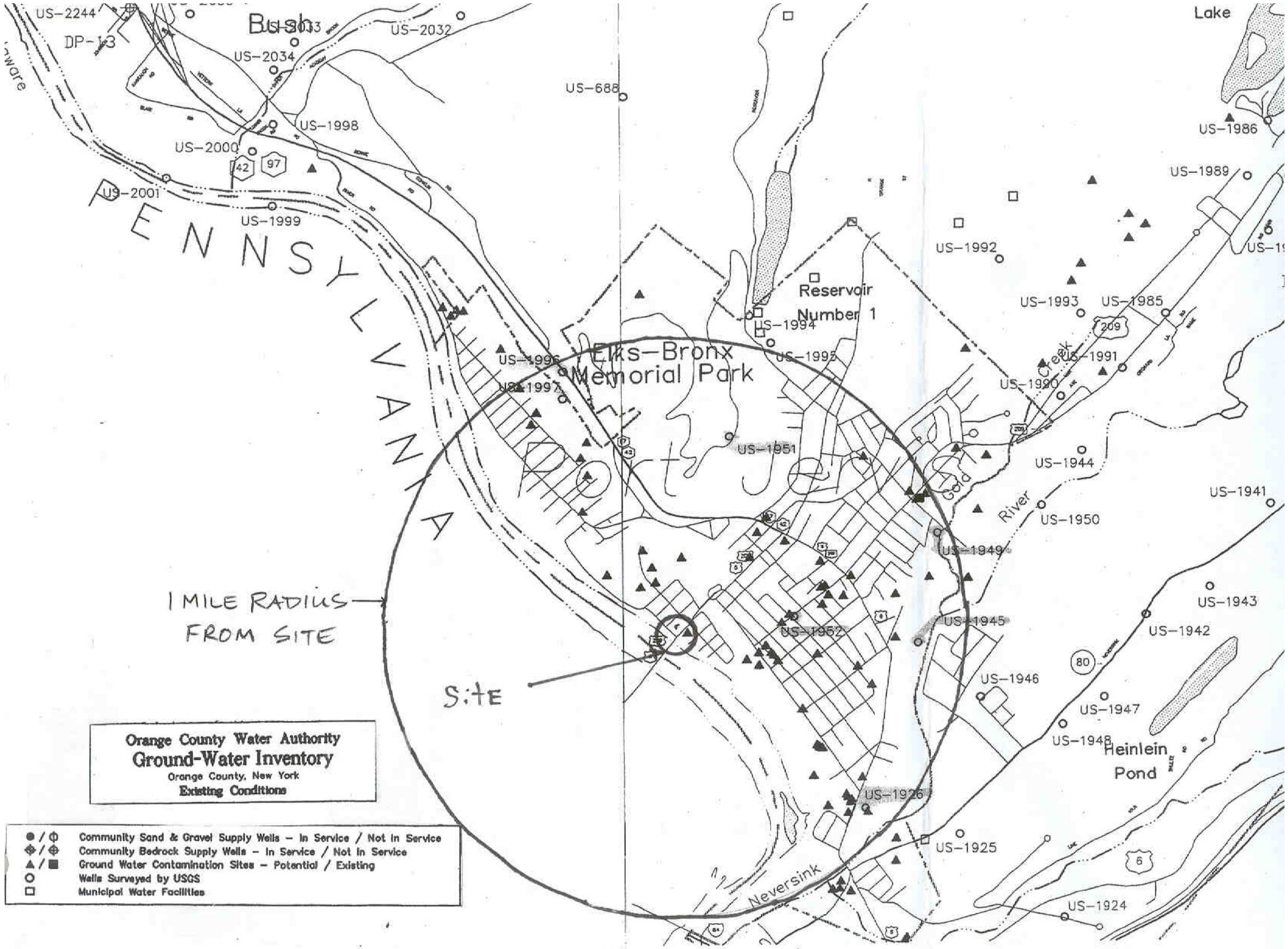
RETEC

PORT JERVIS MGP SITE ORAN2-18420	SEDIMENT SAMPLE AREAS
DATE: 10/06/05 DRWN: MAW/BIL	FIGURE 4-8

File: J:\18420\FIG4-8.dwg Layout: ANSI_B1-LJ User: mwilliamson Plotted: Oct 06, 2005 - 10:59am Xref's:

RETEC

PORT JERVIS MGP SITE ORAN2-18420	SEDIMENT INVESTIGATION AND RIVERBANK BORING SUBSURFACE SOIL RESULTS
DATE: 10/06/05 DRWN: MAW/BIL	FIGURE 4-9

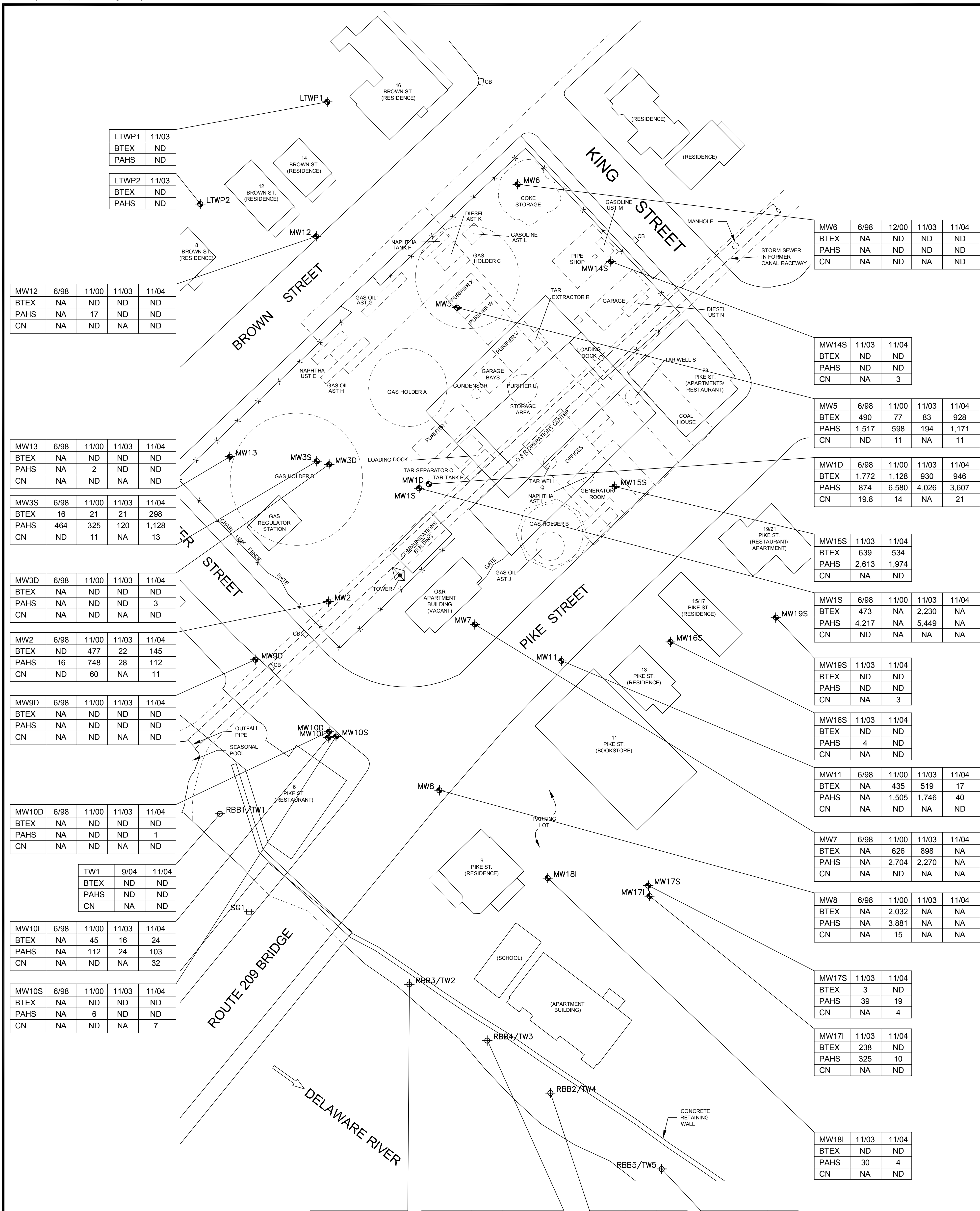


File: J:\18420\FIG4-10.dwg Layout: ANSI_BI-LJ User: mwilliamson Plotted: Oct 06, 2005 - 10:58am Xref's:

RETEC

PORT JERVIS MGP SITE ORAN2-18420	USGS WELL SEARCH RESULTS
DATE: 10/06/05 DRWN: MAW/BIL	FIGURE 4-10

File: J:\18420\FIG5-1.dwg Layout: Retec-BI User: mwilliamson Plotted: Oct 06, 2005 - 11:00am Xref's:



LTWP1	11/03
BTEX	ND
PAHS	ND

LTWP2	11/03
BTEX	ND
PAHS	ND

MW12	6/98	11/00	11/03	11/04
BTEX	NA	ND	ND	ND
PAHS	NA	17	ND	ND
CN	NA	ND	NA	ND

MW13	6/98	11/00	11/03	11/04
BTEX	NA	ND	ND	ND
PAHS	NA	2	ND	ND
CN	NA	ND	NA	ND

MW3S	6/98	11/00	11/03	11/04
BTEX	16	21	21	298
PAHS	464	325	120	1,128
CN	ND	11	NA	13

MW3D	6/98	11/00	11/03	11/04
BTEX	NA	ND	ND	ND
PAHS	NA	ND	ND	3
CN	NA	ND	NA	ND

MW2	6/98	11/00	11/03	11/04
BTEX	ND	477	22	145
PAHS	16	748	28	112
CN	ND	60	NA	11

MW9D	6/98	11/00	11/03	11/04
BTEX	NA	ND	ND	ND
PAHS	NA	ND	ND	ND
CN	NA	ND	NA	ND

MW10D	6/98	11/00	11/03	11/04
BTEX	NA	ND	ND	ND
PAHS	NA	ND	ND	1
CN	NA	ND	NA	ND

TW1	9/04	11/04
BTEX	ND	ND
PAHS	ND	ND
CN	NA	ND

MW10I	6/98	11/00	11/03	11/04
BTEX	NA	45	16	24
PAHS	NA	112	24	103
CN	NA	ND	NA	32

MW10S	6/98	11/00	11/03	11/04
BTEX	NA	ND	ND	ND
PAHS	NA	6	ND	ND
CN	NA	ND	NA	7

MW6	6/98	12/00	11/03	11/04
BTEX	NA	ND	ND	ND
PAHS	NA	ND	ND	ND
CN	NA	ND	NA	ND

MW14S	11/03	11/04
BTEX	ND	ND
PAHS	ND	ND
CN	NA	3

MW5	6/98	11/00	11/03	11/04
BTEX	490	77	83	928
PAHS	1,517	598	194	1,171
CN	ND	11	NA	11

MW1D	6/98	11/00	11/03	11/04
BTEX	1,772	1,128	930	946
PAHS	874	6,580	4,026	3,607
CN	19.8	14	NA	21

MW15S	11/03	11/04
BTEX	639	534
PAHS	2,613	1,974
CN	NA	ND

MW1S	6/98	11/00	11/03	11/04
BTEX	473	NA	2,230	NA
PAHS	4,217	NA	5,449	NA
CN	ND	NA	NA	NA

MW19S	11/03	11/04
BTEX	ND	ND
PAHS	ND	ND
CN	NA	3

MW16S	11/03	11/04
BTEX	ND	ND
PAHS	4	ND
CN	NA	ND

MW11	6/98	11/00	11/03	11/04
BTEX	NA	435	519	17
PAHS	NA	1,505	1,746	40
CN	NA	ND	NA	ND

MW7	6/98	11/00	11/03	11/04
BTEX	NA	626	898	NA
PAHS	NA	2,704	2,270	NA
CN	NA	ND	NA	NA

MW8	6/98	11/00	11/03	11/04
BTEX	NA	2,032	NA	NA
PAHS	NA	3,881	NA	NA
CN	NA	15	NA	NA

MW17S	11/03	11/04
BTEX	3	ND
PAHS	39	19
CN	NA	4

MW17I	11/03	11/04
BTEX	238	ND
PAHS	325	10
CN	NA	ND

MW18I	11/03	11/04
BTEX	ND	ND
PAHS	30	4
CN	NA	ND

TW2	9/04	11/04
BTEX	ND	ND
PAHS	ND	2
CN	NA	ND

TW3(11/04)	WT	(20)	(30)
BTEX	72	28	ND
PAHS	83	45	ND
CN	6	6	6

TW4	9/04	11/04
BTEX	60	16
PAHS	80	42
CN	6	11

TW5	9/04	11/04
BTEX	ND	ND
PAHS	ND	ND
CN	ND	5

LEGEND

MW13	MONITORING WELL
RBB2/TW4	TEMPORARY WELL
	FENCE
	EXISTING STRUCTURES
	SUBSURFACE OR HISTORIC STRUCTURES
NA	NOT ANALYZED
ND	NOT DETECTED IN CONCENTRATIONS GREATER THAN THE METHOD REPORTING LIMITS
WT	WATER TABLE
	RIVER FLOW DIRECTION

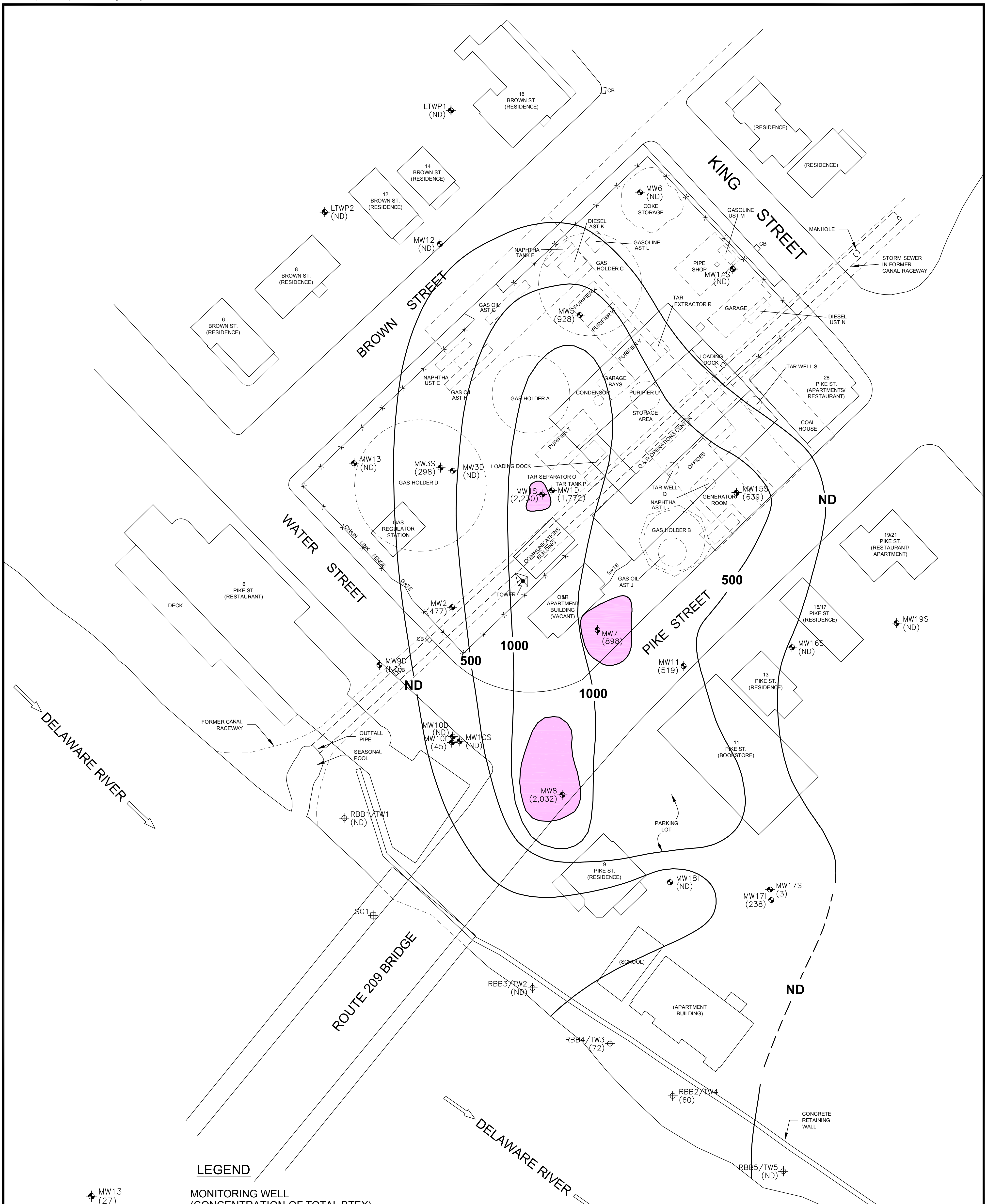
RETEC

PORT JERVIS
MGP SITE
ORAN2-18420

DATE: 10/06/05 DRWN: MAW/BIL

GROUNDWATER RESULTS (µg/L)
1998 - 2004

FIGURE 5-1



LEGEND

MW13 (27)	MONITORING WELL (CONCENTRATION OF TOTAL BTEX)
RBB2/TW4	TEMPORARY WELL
	FENCE
	FORMER MGP STRUCTURES
	EXISTING STRUCTURES
NA	NOT ANALYZED
ND	NOT DETECTED IN CONCENTRATIONS GREATER THAN THE METHOD REPORTING LIMITS
500	TOTAL DISSOLVED BTEX CONCENTRATION CONTOUR (µg/L) (DASHED WHERE INFERRED)
	NAPL LAYER OBSERVED IN MONITORING WELL
	RIVER FLOW DIRECTION

30 0 60
1"=60'

RETEC

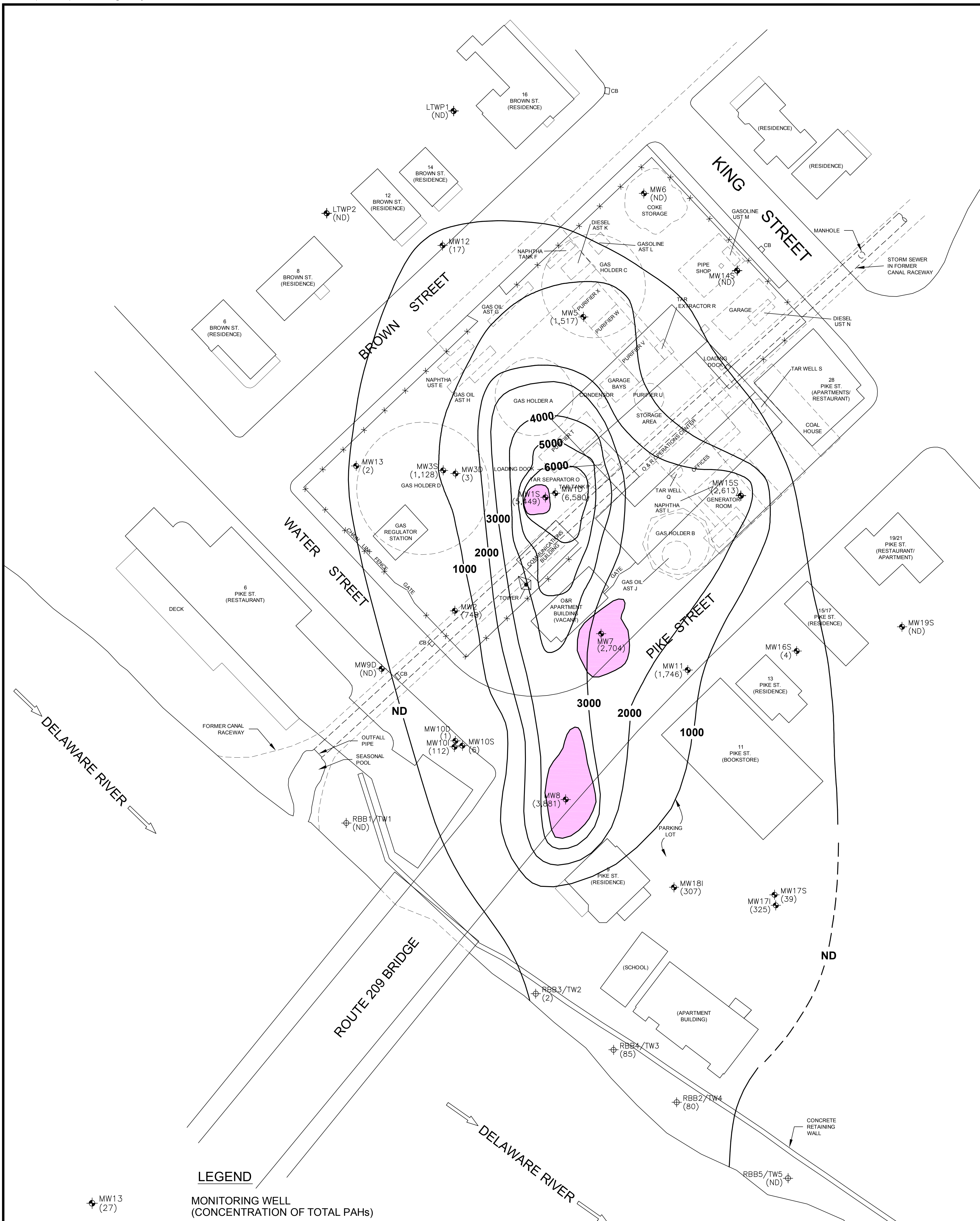
PORT JERVIS MGP SITE
ORAN2-18420

TOTAL DISSOLVED BTEX CONCENTRATIONS IN GROUNDWATER

DATE: 10/06/05 DRWN: MAW/BIL

FIGURE 5-2

File: J:\18420\FIG5-3.dwg Layout: Retec-Bl User: mwilliamson Plotted: Oct 06, 2005 - 11:00am Xref's:



LEGEND

MW13 (27)	MONITORING WELL (CONCENTRATION OF TOTAL PAHs)
RBB2/TW4	TEMPORARY WELL
	FENCE
	FORMER MGP STRUCTURES
	EXISTING STRUCTURES
NA	NOT ANALYZED
ND	NOT DETECTED IN CONCENTRATIONS GREATER THAN THE METHOD REPORTING LIMITS
500	TOTAL PAHs IN GROUNDWATER CONCENTRATION CONTOUR (µg/L) (DASHED WHERE INFERRED)
	NAPL LAYER OBSERVED IN MONITORING WELL
	RIVER FLOW DIRECTION

RETEC

PORT JERVIS
MGP SITE
ORAN2-18420

DATE: 10/06/05 DRWN: MAW/BIL

TOTAL PAHs (µg/L) IN GROUNDWATER

FIGURE 5-3

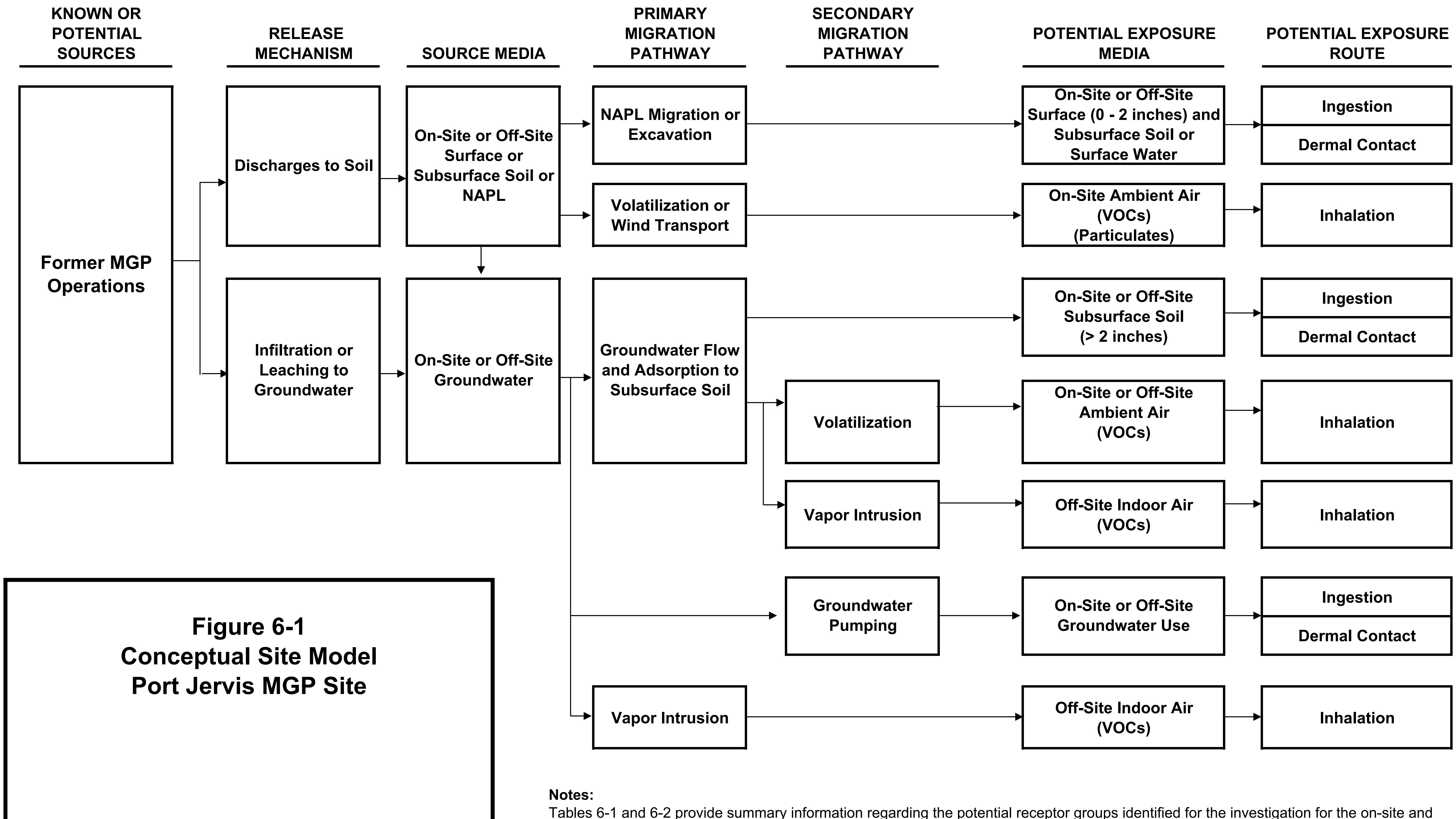


Figure 6-1
Conceptual Site Model
Port Jervis MGP Site

Notes:
Tables 6-1 and 6-2 provide summary information regarding the potential receptor groups identified for the investigation for the on-site and off-site areas of interest respectively.

Appendix A

Test Pit, Soil Boring and Monitoring Well Logs

PSA Test Pit Logs
Completed by GEI

ATLANTIC
ENVIRONMENTAL DIVISION
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

GEI Consultants, Inc.

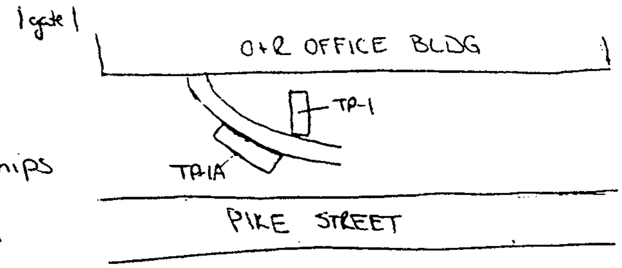
Form 1031
Ph: (860) 537-0751
Fax: (860) 537-6347

TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 97679-1002
TEST PIT NUMBER: TP-1
GENERAL LOCATION AND/OR PURPOSE: East of O+R offices, along Pike Street
DATE: 4/13/98
TIME OPENED: 1200 **TIME CLOSED:** 1340

LOCAL "CALL BEFORE YOU DIG" CASE NO.: 2060431
OBSERVER: Ben Foster
ASSISTANT: Carolyn Lewis
OTHERS:
CONTRACTOR:
EQUIPMENT: John Deere 410E Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.



TP-1

0-2' bgs - grass, reddish brown soil + slate chips

2.5-3' bgs - gravel, rock, and dark brown soil and black soil

3-4.5' bgs - debris - concrete, brick, coal

2-7' bgs - black soil, wall debris (concrete, brick, rock)

7-9' bgs - brown tan fine sand, some debris, wet soil; (8-9' bgs - very slight fuel oil od

be = 9.7' bgs

→ No odors, No impacts.

TP-1A

0-0.5' bgs - grass, dark brown soil

0.5-1' bgs - gravel chips (shale), brick, concrete, debris

1' bgs - brick wall, possibly brick pit

1-6' bgs - brown fine sand

1-6' bgs - brick then ledge, brick wall from 6-13'

6'-13' bgs - brown fine sand, wall

→ No odor, No impact

VIDEO DOCUMENTED: YES ___ NO X
PHOTOGRAPHED: YES X NO ___
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: ________ FT

NAPL SEEPAGE: YES ___ NO X
BULK SAMPLES: YES ___ NO X
QUANTITY: ________

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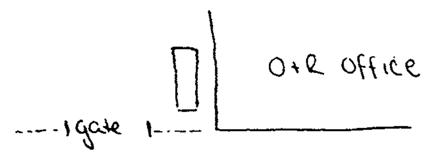
TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 97679-1002
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 2060431
TEST PIT NUMBER: TP-2
OBSERVER: Ben Foster
GENERAL LOCATION AND/OR PURPOSE: South of O+R office, oil tank, + gasholder
ASSISTANT: Carolyn Lewis
OTHERS:
DATE: 4/13/98
CONTRACTOR:
TIME OPENED: 1345 **TIME CLOSED:** 1500
EQUIPMENT: John Deere 410E Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.



0-1' bgs - grass, brown soil, some orange tan
1-1.5' bgs - black layer of charcoal like material
1-8' bgs - brown fine sand, silt, dry

bottom elevation = 8' bgs

-> No odors. No impacts

VIDEO DOCUMENTED: YES ___ NO X
NAPL SEEPAGE: YES ___ NO X
PHOTOGRAPHED: YES X NO ___
BULK SAMPLES: YES ___ NO X
PIEZOMETER NO. USED IN BACKFILL:
QUANTITY:
DEPTH TO WATER: ___ FT

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TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 97679-1002
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 2060431
TEST PIT NUMBER: TP-3
OBSERVER: Ben Foster
GENERAL LOCATION AND/OR PURPOSE: gasholder at center of site
ASSISTANT: Carolyn Lewis
OTHERS:
DATE: 4/13/98
CONTRACTOR:
TIME OPENED: 1500 **TIME CLOSED:** 1615
EQUIPMENT: John Deere 410E Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.

0-1' bgs - Asphalt
1' bgs - brick and concrete holder pad
1-5' bgs - brick wall, brown fine sand

-> NO odors, NO impacts
be = 5 ft bgs

VIDEO DOCUMENTED: YES ___ NO X
PHOTOGRAPHED: YES X NO ___
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: ___ FT
NAPL SEEPAGE: YES ___ NO X
BULK SAMPLES: YES ___ NO X
QUANTITY:

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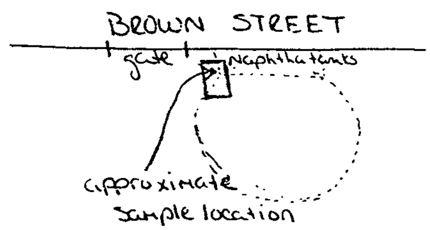
TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 97679-1002
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 2060431
TEST PIT NUMBER: TP-4
OBSERVER: Ben Foster
GENERAL LOCATION AND/OR PURPOSE: near gas holder and naphtha tanks
ASSISTANT: Carolyn Lewis
OTHERS:
DATE: 4/13/98
CONTRACTOR:
TIME OPENED: 1630 **TIME CLOSED:** 1800
EQUIPMENT: John Deere 410E Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.



0-0.4' bgs - asphalt

0.4' bgs - concrete slab

0.4-6' bgs - brown sand, rock, gravel, debris, some wet soil

- slight fuel oil odor
- some black fuel oil

6-8' bgs - black fuel oil

collected sample PJ-TP4-01 at 8 ft bgs

be = 8 ft bgs

VIDEO DOCUMENTED: YES ___ NO X
NAPL SEEPAGE: YES ___ NO ___
PHOTOGRAPHED: YES X NO ___
BULK SAMPLES: YES ___ NO ___
PIEZOMETER NO. USED IN BACKFILL:
QUANTITY:
DEPTH TO WATER: ________ FT

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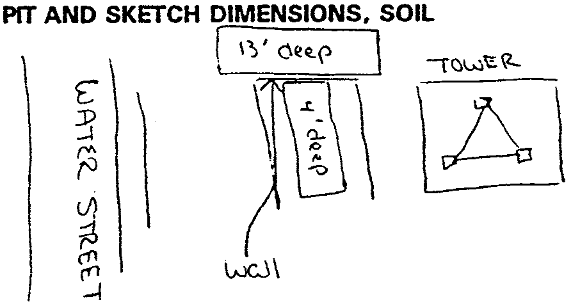
TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 97679-1002
TEST PIT NUMBER: TP-5
GENERAL LOCATION AND/OR PURPOSE: located near stock house, along Water St; canal
DATE: 4/14/98
TIME OPENED: 0800 **TIME CLOSED:** 0930

LOCAL "CALL BEFORE YOU DIG" CASE NO.: 20604 31
OBSERVER: Ben Foster
ASSISTANT: Carolyn Lewis
OTHERS:
CONTRACTOR:
EQUIPMENT: John Deere 410E Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.



0-0.33' Asphalt

0.33-2' bgs - slate gravel, brown sand

2' - concrete

4' bgs - flat concrete pad

excavation inside structure - possibly stock house

concrete floor at 4' bgs, wall at 1-4' bgs

4-13' bgs - fill material - brick, soil, rock, cinders, ash; bone dry

be = 13' bgs

→ NO odors, NO impacts

VIDEO DOCUMENTED: YES X NO ___
PHOTOGRAPHED: YES X NO ___
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: __________ FT

NAPL SEEPAGE: YES ___ NO ___
BULK SAMPLES: YES ___ NO ___
QUANTITY: __________

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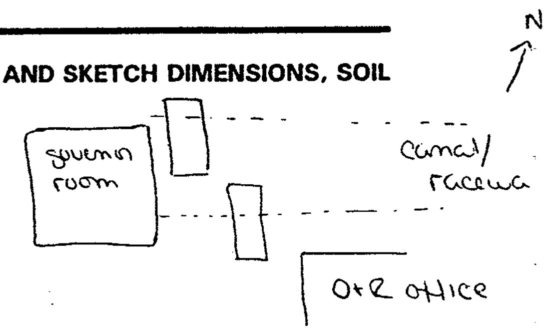
TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 97679-1002
TEST PIT NUMBER: TP-6
GENERAL LOCATION AND/OR PURPOSE: located near canal, North of governor room
DATE: 4/14/98
TIME OPENED: 1000 **TIME CLOSED:** 1130

LOCAL "CALL BEFORE YOU DIG" CASE NO.: 2060431
OBSERVER: Ben Foster
ASSISTANT: Carolyn Lewis
OTHERS:
CONTRACTOR:
EQUIPMENT: John Deere 410E Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.



0-0.5' bgs - asphalt

0.5-2' bgs - brown-tan fine sand, debris
buried lines at 2' bgs. Moved west 4 ft

0.5-13' bgs - gray soil, debris, brick, black soil, ash, coke; moist at bottom of excavation

be = 13' bgs

-> NO odors, NO impacts

VIDEO DOCUMENTED: YES X NO ___
PHOTOGRAPHED: YES X NO ___
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: ___________ FT

NAPL SEEPAGE: YES ___ NO ___
BULK SAMPLES: YES ___ NO ___
QUANTITY: ___________

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TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 97679-1002

TEST PIT NUMBER: TP-7

GENERAL LOCATION AND/OR PURPOSE: near large gas tank located along water St.

DATE: 4/14/98

TIME OPENED: 1150 TIME CLOSED: 1240

LOCAL "CALL BEFORE YOU DIG" CASE NO.: 20600431

OBSERVER: Ben Foster

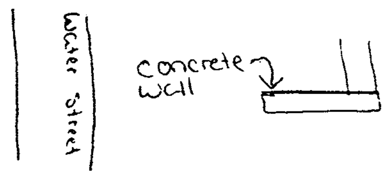
ASSISTANT: Carolyn Lewis

OTHERS:

CONTRACTOR:

EQUIPMENT: John Deere 410E Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.



0-0.33' bgs- asphalt
0.5-3.5' bgs- concrete holder pad;
0.33-13' bgs- tan fine sand,

be= 13' bgs

→ NO odors, NO impacts

VIDEO DOCUMENTED: YES X NO ___
PHOTOGRAPHED: YES X NO ___
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: ________ FT

NAPL SEEPAGE: YES ___ NO ___
BULK SAMPLES: YES ___ NO ___
QUANTITY: ________

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TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 97679-1002

LOCAL "CALL BEFORE YOU DIG" CASE NO.: 2060431

TEST PIT NUMBER: TP-8

OBSERVER: Ben Foster

GENERAL LOCATION AND/OR PURPOSE: located near northern gas holder and purifier house

ASSISTANT: Carolyn Lewis

OTHERS:

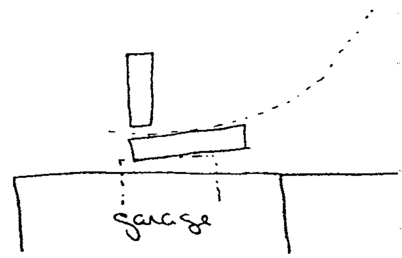
DATE: 4/14/98

CONTRACTOR:

TIME OPENED: 1335 **TIME CLOSED:** 1420

EQUIPMENT: John Deere 410E Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.



0-0.33' bgs - asphalt

0.33-1' bgs - rock with some fine sand

1-2' bgs - orange-brown sand with layers of dark gray debris

2-13' bgs - orange-brown fine sand

water table at 13' bgs

be = 13' bgs

-> No odors, No impacts

VIDEO DOCUMENTED: YES ___ NO X

PHOTOGRAPHED: YES X NO ___

PIEZOMETER NO. USED IN BACKFILL:

DEPTH TO WATER: ___ FT

NAPL SEEPAGE: YES ___ NO ___

BULK SAMPLES: YES ___ NO ___

QUANTITY:

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Colchester, CT 06415

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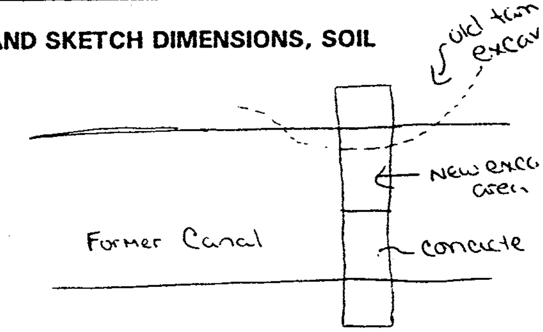
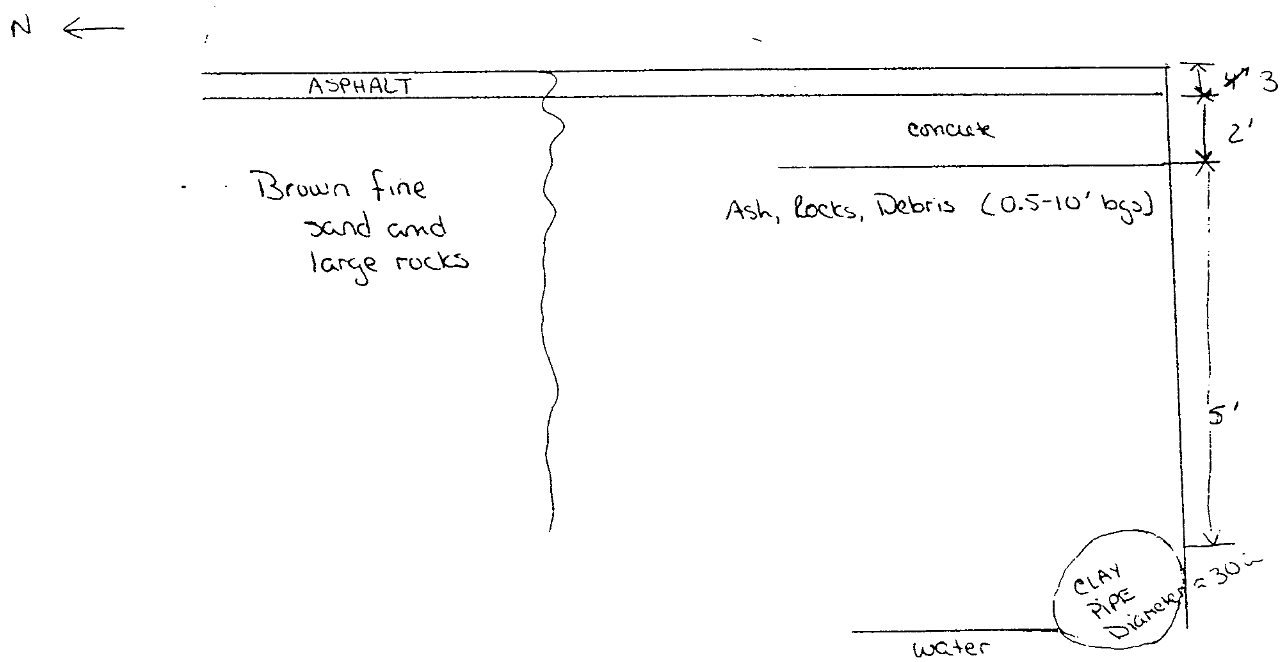
TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 97679- 1002
TEST PIT NUMBER: TP-9
GENERAL LOCATION AND/OR PURPOSE: near former canal, along King Street
DATE: 4/14/98
TIME OPENED: 1547 **TIME CLOSED:** 1640

LOCAL "CALL BEFORE YOU DIG" CASE NO.: 2060431
OBSERVER: Ben Foster
ASSISTANT: Carolyn Lewis
OTHERS:
CONTRACTOR:
EQUIPMENT: John Deere 410E Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.





→ NO odors, NO impacts

VIDEO DOCUMENTED: YES X NO ___
PHOTOGRAPHED: YES X NO ___
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: ___________ FT

NAPL SEEPAGE: YES ___ NO ___
BULK SAMPLES: YES ___ NO ___
QUANTITY: ___________

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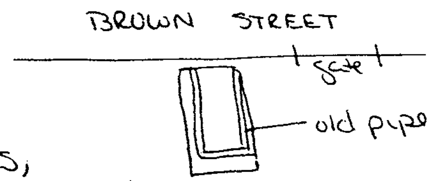
TEST PIT DESCRIPTION SHEET

PROJECT NUMBER: 97679-1002
LOCAL "CALL BEFORE YOU DIG" CASE NO.: 2060431
TEST PIT NUMBER: TP-10
OBSERVER: Ben Foster
GENERAL LOCATION AND/OR PURPOSE:
located near naphtha tanks along Brown St.
ASSISTANT: Carolyn Lewis
OTHERS:
DATE: 4/14/98
CONTRACTOR:
TIME OPENED: 1710 **TIME CLOSED:** 1830
EQUIPMENT: John Deere 410E Backhoe

IN THE SPACE PROVIDED BELOW, NOTE WHAT WAS FOUND IN THE TEST PIT AND SKETCH DIMENSIONS, SOIL TYPES, AND WASTE. NOTE ANY BURIED METAL OBJECTS.



0-0.33' bgs - asphalt

0.33-10' bgs - brown fine sand and rocks, tan silty sand, slightly weathered diesel odor at 7' bgs.

8-10' bgs diesel odor in soil and dark gray staining in soil; gray silt and clay;

collected sample PJ-TP10-01 at 10' bgs.

be = 10' bgs

VIDEO DOCUMENTED: YES X NO ___
PHOTOGRAPHED: YES X NO ___
PIEZOMETER NO. USED IN BACKFILL:
DEPTH TO WATER: ___________ FT

NAPL SEEPAGE: YES ___ NO ___
BULK SAMPLES: YES ___ NO ___
QUANTITY: ___________

PSA Boring Logs
Completed by GEI

Site Id: MW-1S

ATLANTIC Environmental
a Division of GEI Consultants, Inc.

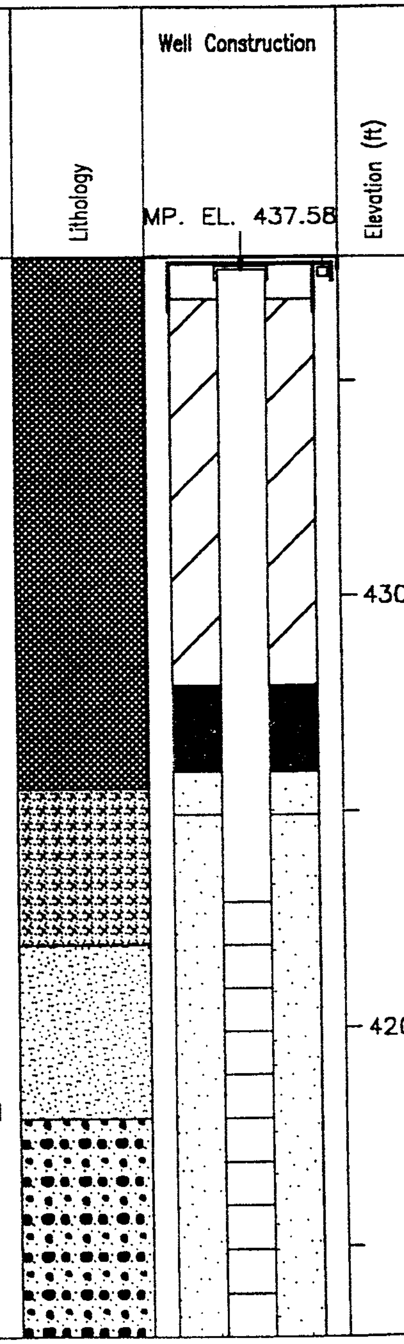
Location: Port Jervis former MGP site	
Township/Range: Port Jervis, NY	Project Number:
Date(s): 04/20/98 - 04/20/98	Total Depth: 31.00'
Elevation: 437.92'	Datum: Mean Sea Level
X Coordinate: 438277.07	Y Coordinate: 925210.25
Contractor: AT&D	Drilling Method: Hollow Stem Auger
Logged By: Terry Taylor	
Remarks:	

Blank Casing: type: PVC		dia: 2.00in	fm: 0.3'	to: 15.00'
Screens: type: Slotted	size: 0.020in	dia: 2.00in	fm: 15.00'	to: 25.00'
Annular Fill: type: Grout			fm: 1.00'	to: 10.00'
type: Bentonite Pellets			fm: 10.00'	to: 12.00'
type: Sand Filter			fm: 12.00'	to: 13.00'
type: Sand Filter			fm: 13.00'	to: 28.00'
type: Fill			fm: 28.00'	to: 31.00'

SS Sample Depth (ft.)	Blows Per 6 Inches	PID
0.5-2	7, 7, 5	1.4 ppm
2-4	3, 2, 2, 4	1.2 ppm, 1.2 ppm
4-6	5, 5, 2, 3	1.2 ppm
6-8	3, 3, 3, 3	1.2 ppm, 1.2 ppm, 1.2 ppm
8-10	2, 3, 3, 4	1.0 ppm, 1.2 ppm
10-12	5, 5, 4, 3	0.7 ppm
12-14	3, 3, 2, 3	1.0 ppm, 1.0 ppm, 1.0 ppm, 1.0 ppm
14-16	4, 5, 5, 8	2.1 ppm, 2.8 ppm, 13 ppm
16-18	12, 32	55 ppm
18-20	14, 30, 25, 18	15 ppm, 72 ppm
20-22	14, 18, 25, 99 R/.4	13 ppm, 10 ppm

Depth	Soil Description
0-0.5 ft	Augered through 6" of asphalt, FILL.
0.5-2 ft	Dark brown sand and gravel, slightly moist, some clay, no odor, FILL.
2-2.6 ft	Brown fine sand with gravel and ash (gravel size), FILL.
2.6-4 ft	Brown medium sand, dry, no odors, FILL.
4.0 ft	Hit obstruction, possibly retired gas line. Moved toward Water St. augered to 4 feet and resumed sampling, FILL.
4-6 ft	Broken concrete fragments, no odor, FILL.
6-8 ft	Brown very fine silty sand grading to fine sand at 7.5 ft, no odors, slightly moist, FILL.
8-10 ft	Brown very fine sand with little silt, moist, no odors, FILL.
10-12 ft	No recovery. piece of concrete wedged in shoe, sample material is not representative of sample interval, FILL.
12-14 ft	Brown fine sand with trace to little silt, coal fragments from 12-12.4 feet, iron staining from 12.4-13.8 feet.
14-14.7 ft	Brown to black FINE SAND, moderate odor.
14.7-16 ft	Black FINE SAND, very moist, strong tar odor, TAR BLEBS when wet.
16-18 ft	FINE SAND with rock fragments, wet with TAR in sand.
18-20 ft	FINE SAND and ROCK FRAGMENTS, TAR BLEBS and TAR STRINGERS, sample is very moist but not wet. collected SAMPLE PJ-MW1-01.
20-22 ft	ROCK FRAGMENTS and SAND, COBBLES, TAR SHEEN and BLEBS, wet.
22-25 ft	Augered to 25 feet, still in COBBLES.
25-25.7 ft	ROCK FRAGMENTS

Lithology | Well Construction

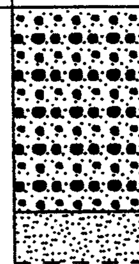


Site Id: MW-1S

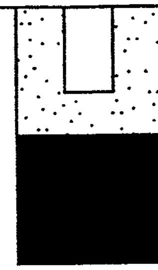
ATLANTIC Environmental
a Division of GEI Consultants, Inc.

SS Sample Depth	Blows Per 6 In.	Recovery (%)	PID	Depth (ft.)		Soil Description
25-27	50 52 48 50		13 ppm		25.7-27 ft	GRAVEL and COBBLES, no tar, but SHEEN on water, wet.
27-28	40 51 R/2		6 ppm		27-29 ft	GRAVEL.
						Augered to 29 feet.
					29-29.8 ft	GRAVEL and COBBLES.
29-31	21 31 40 40		8 ppm 10 ppm		29.8-31 ft	FINE SAND, SAND, GRAVEL with TAR BLEBS, wet.
					31.0 ft	End of Boring.
				35		
				45		
				55		

Lithology



Well Construction



Elevation (ft)

41

40

39

3

Site Id: MW-1D

ATLANTIC Environmental
a Division of GEI Consultants, Inc.

Location: Port Jervis former MGP site	
Township/Range: Port Jervis, NY	Project Number:
Date(s): 04/23/98 – 04/23/98	Total Depth: 62.00'
Elevation: 437.77'	Datum: Mean Sea Level
X Coordinate: 438283.30	Y Coordinate: 925212.94
Contractor: AT&D	Drilling Method: Hollow Stem Auger
Logged By: Terry Taylor	
Remarks:	

Blank Casing:

type	size	dia	fm	to
PVC		2.00in	0.3'	37.00'

Screens:

type	size	dia	fm	to
Slotted	0.020in	2.00in	37.00'	47.00'

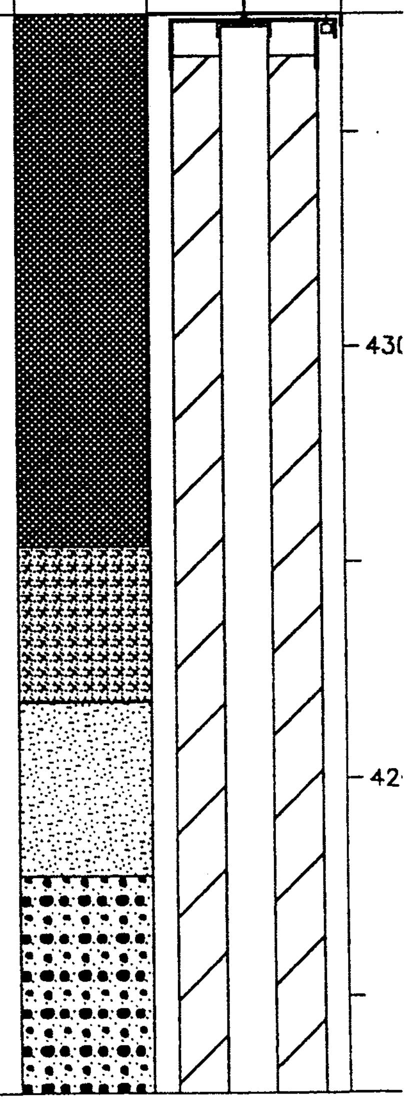
Annular Fill:

type	fm	to
Grout	1.00'	32.00'
Bentonite Pellets	32.00'	34.00'
choker sand	34.00'	35.00'
Sand Filter	35.00'	48.00'
Fill	48.00'	60.00'

SS Sample Depth (ft.)	Blows Per 6 Inches	Recovery (%)	PID	Depth (ft.)	Soil Description
					0–30 ft For detailed description, please see boring log for MW-1S.
				10	
					15.5 ft Cobbles, cuttings are brown fine silty sand, strong odor, moist, some tar indicated by staining of plastic spoon.
				20	
					25 ft PID reading from soil cuttings = 45 ppm.

Lithology | Well Construction | Elevation (ft)

MP. EL. 437.45



Site Id: MW-1D

ATLANTIC Environmental
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SS Sample Depth	Blows Per 6 In.	PID
		45 ppm
30–32	15, 21, 24, 29	1.4 ppm, 2.6 ppm, 2.3 ppm, 3.9 ppm
32–34	25, 25, 11, 9	1.7 ppm
34–36	9, 7, 7, 12	12 ppm, 10 ppm, 7 ppm
36–38		
38–40	4, 3, 5, 11	9 ppm, 12 ppm, 10 ppm
40–42	5, 6, 8, 11	23.5 ppm, 42 ppm, 406 ppm
42–44	5, 5, 7, 9	21.7 ppm, 366 ppm
44–46	7, 6, 12, 30	12 ppm, 8 ppm
46–48	8, 8, 13, 22	6.7 ppm, 4.6 ppm
48–50	13, 18, 24, 29	2.3 ppm, 1.2 ppm
50–51	18, 99 R/5	0 ppm
52–54	15, 17, 18, 19	14 ppm
54–56	9, 12, 18, 18	1.9 ppm, 1 ppm, 1 ppm
56–58	9, 18, 30, 38	0.5 ppm, 2.1 ppm, 1.7 ppm
58–60	11, 18, 34, 38	3.5 ppm, 4.9 ppm, 1.4 ppm, 1.4 ppm

Depth (ft.)	Soil Description
30–32 ft	GRAVEL and COBBLES in brown silty soup, isolated TAR BLEB, moderate tar odor.
32–34 ft	FINE SAND with some gravel, moderate tar odor, SHEEN on water, TAR BLEBS on surface of gravel.
34–34.5 ft	MEDIUM SAND with gravel lense at 34.5 feet, TAR on gravel surface.
34.5–36 ft	Well sorted MEDIUM olive drab SAND, slight odor, no tar.
36–38 ft	FINE to MEDIUM brown SAND, probably wash, pockets of SHEEN, plastic spoon STAINED BY TAR but tar is not visible.
38–38.5 ft	Olive drab MEDIUM SAND with SHEEN and TAR (seen on plastic spoon), this may be wash.
38.5–40 ft	MEDIUM to COARSE olive drab SAND, no tar, slight odor, not wash.
40–40.7 ft	COARSE SAND and GRAVEL, slight odor, no tar.
40.7–42 ft	MEDIUM SAND, TAR saturated, silt lense at 41.3 feet. Collected SAMPLE PJ-MW1D-01 FROM 40.8-41.3 FEET.
42–42.4 ft	Olive drab VERY FINE SAND, no tar.
42.4–44 ft	TAR saturated FINE to MEDIUM SAND, tar running out of bottom of spoon.
44–44.4 ft	Brown VERY FINE SAND, slight odor, no tar.
44.4–44.6 ft	Gray/Brown MEDIUM SAND, slight odor, no tar.
44.6–46 ft	Brown VERY FINE SAND and SILT, SHEEN, TAR STAIN on plastic spoon.
46–46.4 ft	Brown to dark brown poorly sorted FINE SAND with little coarse to gravel, slight odor, slight STAIN on plastic.
46.4–48 ft	Brown VERY FINE SAND with trace gravel, no evidence of tar.
48–50 ft	Brown to dark brown poorly sorted FINE SAND to GRAVEL, dense, till-like, slight odor, slight TAR STAIN on plastic spoon.
50–52 ft	Brown to dark brown poorly sorted SAND to GRAVEL, no evidence of tar, SHEEN on water but not in sample.
51–52 ft	Augered to 52 feet.
52–54 ft	Poorly sorted MEDIUM to COARSE SAND with pebbles, probably wash, slight tar odor.
54–56 ft	Brown FINE to COARSE SAND, better sorted than above, slight odor at top, no odor at bottom, no visible tar.
56–56.2 ft	Brown VERY FINE SAND, SILT to GRAVEL, slight odor.
56.2–58 ft	MEDIUM SAND with some coarse sand and trace pebbles, slight odor at 56.7 feet, no odor elsewhere, no visible tar, fairly dense.
58–59.4 ft	COARSE SAND and GRAVEL, few fines, cobble lense at 58.7 feet, slight odor.
59.4–60 ft	Brown VERY FINE SAND, no odor.
60–62 ft	Brown MEDIUM to VERY COARSE to PEBBLY SAND, fairly

Lithology

Well Construction

Elevation (ft)

Site Id: MW-1D

ATLANTIC Environmental
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SS Sample Depth	Blows Per 6 In.	Recovery (%)	PID	Depth (ft.)	Soil Description	Lithology	Well Construction	Elevation (ft)
60–62	9 28 45 40		1.4 ppm		dense, very slight odor.			
					62 ft End of Boring.			
				65				
								370
				75				
								36
				85				
								35

Site Id: MW-2

ATLANTIC Environmental
a Division of GEI Consultants, Inc.

Location: Port Jervis former MGP site	
Township/Range: Port Jervis, NY	Project Number:
Date(s): 04/21/98 - 04/21/98	Total Depth: 32.00'
Elevation: 436.27'	Datum: Mean Sea Level
X Coordinate: 438220.40	Y Coordinate: 925138.34
Contractor: AT&D	Drilling Method: Hollow Stem Auger
Logged By: Terry Taylor	
Remarks:	

Blank Casing:
type: PVC dia: 2.00in fm: 0.4' to: 13.00'

Screens:
type: Slotted size: 0.020india: 2.00in fm: 13.00' to: 23.00'

Annular Fill:

type	fm	to
Grout	1.00'	8.00'
Bentonite Pellets	8.00'	10.00'
choker sand	10.00'	11.00'
Sand Filter	11.00'	23.80'

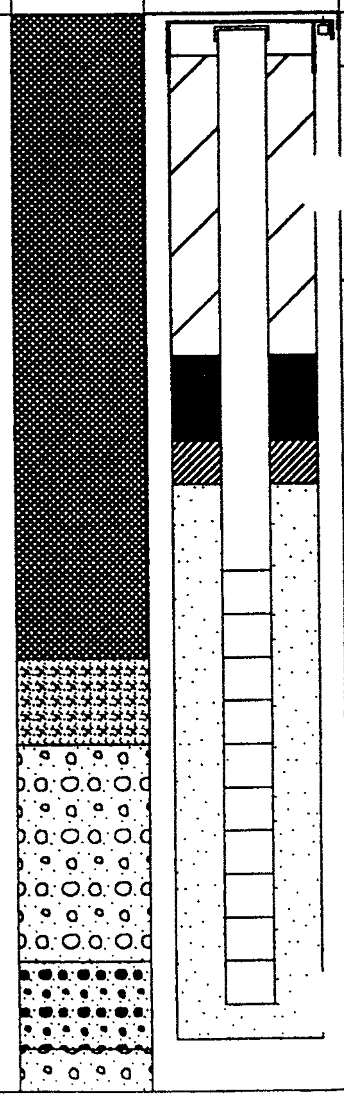
SS Sample Depth (ft.)	Blows Per 6 Inches	PID	Depth (ft.)	Soil Description	
0.5-2	10, 11, 10	1.2 ppm, 1.0 ppm		0-0.5 ft	Augered through top 6" of asphalt, FILL
				0.5-1 ft	Brown/black silt and gravel(rock fragments), FILL
				1-2 ft	Coarse sand with some gravel, dry, FILL
2-4	5, 4, 19, 34	1.2 ppm, 1.2 ppm		2-2.8 ft	Brown coarse sand and gravel, moist at 2.8 feet, FILL
				2.8-4 ft	Gray mortar and cobble, slight tar odor, FILL
				4-5 ft	Augered through concrete to 5 feet, FILL
5-7	3, 3, 2, 2	1.0 ppm		5-7 ft	Black ash (bottom ash) and slag, no odor, slightly moist, FILL
7-9	4, 5, 3, 2	0.7 ppm, 0.7 ppm		7-9 ft	Gravel to pebble size bottom ash, very loose, no odor, dry, FILL
9-11	2, 2	0.7 ppm	10	9-11 ft	Same as above with olive gray fine sand and silt, FILL
11-13	3, 4, 3, 2	0.7 ppm		11-11.3 ft	Black ash (bottom ash) and brown silty clay, FILL
				11.3-13 ft	Brown/black very fine sand and silt, moist, no odor, FILL
13-15	3, 4, 5, 6	0.7 ppm		13-13.5 ft	Fine sand with bottom ash, red slag at 13.3 feet, FILL
				13.5-15 ft	Light brown very fine sand and silt, very moist, no odor, FILL
15-17	4, 3, 3, 5	0.5 ppm, 0.5 ppm, 0.5 ppm		15-17 ft	Brown MEDIUM SAND, well sorted, wet, no odor. Collected SAMPLE PJ-MW2-01 FROM 15.2-16.0 FEET.
17-18	14, 51 R/3	9 ppm		17-19 ft	COBBLES, wet, moderate tar odor, no visible tar, no sheen.
				19-20 ft	Augered through COBBLES to 20 feet.
20-22	21, 35, 33, 51 R/3	1.7 ppm	20	20-22 ft	COBBLES, wet, moderate odor, slight SHEEN on water, no visible tar.
22-23.5	43, 35, 51 R/2	1.4 ppm		22-24 ft	COBBLES and FINE TO COARSE SAND, slight odor, no sheen on water.
				24-25 ft	Augered through hard COBBLE to 25 feet.
				25-27 ft	No recovery, 0.3 ft of sandy wash, SHEEN on

Lithology

Well Construction

MP. EL. 436.89

Elevation (ft)



Site Id: MW-2

ATLANTIC Environmental
a Division of GEI Consultants, Inc.

SS Sample Depth	Blows Per 6 In.	Recovery (%)	PID	Depth (ft.)	Soil Description	Lithology	Well Construction	Elevation (ft)
25-25.5	51 R/3		1.2 ppm		water.			410
					27-28 ft Augered to 28 feet.			
					28-30 ft COBBLES, slight odor.			
28-29	29 51 R/5		1.5 ppm					
30-32	3 5 8 10		0.3 ppm 0.3 ppm		30-32 ft Brown VERY FINE SAND, well sorted, no odor, no sheen.			
					32 ft End of Boring.			
				35				400
				45				390
				55				380

Site Id: MW-3

ATLANTIC Environmental
a Division of GEI Consultants, Inc.

Location: Port Jervis former MGP site	
Township/Range: Port Jervis, NY	Project Number:
Date(s): 04/21/98 - 04/21/98	Total Depth: 30.00'
Elevation: 437.81'	Datum: Mean Sea Level
X Coordinate: 438212.52	Y Coordinate: 925227.26
Contractor: AT&D	Drilling Method: Hollow Stem Auger
Logged By: Terry Taylor	
Remarks:	

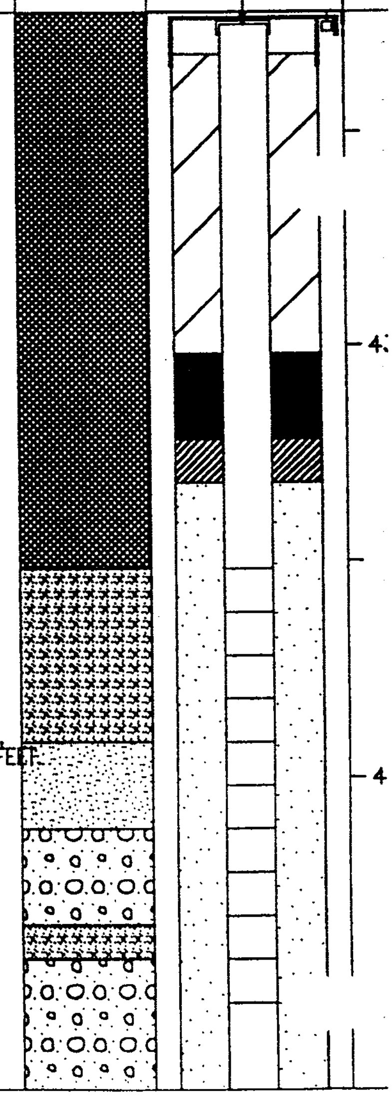
Blank Casing: type: PVC		dia: 2.00in	fm: 0.3'	to: 13.00'
Screens: type: Slotted	size: 0.020in	dia: 2.00in	fm: 13.00'	to: 23.00'
Annular Fill: type: Grout			fm: 1.00'	to: 8.00'
type: Bentonite Pellets			fm: 8.00'	to: 10.00'
type: choker sand			fm: 10.00'	to: 11.00'
type: Sand Filter			fm: 11.00'	to: 27.00'
type: Fill			fm: 27.00'	to: 30.00'

SS Sample Depth (ft.)	Blows Per 6 Inches	Recovery (%)	PID
11-12	51 R/.1		
13-15	38, 8, 5, 7		3 ppm, 46 ppm
15-17	2, 4, 3, 4		7 ppm, 30 ppm, 27 ppm
17-19	16, 19, 26, 29		21 ppm, 18 ppm, 7 ppm
20-22	26, 25, 35, 51 R/5		5 ppm, 3 ppm, 0.1 ppm
22-23	38, 51 R/3		1.0 ppm

Depth (ft.)	Soil Description
0-11 ft	Augered through concrete pad and subsurface material. Subsurface material consisted of medium sand with some gravel, no odor, FILL.
11-13 ft	No recovery.
11-13 ft	Augered to 13 feet.
13-13.5 ft	Brown FINE SAND, dry.
13.5-15 ft	Gray FINE SAND, stained, moderate odor, moist.
15-15.5 ft	Gray fine sand, TAR at 15.5, moderate odor.
15.5-17 ft	Olive green VERY FINE SAND and SILT, no visible tar, moderate odor, very moist to wet. Collected SAMPLE PJ-MW3-02 FROM 15.1 - 16.8 FEET.
17-19 ft	Black FINE SAND and COBBLES, strong odor, TAR BLEBS, wet. collected SAMPLE PJ-MW3-03 FROM 17.0-18.0 FEET.
19-20 ft	Augered to 20 feet.
20-21.2 ft	COBBLES with TAR BLEBS.
21.2-22 ft	Brown soupy FINE SAND and SILT, no visible tar.
22-24 ft	COBBLES with brown silty water, few TAR BLEBS (probably from water), moderate odor.
24-25 ft	Augered to 25 feet.

Lithology | Well Construction | Elevation (ft)

MP. EL. 437.47



Site Id: MW-3

ATLANTIC Environmental
a Division of GEI Consultants, Inc.

SS Sample Depth	Blows Per 6 In.	Recovery (%)	PID	Depth (ft.)	Soil Description		Lithology	Well Construction	Elevation (ft)
25–26	15 51 R/0		11 ppm		25–27 ft	COBBLES (probably wash), outside of spoon and inside of tip has some TAR COATING.			
					27–28 ft	Augered to 28 feet.			410
28–30	28 19 18 21		0.5 ppm 0.5 ppm 0.5 ppm		28–30 ft	COBBLES and GRAVEL, TAR BLEBS, but may be from water, moderate odor.			
					30 ft	End of Boring.			
				35					
									400
				45					
									390
				55					
									380

Site Id: MW-5

ATLANTIC Environmental
a Division of GEI Consultants, Inc.

Location: Port Jervis former MGP site	
Township/Range: Port Jervis, NY	Project Number:
Date(s): 04/22/98 – 04/22/98	Total Depth: 30.00'
Elevation: 436.50'	Datum: Mean Sea Level
X Coordinate: 438300.02	Y Coordinate: 925324.45
Contractor: AT&D	Drilling Method: Hollow Stem Auger
Logged By: Terry Taylor	
Remarks:	

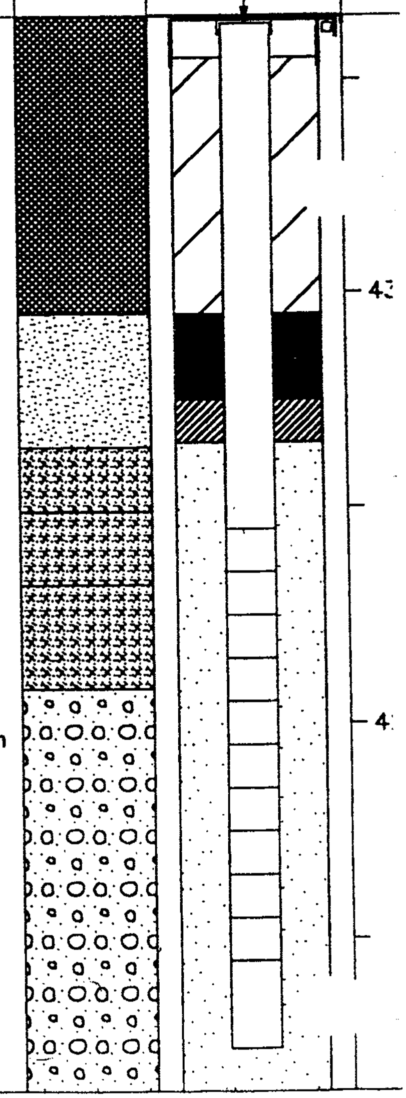
Blank Casing: type: PVC		dia: 2.00in	fm: 0.2'	to: 12.00'
Screens: type: Slotted	size: 0.020in	dia: 2.00in	fm: 12.00'	to: 22.00'
Annular Fill: type: Grout			fm: 1.00'	to: 7.00'
type: Bentonite Pellets			fm: 7.00'	to: 9.00'
type: choker sand			fm: 9.00'	to: 10.00'
type: Sand Filter			fm: 10.00'	to: 30.00'
type:			fm:	to:

SS Sample Depth (ft.)	Blows Per 6 Inches	Recovery (%)	PID
5–7	7, 5, 6, 6		2.7 ppm, 0.7 ppm, 0.7 ppm
7–9	4, 4, 3, 2		1.9 ppm, 1.4 ppm, 44 ppm, 37 ppm
9–11	3, 3, 4, 4		18 ppm, 4 ppm, 6 ppm, 19 ppm
11–13	5, 6, 5, 5		4 ppm, 15 ppm, 34 ppm, 35 ppm
13–15	4, 5, 5, 5		50 ppm, 91 ppm, 140 ppm
15–17	5, 11, 19, 29		17 ppm, 40 ppm
17–19	6, 9, 17, 19		14 ppm, 80 ppm
19–20	12, 51 R/.4		8 ppm
22–24	17, 19, 23, 51 R/.1		2.1 ppm, 0.3 ppm
24–24.5	51 R/.2		

Depth (ft.): 10, 20

Depth	Soil Description
0–0.5 ft	Augered through asphalt, FILL.
0.5–2.5 ft	Augered through concrete, FILL.
2.5–5 ft	Augered to 5 feet, FILL.
5–7 ft	Brown very fine sand with little brick fragments from 5–5.4 feet, dry, slight VOC odor from 5–5.4 feet, FILL.
7–8 ft	Brown VERY FINE SILTY SAND, slight sweet light VOC odor.
8–9 ft	Gray VERY FINE SILTY SAND, strong VOC odor as above, slightly moist at top.
9–10.1 ft	Brown VERY FINE SILTY SAND, slightly moist, some black staining (slight tar odor in stained soil).
10.1–11 ft	Gray FINE SAND, well sorted, VOC petroleum odor (moderate).
11–11.6 ft	Gray VERY FINE SAND, well sorted, moderate VOC odor, slightly moist.
11.6–13.3 ft	Dark gray FINE to MEDIUM SAND, well sorted, slightly moist, moderate VOC odor.
13.3–15 ft	VERY FINE SAND with some silt, very moist to wet, strong petroleum/VOC odor.
15–15.7 ft	Gray FINE SAND, well sorted, strong petroleum odor (fuel oil), wet. Collected SAMPLE PJ-MW5-01 FROM 15–15.7 FEET.
15.7–17 ft	COBBLES, moderate odor, less wet than above.
17–19 ft	Dark gray COBBLES and GRAVEL, moderate petroleum odor, black OIL BLEBS on water surface.
19–21 ft	Same as above, with OIL BLEBS.
21–22 ft	Augered to 22 feet.
22–24 ft	COBBLES and GRAVEL, SHEEN on water, TAR BLEBS at ~~22.9~~–23 feet.
24–26 ft	No recovery. 0.2 ft of gravel wash, SHEEN on water.

Lithology | Well Construction | Elevation (ft)



Site Id: MW-5

ATLANTIC Environmental
a Division of GEI Consultants, Inc.

SS Sample Depth	Blows Per 6 In.	Recovery (%)	PID	Depth (ft.)	Soil Description		Lithology	Well Construction	Elevation (ft)
26-26.5	51 R/0		5.5 ppm		26-28 ft	No recovery. 0.3 ft of gravel wash, moderate tar odor on wash, slight SHEEN on water.			410
					28-29 ft	Augered to 29 feet.			
29-29.5	51 R/.2				29-30 ft	No recovery.			
					30 ft	End of Boring.			
				35					400
				45					390
				55					380

Site Id: SB-1

ATLANTIC Environmental
a Division of GEI Consultants, Inc.

Location: Port Jervis former MGP site	
Township/Range: Port Jervis, NY	Project Number: 97679-1002
Date(s): 04/20/98 - 04/20/98	Total Depth: 12.00'
Elevation: 434.80'	Datum: Mean Sea Level
X Coordinate: 438384.24	Y Coordinate: 925338.00
Contractor: AT&D	Drilling Method: Hollow Stem Auger
Logged By: Terry Taylor	
Remarks:	

SS Sample Depth (ft.)	Blows Per 6 Inches	Recovery (%)	PID	Depth (ft.)	Soil Description		Lithology	Elevation (ft)
					0–0.5 ft	Augered through concrete/asphalt, FILL.		
0.5–2	5, 5, 5		0.5 ppm, 0.5 ppm		0.5–2 ft	Brown fine sand and silt with pebbles and cobbles, moist, no odors, FILL.		
2–4	3, 3, 2, 2		1.2 ppm		2–4 ft	Same as above with brick fragments, moist, no odor, FILL.		
4–6	2, 2, 3, 3		1.0 ppm, 1.2 ppm		4–6.5 ft	Brown very fine sand with trace pebble and coal fragments, very moist, FILL.		
6–8	1, 1, 1, 2		0.5 ppm, 0.5 ppm		6.5–6.7 ft	Very fine sand and silt, very moist, FILL		
					6.7–8 ft	Very fine sand, silt, and clay, no odors, FILL.		
8–10	2, 2, 3, 3		1.4 ppm, 1.4 ppm		8–8.2 ft	Brown fine silty sand, FILL.		
					8.2–10 ft	Brown fine sand, well sorted, clay lenses near bottom, FILL.		
10–12	4, 4, 5, 6			10	10–10.2 ft	Pink/brown silty fine sand, FILL.		
					10.2–10.8 ft	Brown very fine sand, FILL.		
					10.8–12 ft	Brown medium sand, FILL. note: adjacent tank excavation extended to 12 feet.		
					12 ft	End of Boring.		
				20				

Site Id: SB-4

ATLANTIC Environmental
a Division of GEI Consultants, Inc.

Location: Port Jervis former MGP site	
Township/Range: Port Jervis, NY	Project Number:
Date(s): 04/22/98 - 04/22/98	Total Depth: 10.00'
Elevation: 436.99'	Datum: Mean Sea Level
X Coordinate: 438273.09	Y Coordinate: 925278.41
Contractor: AT&D	Drilling Method: Hollow Stem Auger
Logged By: Terry Taylor	
Remarks:	

SS Sample Depth (ft.)	Blows Per 6 Inches	Recovery (%)	PID	Depth (ft.)	Soil Description	Lithology	Elevation (ft)
					0–0.8 ft Augered through asphalt, FILL.		
					0.8–1 ft Augered through brick, FILL.		
					1–2.5 ft Augered through cement, FILL.		
					2.5–4 ft Augered through soil, FILL.		
					4–4.2 ft Brick and ash, dry, FILL.		
4–6	5 4 3 3		0.7 ppm 12 ppm		4.2–6 ft Ash and brick, slight odor, slight SHEEN, wet, TAR on top of spoon, FILL.		
6–8	2 2 1 4		329 ppm		6–8 ft Rubble coated with VISCOUS TAR, not enough material to sample, FILL.		430
8–10	3 3 1 4		936 ppm		8–10 ft TAR and rubble, FILL. Collected SAMPLE PJ–MW4–01 FROM 8.0–8.6 FEET.		
				10	10 ft Encountered obstacle. End of Boring.		
							420
				20			

SRI Soil Boring and Monitoring Well Construction Logs

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: DP2

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Holder B/Gas-Oil AST J
Ground Elevation (ft/MSL): 436.8
Total Depth (ft) BGS: 19.25
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Fine sand, with trace cinder-like material. Tan, dry.
				FILL		
			0.0			
	3.3			FILL		
			0.0			Fine sand, with trace cinder-like material. Tan, moist.
-5				FILL		
			0.0			
	3.5			FILL		
			0.0			
				FILL		
-10			0.0			
	3.6					Fine-medium sand with trace silt. Tan, moist, dense.
			0.0	SP		
			0.0			
-15	3.5			SP		
			0.0			
				SP		
		DP-2 (18-19)	0.0			Fine-coarse sand with some fine gravel. Dark-gray, wet. Hydrocarbon-like odor.
	2.8		92			Refusal at 19.25 feet.
-20						

Remarks:

Laboratory Sample: DP2 (18-19)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: DP3

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Tar Extractor R
Ground Elevation (ft/MSL): 436.5
Total Depth (ft) BGS: 20
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 4 inches.
				FILL		Fine gravel and coarse sand. Gray, moist.
	3.1		0.0			Fine-medium sand. Brown-gray, moist.
				FILL		Fine-coarse sand with trace silt and fine gravel. Tan, dry.
			0.0			
-5				FILL		Fine-coarse sand with trace silt and fine gravel. Tan, dry, very dense. Hydrocarbon-like odor 5-5.5 ft bgs.
	4.0		21			
				FILL		
			192			Fine sand with some coarse sand. Tan, moist.
				FILL		
-10	4.0		10.5			Fine sand and silt. Tan-dark brown.
				FILL		
						Fine sand with trace silt and trace fine gravel and brick fragments. Tan, moist.
				FILL		
	4.0		63			
-15				FILL		Hydrocarbon-like odor 15-18 ft bgs.
			9.7			
				SP		Fine-medium sand with trace fine gravel and silt. Tan, wet.
	2.9					
		DP3 (19-20)	227	SP		Visible hydrocarbon-like sheen.
-20						Refusal at 20.0 ft

Remarks:
Laboratory Sample: DP3 (19-20)
MGP Indicators

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Ithaca, New York 14850-3342

Boring ID: DP4

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Tar Tank P
Ground Elevation (ft/MSL): 435.5
Total Depth (ft) BGS: 9
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 2 inches.
				FILL		Fine-coarse sand with trace silt and trace cinders and brick fragments. Dark gray, moist.
	2.2		0.0			
				FILL		Clinker-like material.
			0.0			Fine-coarse sand with cinders. Dark gray, moist.
-5				FILL		
	1.7					Clinker-like material.
			0.0	FILL		
						Clinker-like material.
	0.9		0.2			
						Refusal at 9.0 ft
-10						
-15						
-20						

Remarks:

Laboratory Sample: No Sample At This Location

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Boring ID: DP5

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Tar Separator O
Ground Elevation (ft/MSL): 435.3
Total Depth (ft) BGS: 6.0
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 3 inches.
						Fine-coarse sand with some silt. Dark brown, moist.
	2.2		128	FILL		
						Hydrocarbon-like odor becomes wet.
				FILL		Fine-medium sand with some silt and trace fine gravel. Dark brown, moist.
-5		DP5 (5-6)	5643			Visible Hydrocarbon-like material mixed with fill from 5-6 ft bgs.
	1.5					Refusal at 6.0 ft
-10						
-15						
-20						

Remarks:

Laboratory Sample: DP5 (5-6)

MGP Indicators and Hydrocarbon identification

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Boring ID: DP6

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Gas-Oil AST H
Ground Elevation (ft/MSL): 437.2
Total Depth (ft) BGS: 22.5
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 3 inches.
			2.4	FILL		Fine-medium sand and silt, trace brick fragments. Gray-brown, moist.
	2.4		0.0			
				FILL		
						Fine sand and silt. Tan, moist.
-5			0.8	FILL		
	3.0					
			3.2	FILL		
						Fine sand and silt. Gray, moist.
				FILL		
-10	4.0		2.4			Hydrocarbon-like odor.
			282	FILL		Fine sand with trace medium sand and silt. Gray, moist, dense.
			532	FILL		
	4.0					Hydrocarbon-like odor.
-15			594	FILL		
						Sand and silt with trace brick fragments. Tan, moist.
			768	FILL		
	4.0					Hydrocarbon-like odor.
		DP6 (19-20)	N/A	SP		Fine-Medium sand with trace fine gravel. Gray, wet. Hydrocarbon-like odor.
-20						Fine-coarse sand with trace fine gravel. Gray wet.
	1.8		N/A	SP		
						Refusal at 22.5

Remarks:

Laboratory Sample: DP6 (19-20)

MGP Indicators

ThermoRetec
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Ithaca, New York 14850-3342

Boring ID: DP7

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Gas-Oil AST G
Ground Elevation (ft/MSL): 437.0
Total Depth (ft) BGS: 24.0
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol
0				
	2.1		0.0	FILL
			0.0	FILL
-5				
	2.2		0.0	FILL
			0.0	FILL
-10	1.1		0.0	FILL
			0.0	SP
	2.2		0.0	SP
-15				
			0.0	SP
	2.0		0.0	SP
-20			0.0	SP
	2.3	DP7 (22-23)	NA	SP
-25				

Geologic Description

Asphalt 12 inches.

Fine gravel with fine-coarse sand. Gray, moist.

Fine sand with trace fine gravel. Brown, moist.

Fine sand and silt. Brown, moist, very dense.
Hydrocarbon-like odor.

Fine sand and silt. Gray, moist.
Hydrocarbon-like odor.

Fine-medium sand trace silt and coarse sand. Gray, moist.
Hydrocarbon-like odor.

Fine-medium sand with trace fine gravel. Gray, wet.

Fine-coarse sand and fine gravel. Gray, wet.
Visible Hydrocarbon-like NAPL mixed with sand from 19-24 ft bgs.

Refusal at 24.0

Remarks:
Laboratory Sample: DP7 (22-23)
MGP Indicators

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Boring ID: DP8

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Purifier U
Ground Elevation (ft/MSL): 437.0
Total Depth (ft) BGS: 14.0
Boring Diameter Outer/Inner (in): 2 inch
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Concrete 3 inches.
						Fine-coarse sand with brick fragments and cinders. Tan-red, moist. Hydrocarbon-like odor.
	1.6		0.0	FILL		Fine-coarse sand with cinders and brick. Brown-dark gray, moist
	1.8		0.0			Fine-coarse sand and cinders, with trace fine gravel and silt. Dark gray, moist .
-5						
	1.8		0.0	FILL		
						Fine sand and silt with trace fine gravel. Tan, moist.
	1.9		0.0			
-10	2.0		0.0	FILL		
	1.8	DP8 (12-14)	0.0			Fine sand and silt. Tan, wet, dense. Hydrocarbon-like odor.
	1.8		180			Refusal at 14.0 ft
-15						
-20						

Remarks:
Laboratory Sample: DP8 (12-14)
MGP Indicators

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Boring ID: DP9

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Tar Well Q
Ground Elevation (ft/MSL): 436.3
Total Depth (ft) BGS: 8.0
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Concrete 6 inches.
	1.9		0.0	FILL		Fine-medium sand, trace coarse sand. Tan, moist.
	1.9		0.0	FILL		Fine-coarse sand, cinders, trace fine gravel. Dark gray, moist.
						Fine-coarse sand, cinders, trace silt. Dark gray, moist.
-5	1.7		0.0	FILL		
		DP9 (6-8)				Fine-medium sand, cinders. Dark gray, moist
	1.5		0.0	FILL		Hydrocarbon-like odor.
						Refusal at 8.0 ft
-10						
-15						
-20						

Remarks:

Laboratory Sample: DP9 (6-8)

MGP Indicators

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Boring ID: DP10

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Tar Well S Area
Ground Elevation (ft/MSL): 436.4
Total Depth (ft) BGS: 14
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Fine-medium sand with trace coarse sand. Tan, moist, loose.
	2.0		4.0	FILL		
						Fine-medium sand with trace brick fragments and silt. Tan, moist, loose
	0.5		2.0	FILL		
						Fine sand and silt. Tan, very moist, dense.
-5	1.8		18.7	FILL		Hydrocarbon-like odor
						Fine sand and silt with trace medium sand. Tan, moist, very dense.
	2.0		8.8	FILL		
						Fine sand and silt trace brick fragments. Tan, moist, dense
	2.0		3.6	FILL		Silt and clay. Tan, moist, very dense.
-10						Fine sand and silt. Tan, moist, very dense.
	1.8		3.6	FILL		
		DP10 (12-14)				
	2.0		N/A	FILL		
						Refusal at 14.0 ft.
-15						
-20						

Remarks:

Laboratory Sample: DP10 (12-14)

MGP Indicators

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Boring ID: DP11

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Naphtha AST I
Ground Elevation (ft/MSL): 437.0
Total Depth (ft) BGS: 1.5
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0	N/A		N/A	FILL		Concrete
						Refusal at 1.5 ft bgs.
-5						
-10						
-15						
-20						

Remarks: Six attempts at this location all met with refusal.

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Boring ID: DP12

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Jervis Outfall Area
Ground Elevation (ft/MSL): 437.0
Total Depth (ft) BGS: 2.1
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0	1.5	DP12 (1-2)	0.0	SW		Medium-coarse sand and fine gravel. Tan-orange, wet.
						Refusal at 2.1 ft
-5						
-10						
-15						
-20						

Remarks: Three attempts at this location; all met with refusalat 2.1 ft bgs.
Laboratory Sample: DP-12 (1-2)
MGP Indicators

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Boring ID: DP13

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-23-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Naphtha Tank F
Ground Elevation (ft/MSL): 437.0
Total Depth (ft) BGS: 22
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 12 inches
			0.0			Fine-coarse sand with trace fine gravel. Dark-gray, moist.
	3.0			FILL		Fine sand and silt. Tan, moist, very dense.
			0.0			
				FILL		Fine sand and silt with trace clay. Tan, moist, very dense.
-5			0.0			
	2.8			FILL		
			0.0			
				FILL		
			1.3			
-10	23.					
			150			Fine-medium sand with trace coarse sand and silt. Gray, moist.
				SP		
	2.0	DP13 (14-16)	188	SP		Hydrocarbon-like odor
-15						Fine-medium sand with some fine gravel. Gray, moist.
				SP		
						Hydrocarbon-like odor
	3.1		183	SP		
-20						Fine gravel with coarse sand and trace fine-medium sand.
	1.3		0.6	GM		
						Refusal at 22.0 ft

Remarks:

Laboratory Sample: DP13 (14-16)

MGP Indicators

ThermoRetec
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Ithaca, New York 14850-3342

Boring ID: DP14

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-24-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Gas-Oil AST G
Ground Elevation (ft/MSL): 435.0
Total Depth (ft) BGS: 23
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 12 inches.
			0.0			Fine sand and silt. Tan, moist, dense
	4.0			FILL		
			0.0			
				FILL		
-5			0.0			
	3.8			FILL		
			0.0			
				FILL		Fine sand with trace silt. Tan, moist.
			0.0			
-10	3.6			FILL		Hydrocarbon-like odor
			0.0			
				FILL		
	3.6		50			
-15						Fine-medium sand with some silt. Gray, moist. Hydrocarbon-like odor
						Fine-medium sand with some silt. Gray, wet.
				SP		
	3.3		90			Coarse sand and fine gravelwith trace fine-medium sand. Gray, wet.
				GM		
-20						
				GM		
	1.3	DP14 (22-23)	N/A			Visible hydrocarbon-like material mixed with gravel from 22-23 ft bgs.
						Refusal at 23.0 ft

Remarks:
Laboratory Sample: DP14 (22-23)
MGP Indicators

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Boring ID: DP15

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-24-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Naphtha UST E
Ground Elevation (ft/MSL): 435.7
Total Depth (ft) BGS: 19.5
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 12 inches
			0.0	FILL		Fine sand and silt. Tan, moist.
	3.6		0.0			
						Fine sand and some silt. Tan, moist.
-5	3.0		0.0	FILL		
			0.0			
						Fine-medium sand with trace silt. Tan, moist.
	3.0		0.0	FILL		
-10						
			0.0			
	3.3		0.0	FILL		
						Silt, clay, and fine sand. Tan, moist, very dense.
-15			0.0			
	3.2		0.0	FILL		Fine-medium sand with fine gravel. Tan, wet.
		DP15 (18.5-19.5)				
				SW		
						Refusal at 19.5 ft
-20						

Remarks:

Laboratory Sample: DP15 (18.5-19.5)

MGP Indicators

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Ithaca, New York 14850-3342

Boring ID: DP16

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-24-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Naphtha Pipe/ Brown Street
Ground Elevation (ft/MSL): 434.2
Total Depth (ft) BGS: 18.0
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 12 inches.
	3.3		0.0	FILL		Silt, clay and fine sand. Tan, moist.
			0.0			
						Fine sand and some silt. Tan, moist, dense.
-5	2.4		0.0	FILL		
			0.0			
						Silt, clay wiith fine sand and silt. Tan, moist, dense.
	3.4		0.0	FILL		
-10						
			0.0			Fine-medium sandwith trace silt. Tan, moist.
	3.1			SP		
-15			1.4			
		DP16 (16-18)				Fine-medium sand with trace fine gravel. Tan, moist.
	1.0		0.0	SP		
						Refusal at 18.0 ft
-20						

Remarks:

Laboratory Sample: DP16 (16-18)

MGP Indicators

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Boring ID: DP17

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-24-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Brown Street
Ground Elevation (ft/MSL): 435.5
Total Depth (ft) BGS: 22.0
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 12 inches
			0.0	FILL		Fine sand and silt. Tan, moist, dense.
	3.4		0.0			
-5						Fine sand with trace silt. Tan, moist.
			0.0	FILL		
	2.8		0.0			
			0.0	FILL		
-10						
	3.0		0.0			
						Fine-medium sand with trace silt. Tan, moist.
			15.9	FILL		
	3.0					Hydrocarbon-like odor
-15		DP17 (15-16)	N/A			Fine sand with trace silt. Gray, moist
						Fine sand with trace silt. Gray, wet.
	1.0		16	SP		
			25			Hydrocarbon-like odor
-20						Coarse sand and fine gravel. Gray, wet.
	1.5		6.5	SP		Coarse sand and fine gravel with some fine-medium sand and trace silt. Gray, wet; hydrocarbon-like odor.
						Refusal at 22.0 ft

Remarks:

Laboratory Sample: DP17 (15-16)

MGP Indicators

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Boring ID: DP18

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-24-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Brown Street
Ground Elevation (ft/MSL): 434.9
Total Depth (ft) BGS: 18
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 12 inches
			0.0	FILL		Fine sand and silt. Tan, moist, dense.
	2.9		0.0			
						Fine sand with trace silt. Tan, moist.
-5			0.0	FILL		
	3.2		0.0			
			0.0	FILL		
-10						
	2.5		6.8			
			91	FILL		
-15	3.0		103	SP		Fine-medium sand with trace silt. Gray, wet.
		DP18 (16-17)	N/A			Fine-coarse sand and fine gravel. Gray, wet
	1.3			SP		Hydrocarbon-like odor
						Refusal at 18.0 ft
-20						

Remarks:
Laboratory Sample: DP18 (16-17)
MGP Indicators

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Ithaca, New York 14850-3342

Boring ID: DP19

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-24-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Purifer T
Ground Elevation (ft/MSL): 437.0
Total Depth (ft) BGS: 1.0
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0	N/A		N/A	FILL		Cement 12 inches
						Refusal at 1.0 ft
-5						
-10						
-15						
-20						

Remarks: Four attempts at this location, all met with refusal.

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Boring ID: DP20

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-24-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Naphtha UST E
Ground Elevation (ft/MSL): 437.0
Total Depth (ft) BGS: 1.0
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0	N/A		N/A	FILL		Cement 12 inches
						Refusal at 1.0 ft
-5						
-10						
-15						
-20						

Remarks: Four attempts at this location, all met with refusal.

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Boring ID: DP21

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-24-00
Drilling Company: TERRA PROBE, INC.
Drilling Method: Direct-Push
Sampling Method: Continuous 4 ft Macro-Core

Boring Location: Naphtha Tank F
Ground Elevation (ft/MSL): 437.0
Total Depth (ft) BGS: 2.0
Boring Diameter Outer/Inner (in): 2 inch ID
Logged By: Emalee Gersh

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0	N/A		N/A	FILL		Asphalt 12 inches
						Cement 12 inches
						Refusal at 2.0 ft
-5						
-10						
-15						
-20						

Remarks: Four attempts at this location, all met with refusal.

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Boring ID: SB14

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-19-00
Drilling Company: Boart Longyear
Drilling Method: Rotosonic Drilling
Sampling Method: 4 inch ID Core barrel

Boring Location: Down Graident Holder A
Ground Elevation (ft/MSL): 436.5
Total Depth (ft) BGS: 75.0
Boring Diameter Inner (in): 6 inch ID
Logged By: James Edwards

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 6 inches.
			0.0	FILL		Sand with trace rock fragments, brick. Brown.
	4.8					Sand with trace coal fragments, brick. Black.
			8.1	FILL		Sand with rock fragments. Black, wet.
						Gravel with ashes and coal fragments. Black.
-5				FILL		Hydrocarbon-like sheen and odor.
						Cast pipe at 4.0 ft BGS.
						Fine-medium sand. Brown, moist, loose.
			8.1	SM		
-10	10.0					
				SM		
			0.0	SM		
						Fine-medium sand. Brown, wet, loose.
-15				SM		
						Hydrocarbon-like odor.
			16.1			Poorly sorted round gravel, some sand. Gray, wet.
			76.0	GP		
-20	10.0					Hydrocarbon-like stain and odor.
			65.5	GP		
			22.6	GP		
-25						

Remarks:

Laboratory Sample: SB14 (25-26), (73-75)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB14

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Geologic Description
-25		SB14 (25-26)		GP	Hydrocarbon-like sheen and strong odor.
					NAPL mixed with sand in 3" lens.
					Medium-coarse sand with trace fine rounded gravel. Brown, moist.
			147	SM	
-30	10.0				NAPL mixed with sand in 4" lens.
			27		
					Hydrocarbon-like sheen and odor.
			14.2	SM	
-35			8.1		Hydrocarbon-like odor.
			3.2	SM	
			8.2		
-40	10.0				Hydrocarbon-like odor.
			1.6	SM	
			47		
-45			162	SM	Medium-coarse sand. Brown.
					NAPL mixed with sand 3" lens.
			309		
					NAPL mixed with sand 3" lens.
				SM	
-50	10.0				Trace rounded cobbles. Hydrocarbon-like sheen.
			13.0		
					Silty Laminations 0-2" thick.
			13.8	SM	
-55			10.0		Fine-coarse sand. Brown.
					Hydrocarbon-Like stain in nodules.

Remarks:

Laboratory Sample: SB14 (25-26), (73-75)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB14

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
				SM		Hydrocarbon-Like stain in nodules.
			8.2			
				GM		Gravel and cobbles.
-60	10.0		0.0			Nodules of grey silty clay with trace rounded gravel.
			0.0	SM		
						Medium-coarse sand. Brown, moist, loose.
			0.0			
-65				SM		
			0.0			
				SM		
-70	10.0		1.2			
		SB14 (73-75)	1.3	SM		
-75						Boring Terminated at 75.0 ft

Remarks:

Laboratory Sample: SB14 (25-26), (73-75)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB15

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-20-00
Drilling Company: Boart Longyear
Drilling Method: Rotosonic Drilling
Sampling Method: 4 inch ID Core Barrel

Boring Location: Down Graident Holder A
Ground Elevation (ft/MSL): 437.95
Total Depth (ft) BGS: 75.0
Boring Diameter Inner (in): 6 inch ID
Logged By: James Edwards

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt 6 inches.
			0.0	FILL		Fine-coarse gravel.
	4.8					Medium sand with trace cobbles. Brown, loose, wet.
			0.0	SM		Hydrocarbon-like odor.
-5			0.0			Concrete and rebar 4-7 ft bgs.
						Medium-coarse sand. Brown, loose, moist, uniform.
			0.0	SM		
			0.0			
-10	10.0					
			17.5	SM		
						Gravel, trace cobbles, sand, and silt. Gray, loose, moist.
			87			
						Hydrocarbon-like stain.
-15			110	GM		
						Hydrocarbon stain and sheen, strong.
						Hydrocarbon-like odor.
			112	GM		
-20	10.0					Driller reports cobbles and boulders 15-25 ft bgs.
			61.7			

Remarks:

Laboratory Sample: SB15 (73-75)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB15

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
				GM		Hydrocarbon-like sheen.
-25			25.6			
				GM		
			8.1			
-30	10.0					Gravel, cobbles, pebbles, sand, silt. Poorly sorted. Trace visible brown NAPL mixed with gravel
			0.0	GM		
			0.0			Visible NAPL mixed with gravel at 34 ft bgs.
-35			0.0	GM		
			0.0	SM		Coarse sand with trace gravel. Gray, loose, poorly sorted. Hydrocarbon-like odor.
			0.0	SM		
-40	10.0					Coarse Gravel with coarse sand. Gray, rounded.
			48.3	GM		Hydrocarbon-like odor.
			0.0	SM		Medium sand with trace fine coarse gravel. Brown. Hydrocarbon-like odor.
-45			0.0			Coarse gravel with fine-coarse sand. Hydrocarbon-like odor.
			0.0	SM		
				SM		
-50						

Remarks:

Laboratory Sample: SB15 (73-75)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB15

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
-50	10.0					Fine-coarse gravel with fine-coarse sand.
			10.3	GM		Trace hydrocarbon-like sheen.
						Coarse gravel with fine-coarse sand.
			0.0	GM		Hydrocarbon-like sheen.
						Coarse gravel with cobbles.
-55			5.6	SM		Trace hydrocarbon-like sheen.
						Medium-coarse sand. Loose, uniform, moist.
			5.2			
				SM		
-60	10.0					
			14.6			
			0.0	SM		
-65			0.0			Medium-coarse sand. Loose, uniform, moist.
			0.0	SM		
			0.0			
-70	10.0					
			0.0	SM		
		SB15 (73-75)	0.0	SM		
-75						Boring Terminated at 75.0 ft

Remarks:

Laboratory Sample: SB15 (73-75)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB16

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-30-00
Drilling Company: Boart Longyear
Drilling Method: Rotosonic
Sampling Method: 4 inch ID core barrel

Boring Location: Flo-Jean Resturant Property
Ground Elevation (ft/MSL): 438.05
Total Depth (ft) BGS: 70.0
Boring Diameter Inner (in): 6 inch ID
Logged By: James Edwards

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0				FILL		Asphalt 6 inches.
			0.0			Fine-medium sand. Brown, moist, loose, uniform.
	4.6					
			0.0			
				SM		
-5			0.0			Fine-medium sand with trace gravel. Brown, moist.
			0.0			
				SM		
			0.0			
-10	10.0					Fine-medium sand. Brown, uniform, moist.
			0.0			
				SM		
			0.0			
-15			0.0			Fine-medium sand. Brown, moist, loose.
				SM		
			0.0			
			0.0			
-20	10.0			SM		
			0.0			
						Fine-Coarse gravel. Loose, rounded, poorly sorted, wet.
		SB16 (23-25)	0.0			
				GP		
-25			0.0			

Remarks:

Laboratory Sample: SB16 (23-25), (53-55)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB16

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
			0.0			
			0.0			
				GP		
			0.0			
-30	10.0					
			0.0			
				GP		
			0.0			Fine-medium sand with trace gravel. Brown, wet, loose.
-35			0.0			
				SM		
			0.0			
			0.0			
-40	10.0			SM		
			0.0			
						Fine-coarse sand with fine-coarse gravel. Brown, wet.
			0.0			
				SM		
-45			0.0			
			0.0			
				SM		
			0.0			
-50	10.0					Coarse sand with trace fine-coarse gravel. Brown, loose, wet.
			0.0			
				SM		
		SB16 (53-55)	0.0			
				GP		Fine-coarse gravel. Brown, loose, wet.
-55			0.0			Fine-coarse sand with fine-coarse gravel. Brown, moist, rounded, poorly sorted.
			0.0			

Remarks:

Laboratory Sample: SB16 (23-25), (53-55)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB16

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-30-00
Drilling Company: Boart Longyear
Drilling Method: Rotosonic
Sampling Method: 4 inch ID core barrel

Boring Location: Flo-Jean Resturant Property
Ground Elevation (ft/MSL): 438.05
Total Depth (ft) BGS: 70.0
Boring Diameter Inner (in): 6 inch ID
Logged By: James Edwards

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0				FILL		Asphalt 6 inches.
			0.0			Fine-medium sand. Brown, moist, loose, uniform.
	4.6					
			0.0			
				SM		
-5			0.0			Fine-medium sand with trace gravel. Brown, moist.
			0.0			
				SM		
			0.0			
-10	10.0					Fine-medium sand. Brown, uniform, moist.
			0.0			
				SM		
			0.0			
-15			0.0			Fine-medium sand. Brown, moist, loose.
				SM		
			0.0			
			0.0			
-20	10.0			SM		
			0.0			
						Fine-Coarse gravel. Loose, rounded, poorly sorted, wet.
		SB16 (23-25)	0.0			
				GP		
-25			0.0			

Remarks:

Laboratory Sample: SB16 (23-25), (53-55)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB16

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Geologic Description
			0.0		
			0.0		
				GP	
			0.0		
-30	10.0				
			0.0		
				GP	
			0.0		Fine-medium sand with trace gravel. Brown, wet, loose.
-35			0.0		
				SM	
			0.0		
			0.0		
-40	10.0			SM	
			0.0		
					Fine-coarse sand with fine-coarse gravel. Brown, wet.
			0.0		
				SM	
-45			0.0		
			0.0		
				SM	
			0.0		
-50	10.0				Coarse sand with trace fine-coarse gravel. Brown, loose, wet.
			0.0		
				SM	
		SB16 (53-55)	0.0		
				GP	Fine-coarse gravel. Brown, loose, wet.
-55			0.0		Fine-coarse sand with fine-coarse gravel. Brown, moist, rounded, poorly sorted.
			0.0		

Remarks:

Laboratory Sample: SB16 (23-25), (53-55)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB16

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
			0.0			
			0.0			
-60	10.0			SM		
			0.0			
			0.0			
				SM		
-65	5.0		0.0			
			0.0			
				SM		
			0.0			
-70						Boring Terminated at 70.0 ft

Remarks:

Laboratory Sample: SB16 (23-25), (53-55)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB17

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-20-00
Drilling Company: Boart Longyear
Drilling Method: Rotosonic Drilling
Sampling Method: 4 inch ID Core Barrel

Boring Location: Gas Holder A/Down Graident
Ground Elevation (ft/MSL): 437.89
Total Depth (ft) BGS: 153.0
Boring Diameter Inner (in): 6 inch ID
Logged By: James Edwards

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Coarse gravel mixed with black silt, glass, ashes and cinders. Brown/black, moist.
			0.0			
	4.3					
			3.7			
				FILL		Coarse gravel mixed with black silt and cinders. Brown/black, moist.
-5			0.0			Driller repports cast iron pipe at 5.0 ft bgs.
			0.0			
				FILL		
			0.0			
-10	10.0					
			0.0			
				FILL		
			0.0			
-15			0.0			
				FILL		No recovery driller reports cast iron portion of pipe blocked core barrel.
			0.0			
			0.0			
-20	0.0			FILL		
			0.0			
			50.0			
				FILL		
-25						Fine-coarse sand and fine-coarse gravel. Gray, wet.

Remarks:

Laboratory Sample: SB17 (72-73), (151-153)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB17

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
						Hydrocarbon-like stain and odor.
			74.0	GP		
			293			
-30	10.0					Visable NAPL mixed with gravel at 30.0 ft bgs.
			297	GP		
						Fine-medium sand, poorly sorted with gray hydrocarbon staining. Brown-gray, wet.
			282			
						0.3 ft NAPL mixed with sand.
-35						
				SM		0.3 inch NAPL lens.
			311			
-40	10.0			SM		Visible NAPL mixed with sand in lenses up to 0.3 inches thick.
			650			
			858			Sand mixed with NAPL in lenses up to 0.3 inches thick.
			1070	SM		Sand mixed with NAPL in lenses up to 0.3 inches thick.
-45						
						At 45-47 ft bgs brown flowable NAPL mixed with sand.
			56.0			
				SM		
			22.8			
-50	10.0					Hydrocarbon-like odor.
			19.2			
				SM		
			8.4			
-55						
						Fine-coarse gravel with little-some fine-medium sand. Gray, wet, loose.
				GP		Hydrocarbon-like odor and staining.
			146			
						Hydrocarbon-like odor and sheen.

Remarks:

Laboratory Sample: SB17 (72-73), (151-153)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB17

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
						Hydrocarbon-like odor and sheen.
			43			
-60	10.0			GP		
			113			
						Hydrocarbon-like odor and NAPL blebs.
			5.1			
				GP		Hydrocarbon-like odor and NAPL blebs.
-65			2.6			Fine-coarse sand with trace cobbles. Brown, loose, wet.
						Hydrocarbon-like odor.
			3.1			
				SM		
-70	10.0					Fine-coarse sand with trace cobbles. Brown, loose, wet.
			3.1			
		SB17 (72-73)		SM		
-75			6.6			
				SM		
			0.0			
			0.0			
-80	10.0			SM		
			0.0			
			0.0			
				SM		
-85			0.0			
			0.0			
				SM		
			1.4			
-90	10.0					Fine-coarse sand with trace cobbles. Brown, loose, wet.
			2.6			

Remarks:

Laboratory Sample: SB17 (72-73), (151-153)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB17

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
			2.6			
				SM		
			0.0			
-95			0.0			
				SM		
			0.0			
			1.2			
-100	10.0			SM		Fine-coarse sand with trace cobbles. Brown, loose, wet.
			0.0			
			0.0			
				SM		
-105			0.0			
			0.0			
				SM		
			0.0			
-110	10.0					Fine-coarse sand with trace cobbles. Brown, loose, wet.
			0.0			
				SM		
			0.0			
-115			0.0			
				SM		
			0.0			
			0.0			
-120	10.0			SM		Fine-coarse sand with trace cobbles. Brown, loose, wet.
			0.0			
			0.0			

Remarks:

Laboratory Sample: SB17 (72-73), (151-153)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB17

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
				SM		
-125			0.0			
			0.0			
				SM		
			0.0			
-130	10.0					
			0.0			
				SM		
			0.0			
-135			0.0			Fine-coarse sand with trace cobbles. Brown, loose, wet.
				SM		
			0.0			
			0.0			
-140	10.0			SM		
			0.0			
			0.0			
				SM		
-145			0.0			
			0.0			
				SM		
			0.0			
-150	8.0					
		SB17(151-153)	0.0			
				SM		
						Black shale bedrock.
						Boring Terminated at 153 ft.
-155						

Remarks:

Laboratory Sample: SB17 (72-73), (151-153)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB18

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 11-1-00
Drilling Company: Boart Longyear
Drilling Method: Rotosonic Drilling
Sampling Method: 4 inch ID Core Barrel

Boring Location: Holder C
Ground Elevation (ft/MSL): 436.72
Total Depth (ft) BGS: 70
Boring Diameter Inner (in): 6 inch ID
Logged By: James Edwards

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt
			0.0			Concrete
	4.3			FILL		Silt mixed with brick fragments.
			11.1			Fine-medium sand. Tan, moist.
				SM		
-5			47			
						Hydrocarbon-like odor.
			62			
				SM		Hydrocarbon-like odor.
-10	10.0					
			93			
				SM		Fine-medium sand. Gray, moist.
			432			Hydrocarbon-like odor and staining.
-15			454			
				SM		
			396			Strong hydrocarbon-like odor.
				GP		Fine-coarse gravel with trace coarse sand. Gray-brown, wet.
-20	10.0					Gravel, rounded, poorly sorted, gray.
			52			

Remarks:

Laboratory Sample: SB18 (39-40), (68-70)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB18

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
			52			
				GP		Trace NAPL blebs at 23.0 ft bgs.
-25			0.0			
				GP		
			0.0			
-30	10.0			GP		Gravel, rounded, poorly sorted, gray.
			0.0			
						Hydrocarbon-like odor.
			0.0			
				GP		
-35			0.0			Fine-medium sand. Brown, wet, loose.
				SM		
		SB18 (39-40)	0.0			
-40	10.0					
			0.0			
				SM		
			0.0			
-45			0.0			

Remarks:

Laboratory Sample: SB18 (39-40), (68-70)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB18

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
						Coarse sand. Brown, wet, Loose.
			0.0	SM		
-50	10.0					
			0.0			Becomes coarse sand.
-55			0.0			Fine-coarse gravel and coarse sand. Brown, wet, loose.
			0.0	SM		
-60						
			0.0			
-65	5.0		0.0			Medium-coarse sand with trace gravel. Brown, wet, loose.
			0.0			
		SB18 (68-70)		SM		
-70						Boring Terminated at 70.0 ft

Remarks:

Laboratory Sample: SB18 (39-40), (68-70)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB19

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 11-2-00
Drilling Company: Boart Longyear
Drilling Method: Rotosonic Drilling
Sampling Method: 4 inch ID Core Barrel

Boring Location: Gas-Oil AST G/Brown Street
Ground Elevation (ft/MSL): 435.18
Total Depth (ft) BGS: 55
Boring Diameter Inner (in): 6 inch ID
Logged By: James Edwards

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0						Asphalt.
			3.1			Fine-medium sand. Tan-brown, moist, loose.
	4.2			FILL		
			0.0			
-5						
				FILL		
			0.0			
						Concrete fragments.
			0.0	FILL		
-10	10.0					Fine-medium sand. Tan, moist, loose.
			0.0			
				SM		
			3.1			
						Hydrocarbon-like odor and staining.
-15			288			
				SM		
						Hydrocarbon-like odor and staining.
			186			
-20	10.0					Fine-coarse gravel trace fine-medium sand. Gray, wet.
			54.5	GP		Strong hydrocarbon-like odor and stain.
						Trace NAPL blebs.
-25			4.3			

Remarks:

Laboratory Sample: SB19 (38-40)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB19

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
				GP		Trace NAPL blebs.
						Fine-medium sand with trace fine-coarse gravel. Brown, wet, loose.
			0.0			
-30	10.0			SM		
			0.0			
			0.0	SM		
-35						Fine-medium sand. Brown, uniform, moist.
			0.0			
		SB19 (38-40)		SM		
-40	10.0		0.0			
						Nodule of till-like material mixed with sand.
			0.0	SM		
			0.0			
-45				SM		
			0.0			
				SM		
			0.0			
-50	10.0					
			0.0	SM		
			0.0			
				SM		
-55						Boring Terminated at 55.0 ft

Remarks:

Laboratory Sample: SB19 (38-40)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB20

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-20-00
Drilling Company: Boart Longyear
Drilling Method: Rotosonic Drilling
Sampling Method: 4 inch ID Core Barrel

Boring Location: Up Graident/Coke Pile
Ground Elevation (ft/MSL): 435.40
Total Depth (ft) BGS: 55
Boring Diameter Inner (in): 6 inch ID
Logged By: James Edwards

Depth (Feet) BGS	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
0				FILL		Silt and coal fragments. Black.
			0.0			
	4.8					Fine-medium sand sand with silt. Brown, uniform, moist.
			0.0			
				SM		
-5			0.0			
			0.0			
				SM		
			0.0			
-10	10.0					
			0.0			
				SM		
			0.0			
						Fine-medium sand with silt. Brown, wet.
-15			8.0			
		SB20 (16-18)		SM		
			0.0			
						Fine-coarse gravel with some coarse sand. Brown, wet.
			0.0			
-20	9.0			GP		
			0.0			
			0.0	GP		

Remarks:

Laboratory Sample: SB20 (16-18)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Boring ID: SB20

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description
-25						
				GP		
			0.0			
						Fine-medium sand. Gray, wet.
			0.0			
-30	10.0					
			0.0			
				SM		
			0.0			
-35			0.0			
				SM		
			0.0			
			0.0			
-40	10.0			SM		Fine-medium sand. Brown, wet.
			0.0			
			0.0			
				SM		
-45			0.0			
			0.0			
				SM		
			0.0			
-50	10.0					Boring Terminated at 50.0 ft

Remarks:

Laboratory Sample: SB20 (16-18)

MGP Indicators

ThermoRetec

1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW3D

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-17-00
Drilling Company: Boart Longyear
Drilling Method: RotoSonic
Sampling Method: 4 inch ID Core Barrel

Boring Location: Holder D
Ground Elevation (ft/MSL): 437.91
PVC Elevation (ft/msl): 437.54
Total Depth (ft): 150.4
Boring Diameter Inner (in): 6 inch ID
Water Level During Drilling (ft/bgs): 18.0
Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0						Concrete fragments and road base gravel.		Curb Box with Locking Cap
-2	3.4		0.0	FILL		Fine-medium sand with trace fine-coarse gravel. Brown, moist, loose.		
-4			0.0	SM				
-6			0.0					
-8			20.0	SM		Hydrocarbon-like odor.		
-10	5.9		18.0					Grouted Annulus
-12			146.0	SM		Fine-medium sand with some silt and trace fine-coarse gravel. Tan, moist, loose.		
-14			30.9					
-16			12.8	SM		Fine-coarse gravel and cobbles. Gray, wet.		
-18						Hydrocarbon-like odor.		
						Gravel and cobbles.		
-20	9.3		1.6	GM		Hydrocarbon-like odor		
-22			0.0			Medium-coarse sand with silt laminations. Brown, wet.		
-24			0.0	SM				
						Strong hydrocarbon-like odor and sheen.		

Remarks:

Laboratory Sample: MW3D (146-148)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW3D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
						Strong hydrocarbon-like odor and sheen.		
-26			0.0			Fine-coarse gravel and cobles with trace fine sand. Brown, wet, loose.		
-28			0.0	SM		Visible hydrocarbon-like sheen.		
-30	10.0		0.0			Fine-coarse sand with trace coarse gravel and silt. Brown-tan, wet.		
-32			0.0	SM				
-34			0.0					
-36			0.0	SM				
-38			0.0					
-40	8.0		0.0	SM				
-42			0.0					
-44			0.0	SM		Fine-coarse gravel with trace fine sand. Gray, loose.		
-46			0.0			Coarse sand. Gray, wet, loose.		
-48			0.0	SM		Fine-coarse gravel with cobbles and coarse sand. Brown, wet.		
-50	10.0		0.0			Medium-coarse sand with trace coarse gravel and silt. Brown, wet.		Grouted Annulus
-52			0.0	SM				
-54			0.0					
-56			0.0	SM				

Remarks:

Laboratory Sample: MW3D (146-148)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW3D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
-58			0.0					
-60	10.0		0.0	SM				
-62			0.0					
-64			0.0	SM		Slight hydrocarbon-like odor		
-66			0.0					
-68			0.0	SM				
-70	10.0		0.0					
-72			0.0	SM		Slight hydrocarbon-like odor		
-74			0.0					Grouted Annulus
-76			0.0	SM		Medium-coarse sand with trace coarse gravel and silt. Brown, wet.		
-78			0.0					
-80	10.0		0.0	SM				
-82			0.0					
-84			0.0	SM				
-86			0.0					
-88			0.0	SM				
-90	10.0		0.0					

Remarks:

Laboratory Sample: MW3D (146-148)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW3D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
-90	10.0		0.0					
-92			0.0	SM				
-94			0.0					
-96			0.0	SM				
-98			0.0					
-100	10.0		0.0	SM				Grouted Annulus
-102			0.0					
-104			0.0	SM				
-106			0.0					
-108			0.0	SM				
-110	10.0		0.0			Medium-coarse sand with trace coarse gravel and silt. Brown, wet.		
-112			0.0	SM				
-114			0.0					
-116			0.0	SM				
-118			0.0					
-120	10.0		0.0	SM				Grouted Annulus
-122			0.0					

Remarks:

Laboratory Sample: MW3D (146-148)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW3D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
-124			0.0	SM				
-126			0.0					
-128			0.0	SM				
-130	10.0		0.0					Bentonite Seal 125-130
-132			0.0					
				GM				
-134			0.0					
						Fine-coarse gravel and cobbles. Loose, wet.		
-136			0.0	SM				#00 Sand 135-137
						Medium-coarse sand with trace coarse gravel and silt. Brown, wet.		2 inch PVC Riser 2.5-140
-138			0.0					
-140	8.0		0.0	SM				
-142			0.0					#2 Sand 137-150
-144			0.0	SM				
-146		MW-3D (146-148)	0.0					
								2 inch 0.20 PVC Screen 140-150
-148			0.0			Dark gray shale bedrock.		
-150						Boring Terminated at 150.4 ft		Threaded End Plug
-152								

Remarks:

Laboratory Sample: MW3D (146-148)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW6

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-20-00
Drilling Company: Boart Longyear
Drilling Method: RotoSonic
Sampling Method: 4 inch ID Core Barrel

Boring Location: Coke Pile/Up Graident Location
Ground Elevation (ft/MSL): 435.40
PVC Elevation (ft/msl): 435.04
Total Depth (ft): 24.0
Boring Diameter Inner (in): 6 inch ID
Water Level During Drilling (ft/bgs): 16.5
Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0				FILL		Silt and coal fragments. Black.		Curb Box with Locking Cap
-1			0.0					
-2	4.8					Fine-medium sand sand with silt. Brown, uniform, moist.		Grouted Annulus 1-5 ft
-3			0.0					
-4				SM				
-5			0.0					
-6								
-7			0.0					Bentonite Seal 5-10 ft
-8				SM				
-9			0.0					
-10	10.0							
-11			0.0					#00 sand 10-12 ft
-12				SM				2 inch PVC Riser 1.0-14 ft
-13			0.0					
-14						Fine-medium sand with silt. Brown, wet.		
-15			8.0					
-16		MW6 (16-18)		SM				0.20 PVC Screen 14-24 ft
-17			0.0					
-18						Fine-coarse gravel with some coarse sand. Brown, wet.		# 2 sand 12-24 ft
-19			0.0					
-20	9.0			GP				
-21			0.0					
-22								
-23			0.0	GP				
-24						Boring Terminated at 24.0 ft		Threaded End Plug
-26								

Remarks:

Laboratory Sample: MW6 (16-18)

MGP Indicators

ThermoRetec

1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW7

Project Name: Port Jervis MGP Site

Location: Port Jervis, NY

Project Number: ORAN2-15063

Date Completed: 11-2-00

Drilling Company: Boart Longyear

Drilling Method: RotoSonic

Sampling Method: 4 inch ID Core Barrel

Boring Location: Apartment Building Parking Lot

Ground Elevation (ft/MSL): 438.08

PVC Elevation (ft/msl): 437.72

Total Depth (ft): 45.0

Boring Diameter Inner (in): 6 inch ID

Water Level During Drilling (ft/bgs): 18.0

Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0				FILL		Asphalt.		Curb Box wtih Locking Cap
-2	4.0					Fine-medium sand with silt. Brown, moist.		Grouted Annulus 1-6 ft
-4				SM				
-6								Beotonite Seal 6-10 ft
-8				SM				
-10	10.0							#00 sand 10-13 ft
-12				SM				2 inch PVC Riser 1.0-15 ft
-14						Fine-medium sand with silt. Brown, wet.		
-16				SM		Hydrocarbon-like odor and sheen.		0.20 PVC Screen 15-30 ft
-18						Fine-coarse gravel with some coarse sand. Brown, wet.		# 2 sand 13-30 ft
-20	10.0			GP		Strong hydrocarbon-like odor and stain		

Remarks:

Laboratory Sample: MW7 (25-26), (43-45)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW7

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
						Visible NAPL blebs.		
-22								
-24				GP		Visible NAPL mixed with gravel at 24-26 ft bgs.		
		MW7 (25-26)						
-26								
-28				SM		Fine-medium sand. Gray, wet. Trace hydrocarbon-like odor.		
-30	10.0							Threaded End Plug
-32				SM		Sand mixed with NAPL blebs at 32 ft bgs		
-34								
								Natural Backfill 30-45 ft
-36				SM		Trace NAPL blebs and hydrocarbon odor		
-38								
-40	5.0			SM		Fine-medium sand. Brown, wet.		
-42								
		MW7 (43-45)						
-44				SM				
						Boring Terminated at 45.0 ft		
-46								

Remarks:

Laboratory Sample: MW7 (25-26), (43-45)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW8

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 11-2-00
Drilling Company: Boart Longyear
Drilling Method: RotoSonic
Sampling Method: 4 inch ID Core Barrel

Boring Location: Pike Street/Down Graident Site
Ground Elevation (ft/MSL): 441.44
PVC Elevation (ft/msl): 440.96
Total Depth (ft): 75.0
Boring Diameter Inner (in): 6 inch ID
Water Level During Drilling (ft/bgs): 23.0
Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0						Asphalt.		Curb Box with Locking Cap
			0.0	FILL		Concrete with road base gravel.		
-2	4.9					Fine-medium sand with silt and trace fine gravel. Brown, moist.		
			0.0					
-4								
			0.0	FILL				2" PVC Riser 0.5-29 ft
-6								
			0.0					
-8								
			0.0					
-10	10.0			FILL				Grout 1-20 ft
			0.0			Fine-medium sand with silt and trace gravel. Brown, moist.		
-12								
			0.0	SM				
-14								
			0.0	SM				
-16						Fine-coarse gravel with trace fine-medium sand. Brown, moist.		
			0.0	GP				
-18								
			0.0					
-20	10.0							
			0.0	GP				

Remarks:

Laboratory Sample: MW8 (73-75)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW8

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
-22								Bentonite Seal 20-25ft
			18.0			Hydrocarbon-like odor.		
-24								
			20.0	GP				
-26								#00 Sand 25-27 ft
			15.8					
-28								
				GP				
-30	10.0							#2 Sand 27-46 ft
			57.1					
-32						Hydrocarbon-like odor and sheen.		
			48.2	GP				0.020 " Slot PVC Screen 29 -45 ft
-34								
			26.7					
-36						Hydrocarbon-like odor and sheen, trace NAPL blebs.		
			23.1	GP				
-38								
			18.0			NAPL mixed with sand in 3 " lens.		
-40	10.0					Fine-medium sand with little-some fine gravel. Brown, wet.		
			13.8	SM				
-42						NAPL mixed with sand in 0.3 inch lens.		
			17.8					
-44						Hydrocarbon-like odor and sheen, NAPL blebs.		
			4.9	SM				1 ft DNAPL Sump 45-46 ft
-46								Threaded End Plug
			6.2					
-48								
			6.1	SM				

Remarks:

Laboratory Sample: MW8 (73-75)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW8

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
-50	10.0							
			6.0					
-52								
			5.6	SM				
-54						Hydrocarbon-like odor.		
			10.9					Natural Backfill
-56								
			6.0	SM				
-58								
			0.0					
-60	10.0							
			0.0	SM				
-62								
			1.3					
-64								
			2.1	SM				Natural Backfill
-66								
			0.0					
-68						Fine-medium sand, trace silt.		
			0.0	SM				
-70	10.0							Natural Backfill
			0.0					
-72								
		MW-8(73-75)	0.0	SM				
-74	5.0							
						Boring Terminated at 75.0 ft		
-76								

Remarks:

Laboratory Sample: MW8 (73-75)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW9D

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 11-2-00
Drilling Company: Boart Longyear
Drilling Method: RotoSonic
Sampling Method: 4 inch ID Core Barrel

Boring Location: Flo Jean Resturant Property
Ground Elevation (ft/MSL): 436.96
PVC Elevation (ft/msl): 436.74
Total Depth (ft): 165.0
Boring Diameter Inner (in): 6 inch ID
Water Level During Drilling (ft/bgs): 19.0
Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0						Silt with clay and fine gravel with some rock fragments. Gray, moist.		Curb Box with Locking Cap
			0.0					
-2	1.0							
			0.0					
-4				FILL				
			0.0					
-6								
			0.0					
-8				FILL				
			0.0					
-10	9.0					Fine sand and silt with trace fine-coarse gravel. Brown, moist.		PVC Riser 0.5-155
			0.0	SM				
-12								
			0.0					
-14								
			0.0	SM				
-16								
			0.0					
-18								
			0.0			Medium sand with gravel and cobbles. Loose, wet.		
-20	10.0			GM				
			0.0					
-22								
			0.0					
-24				GM				
			0.0			Fine-coarse gravel with little coarse sand. Brown, wet.		Grouted Annulus
-26								
			0.0					

Remarks:
Laboratory Sample: MW9D (163-165)
MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW9D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			0.0					
-28				GP				
			0.0					
-30	10.0							
			0.0					
-32						Fine-coarse sand with trace fine-gravel and silt. Brown, wet.		
			0.0					
-34								
			0.0					
-36				SM				
			0.0					
-38						Some silt in laminations. Brown.		
			0.0					
-40	10.0							
			0.0					
-42								
			1.6					
-44				SM				
			0.0					
-46								
			0.0					
-48						Some rounded gravel.		
			0.0					
-50	10.0							Grouted Annulus
			0.0					
-52				SM				
			0.0					
-54								
			0.0					
-56								
			0.0					
-58						Gravely sand. Poorly sorted.		
			0.0					
-60	10.0			SM				
			0.0					
-62								

Remarks:

Laboratory Sample: MW9D (163-165)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW9D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			0.0					
-64								
			0.0			Fine-coarse gravel with coarse sand. Brown, wet.		
-66				GM				
			0.0					
-68				GM				Grouted Annulus
			0.0					
-70	10.0					Fine-coarse sand with trace fine-gravel and silt. Brown, wet.		
			4.0					
-72								
			4.1					
-74								
			2.4					
-76				SM				
			4.3					
-78								
			0.0					
-80	10.0							
			4.1					
-82								
			4.2					
-84								
			0.0					
-86								
			4.2					
-88				SM				Grouted Annulus
			1.3					
-90	10.0							
			1.4					
-92								
			4.8					
-94								
			0.0					
-96				SM				
			0.0					
-98								

Remarks:

Laboratory Sample: MW9D (163-165)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW9D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			0.0					
-100	10.0							Grouted Annulus
			0.0					
-102								
			0.0					
-104								
			0.0					
-106								
			0.0					
-108				SM		Medium-coarse sand. Brown, wet.		
			0.0					
-110	10.0							
			0.0					
-112								
			0.0					
-114								
			4.2					
-116				SM				
			2.4					
-118								
			0.0					
-120	10.0							
			0.0					
-122								
			0.0					
-124								
			0.0					Grouted Annulus
-126								
			0.0					
-128				SM				
			0.0					
-130	10.0					Becomes gray.		
			0.0					
-132						Becomes brown.		
			0.0					
-134								

Remarks:

Laboratory Sample: MW9D (163-165)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW9D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
-134								
			0.0					
-136				SM				
			0.0					
-138								
			0.0					
-140	10.0							Grouted Annulus
			0.0					
-142								
			0.0			Cross-bedded sand 140-144 ft.		
-144				SM				
			0.0					
-146						Medium-coarse sand. Brown, uniform, wet.		
			0.0					
-148								Bentonite Seal 144-151
			0.0					
-150	10.0							
			0.0					
-152				SM				#00 Sand 151-153
			0.0					
-154								
			3.0					
-156								
			0.0					
-158								
			2.4					
-160	9.0			SM				# 2 Sand 153-165
			0.0					
-162								
		MW9D (163-165)	0.0					0.020 " Slot PVC Screen 155-165
-164						Driller reports Bedrock at 165 ft.		
			0.0			Dark gray shale bedrock.		Threaded End Cap
-166								
-168								

Remarks:

Laboratory Sample: MW9D (163-165)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW10S

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 11-30-00
Drilling Company: Boart Longyear
Drilling Method: RotoSonic
Sampling Method: 4 inch ID Core Barrel

Boring Location: Flo Jean Resturant Property
Ground Elevation (ft/MSL): 440.16
PVC Elevation (ft/msl): 439.13
Total Depth (ft): 32.0
Boring Diameter Inner (in): 6 inch ID
Water Level During Drilling (ft/bgs): 24.0
Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0						Asphalt		Curb Box with Locking Cap
						Fine sand with brick fragments.		
-2	4.2							
			0.0					
-4				FILL				
			0.0					
-6								
			0.0					2 inch PVC Riser 1.0-22 ft
-8						Fine-medium sand. Brown, dry.		
			0.0					
-10	10.0							Grouted Annulus
			0.0					
-12				SM				
			0.0					
-14								

Remarks:
Laboratory Sample: No Sample
MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW10S

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			3.7			Fine-coarse gravel with little fine sand. Brown, dry.		Bentonite Seal 13 -18 ft
-16				GP				
			0.0					
-18						Fine-coarse sand with fine gravel. Brown, wet.		#00 Sand 18-20 ft
			0.0					
-20	10.0			SM				
			7.8			Fine-coarse gravel with some fine sand. Brown-gray, wet		
-22								
			7.8			Hydrocarbon-like odor.		
24				GP				0.20 PVC Screen 2 inch 22-32
			7.2					
-26								
			0.0					
-28				GP				# 2 Sand 20-32 ft
			1.4					
-30	7.0					Fine-medium sand. Brown, loose.		
			0.0	SM				
-32						Boring Terminated at 32.0 ft		Threaded End Cap
-34								

Remarks:

Laboratory Sample: No Sample

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW10I

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-30-00
Drilling Company: Boart Longyear
Drilling Method: RotoSonic
Sampling Method: 4 inch ID Core Barrel

Boring Location: Flo Jean Resturant Property
Ground Elevation (ft/MSL): 439.81
PVC Elevation (ft/msl): 439.34
Total Depth (ft): 57.0
Boring Diameter Inner (in): 6 inch ID
Water Level During Drilling (ft/bgs): 23.0
Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0						Asphalt		Curb Box with Locking Cap
			0.0			Fine sand with brick fragments.		
-2	4.8							
			0.0					
-4				FILL				
			0.0					Grouted Annulus
-6								
			0.0					
-8						Fine-medium sand. Brown, dry.		
			0.0	SM				
-10	10.0							
			0.0					
-12				SM				
			0.0					
-14								
			0.0			Fine-coarse gravel with little fine sand. Brown, dry.		Grouted Annulus
-16				GP				
			3.7					
-18						Fine-coarse sand with fine gravel. Brown, wet.		
			0.0					
-20	10.0			SM				2 " PVC Riser 1.0-47 ft
			7.8			Fine-coarse gravel with some fine sand. Brown-gray, wet		
-22								
		MW10I (23-25)	7.8					
-24				GP				
			7.2			Hydrocarbon-like odor.		Grouted Annulus
-26								

Remarks:

Laboratory Sample: MW10I (23-25)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW10I

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
-26								
			0.0					
-28				GP				
			0.0					
-30	10.0					Fine-medium sand. Brown, loose.		
			0.0					
-32				SM				
			0.0					
-34								
			0.0					Grouted Annulus
-36				SM				
			0.0					
-38								
			0.0					
-40	10.0			SM				Bentonite Seal 39-43 ft
			0.0					
-42								
			0.0					
-44				SM				# 00 sand 43-45 ft
			0.0.					
-46								
			1.5					
-48				SM				
			3.7					
-50	10.0					Slight hydrocarbon-like odor.		0.20 2 " PVC Screen 47-57 ft
			2.0					
-52				SM				
			0.0					
-54								# 2 sand 45-57 ft
-56				SM				
						Boring Terminated at 57.0 ft		Threaded End Plug
-58								

Remarks:

Laboratory Sample: MW10I (23-25)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW10D

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-24-00
Drilling Company: Boart Longyear
Drilling Method: RotoSonic
Sampling Method: 4 inch ID Core Barrel

Boring Location: Flo Jean Resturant Property
Ground Elevation (ft/MSL): 439.82
PVC Elevation (ft/msl): 439.40
Total Depth (ft): 180.0
Boring Diameter Inner (in): 6 inch ID
Water Level During Drilling (ft/bgs): 24.0
Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0						Asphalt		Curb Box with Locking Cap
			0.0			Fine sand with organic material and trace brick fragments.		
-2	4.2							
			0.0	FILL				
-4								
			0.0					
-6								
			0.0	FILL				
-8						Fine sand. Brown, dry.		
			0.0					
-10	10.0							
			0.0					
-12				SM				
			0.0					
-14								
			0.0			Fine-coarse gravel with little sand. Brown, dry.		
-16				GP				
			0.0					
-18						Fine-coarse sand with some gravel. Wet.		
			0.0	SM				
-20	10.0					Fine-coarse gravel with little sand. Wet		2 " PVC Riser 1.0-171
			0.0					
-22						Hydrocarbon-like odor.		
			0.0					
-24				GP				

Remarks:

Laboratory Sample: MW10D (51-53), (178-180)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW10D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			0.0					
-26								
			0.0					
-28				GP				
			0.0					
-30	10.0					Fine-coarse sand with trace fine-coarse gravel. Brown, wet.		
			0.0					
-32				SM				
			0.0					
-34								
			0.0					
-36								
			0.0					
-38								
			0.0					
-40	10.0			SM				
			0.0					
-42								
			0.0					
-44								
			0.0					
-46						Hydrocarbon-like odor.		
			1.5					
-48				SM				
			3.7					
-50	10.0					Hydrocarbon-like odor.		Grouted Annulus
		MW10D (51-53)	2.0					
-52								
			0.0					
-54								
			0.0					
-56						Fine-coarse gravel with little sand. Wet		

Remarks:

Laboratory Sample: MW10D (51-53), (178-180)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW10D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			0.0	GP				
-58						Fine-coarse sand with some gravel. Brown, wet.		
			0.0					
-60	10.0			SM				
			0.0					
-62						Fine-medium sand trace gravel. Brown, moist		
			0.0					
-64				SM				Grouted Annulus
			0.0					
-66								
			0.0					
-68				SM				
			2.0					
-70	10.0							
			0.0					
-72				SM				
			0.0					
-74								
			0.0					
-76								
			0.0					
-78						Fine-coarse gravel with little sand. Wet		
			1.4	GP				
-80	10.0					Fine-coarse sand with some gravel and trace silt. Brown, wet.		
			0.0					
-82				SM				
			0.0					
-84				SM				
			0.0					
-86								Grouted Annulus
			0.0					
-88				SM				
			0.0					

Remarks:

Laboratory Sample: MW10D (51-53), (178-180)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW10D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			0.0					
-90	10.0							
			0.0					
-92				SM				
			2.6					
-94								
			0.0					
-96				SM				
			2.0					
-98						Medium-coarse sand. Brown, moist.		
			1.4					
-100	10.0			SM				Grouted Annulus
			0.0					
-102								
			0.0					
104				SM				
			0.0					
-106								
			0.0					
-108				SM				
			0.0					
-110	10.0							
			0.0					
-112				SM				
			112					
-114								
			0.0					
-116				SM				
			0.0					
-118								
			0.0					
-120	10.0			SM				Grouted Annulus
			0.0					

Remarks:

Laboratory Sample: MW10D (51-53), (178-180)

MGP Indicators

ThermoRetec

1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW10D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			0.0					
-122								
			0.0					
-124				SM				
			0.0					
-126								
			0.0					
-128				SM				
			0.0					
-130	10.0							
			0.0					
-132				SM				
			0.0					
-134								
			0.0					
-136				SM		Trace clayey silt in lens.		
			0.0					
-138								
			0.0					
-140	10.0			SM				
			0.0					
-142						Trace clayey silt in lens.		
			0.0					
-144				SM				
			0.0					
-146								
			0.0					
-148				SM				
			0.0					
-150	10.0							Grouted Annulus
			0.0					
-152				SM				
			0.0					

Remarks:

Laboratory Sample: MW10D (51-53), (178-180)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW10D

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			0.0					
-154								
			0.0					
-156				SM				
			0.0					
-158								
			0.0					
-160	10.0			SM				
			0.0					
-162								
			0.0					
-164				SM		Fine-medium sand. Gray, wet.		Bentonite Seal 160-167
			0.0					
-166								
			0.0					
-168				SM				# 00 sand 167-169
			0.0					
-170	10.0							
			0.0					
-172				SM				
			0.0					
-174								
	5.0		0.0					# 2 sand 169-181
-176				SM				
			0.0					0.20 slot 2 " PVC Screen
-178		MW10D (178 -180)						
			0.0					
-180						Dark gray shale bedrock.		
			0.0			Boring Terminated at 181.0 ft		Threaded End Plug
-182								
			0.0					
-184								

Remarks:

Laboratory Sample: MW10D (51-53), (178-180)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW11

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-30-00
Drilling Company: Boart Longyear
Drilling Method: RotoSonic
Sampling Method: 4 inch ID Core Barrel

Boring Location: Pike Street/Down Graident
Ground Elevation (ft/MSL): 436.41
PVC Elevation (ft/msl): 436.07
Total Depth (ft): 75.0
Boring Diameter Inner (in): 6 inch ID
Water Level During Drilling (ft/bgs): 18.0
Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0						Asphalt and cement approx 12 inches.		Curb Box With Locking Cap.
			0.0			Concrete.		
-2	4.3			FILL		Fine-medium sand. Brown, moist.		
			0.0					
-4				SM				
			0.0					Grout 1-10 ft
-6								
			0.0					
-8				SM				Bentonite Seal 7-10 ft
			0.0					
-10	10.0							2 inch PVC Riser 0.5-15 ft
			0.0					# 00 sand 10-12 ft
-12				SM				
			9.5					
-14						Fine-coarse gravel. Gray, moist.		
			24			Hydrocarbon-like odor.		
-16				GP				
			56					
-18								
			153					
-20	10.0			GP		Hydrocarbon-like staining, sheen, odor.		# 2 sand 12-30 ft
			210					
-22								

Remarks:
Laboratory Sample: MW11 (23-25), (43-45)
MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW11

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Geologic Description	Well Dimension
-22						
-23		MW-11S (23-25)	386		Visible NAPL blebs.	
-24				GP		
-25			97		Hydrocarbon-like staining, sheen, odor.	0.020 2inch PVC Screen 15 -30 ft
-26						
-27			18		Hydrocarbon-like odor.	
-28					Fine-coarse sandwith some silt seams. Gray-brown, wet.	
-29			0.0			
-30	10.0				Hydrocarbon-like odor.	
-31			2.6			1 ft DNAPL Sump 30-31 ft Threaded well plug
-32				SM		
-33			0.0			
-34						
-35			0.0			
-36				SM		
-37			0.0			
-38						
-39			0.0			
-40	10.0					
-41			0.0			
-42					Fine medium sand. Wet.	
-43		MW-11S (43-45)	0.0			
-44				SM		
-45			0.0			
-46						
-47			0.0			
-48				SM		
-49			0.0			
-50	10.0					

Remarks:

Laboratory Sample: MW11 (23-25), (43-45)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW11

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			0.0					
-52				SM				
			0.0					
-54								
			0.0					
-56				SM				
			0.0					
-58								
			0.0					
-60	10.0			SM				Natural Backfill 30-75 ft
			0.0					
-62								
			0.0					
-64						Silt lens 0.3 inch thick.		
			0.0					
-66								
			0.0					
-68				SM				
			0.0					
-70	10.0							
			0.0					
-72				SM				
			0.0					
-74								
						Boring Terminated at 75.0 ft.		
-76								

Remarks:

Laboratory Sample: MW11 (23-25), (43-45)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW12

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 11-1-00
Drilling Company: Boart Longyear
Drilling Method: RotoSonic
Sampling Method: 4 inch ID Core Barrel

Boring Location: Off Site Brown Street
Ground Elevation (ft/MSL): 435.61
PVC Elevation (ft/msl): 435.29
Total Depth (ft): 35.0
Boring Diameter Inner (in): 6 inch ID
Water Level During Drilling (ft/bgs): 16.0
Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0						Asphalt		Curb Box With Locking Cap
			0.0			Silt with trace gravel and glass. Brown-gray, dry.		
-2	4.3			FILL				
			0.0					2 inch PVC riser 0.5-14 ft
-4						Fine-medium sand with trace silt. Brown, moist.		
			0.0					Grout 1-8 ft
-6								
			1.2					
-8				SM				
			0.0					Bentonite Seal 8-10 ft
-10	10.0							
			7.2					# 00 sand 10-12 ft
-12				SM		Fine-medium sand with trace silt. Gray, moist.		
			193			Gray staining/ Hydrocarbon-like odor.		
-14								
		MW-12 (15-16)	197					# 2 sand 12-24 ft
-16						Fine-coarse gravel and cobbles. Gray, wet.		

Remarks:

Laboratory Sample: MW12 (15-16), (34-35)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW12

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
				GM		Gray staining/ Hydrocarbon-like odor.		
-18								
			754					
-20	10.0			GM				0.020 2 inch PVC Screen 1 4-24 ft
			1.5					
-22						Gray staining/ Hydrocarbon-like odor.		
			0.0					
-24				GM				Threaded End Plug
			0.0					
-26								
			0.0					
-28						Fine-medium sand. Brown, wet.		Natural Backfill 24-35 ft
			0.0					
-30	10.0			SM				
			0.0					
-32								
			0.0					
-34		MW-12 (34-35)		SM				
			0.0			Boring Terminated at 35 ft.		
-36								

Remarks:

Laboratory Sample: MW12 (15-16), (34-35)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW13

Project Name: Port Jervis MGP Site
Location: Port Jervis, NY
Project Number: ORAN2-15063
Date Completed: 10-19-00
Drilling Company: Boart Longyear
Drilling Method: RotoSonic
Sampling Method: 4 inch ID Core Barrel

Boring Location: Holder D
Ground Elevation (ft/MSL): 437.94
PVC Elevation (ft/msl): 437.39
Total Depth (ft): 50.0
Boring Diameter Inner (in): 6 inch ID
Water Level During Drilling (ft/bgs): 17.0
Logged By: James Edwards

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
0						Asphalt.		Curb Box with Locking Cap
			0.0			Fine sand with gravel, brick and concrete fragments.		
-2	4.2							
			0.0					
-4				FILL				
			0.0					2 inch PVC Riser 1-40 ft
-6								
			0.0					
-8				FILL				
			0.0					
-10	0.0					Driller Reports No Recovery from 5-15 ft bgs.		Grouted Annulus
			0.0					
-12				FILL				
			0.0					
-14								
			0.0			Fine-medium sand with trace gravel. Brown, moist.		
-16				SM				
			7.3					
-18						Fine-coarse gravel with trace sand. Moist.		
			0.0					
-20	10.0			GM				Grouted Annulus
		MW-13 (21-23)	0.0					
-22						Becomes gray with poorly sorted cobbles.		
			0.0					

Remarks:

Laboratory Sample: MW13 (21-23)

MGP Indicators

ThermoRetec
1001 West Seneca Street, Suite 204
Ithaca, New York 14850-3342

Well ID: MW13

Depth (Feet)	Recovery (feet)	Laboratory Sample ID	PID (ppm)	USCS Symbol	Lithology Symbol	Geologic Description	Well Construction	Well Dimension
			0.0					
-24				GM				
			0.0					
-26								
			0.0	GM				
-28						Fine-coarse sand trace sand. Brown, moist.		
			0.0					
-30	10.0							
			0.0					
-32				SM				Bentonite Seal 30-36 ft
			0.0					
-34								
			0.0					
-36				SM				
			0.0					# 00 sand 36-38 ft
-38								
			0.0					
-40	10.0			SM				# 2 sand 38-50 ft
			0.0					
-42								
			0.0					
-44				SM				
	5.0		0.0					0.020 slot 2 inch PVC Screen 40-50 ft
-46								
			0.0					
-48				SM				
			0.0					
-50						Boring Terminated at 50.0 ft		Threaded End Plug
-52								

Remarks:

Laboratory Sample: MW13 (21-23)

MGP Indicators

SRI Monitoring Wells Completed by Langan

Langan
Engineering and Environmental Services

Log of Boring	MW-14S
Sheet	1 of 2
Project	O&R Pike Street Former MGP Site
Project No.	1809102
Location	Port Jervis, New York
Elevation and Datum	433.38 NAVD 88
Drilling Agency	Summit Drilling
Date Started	10/28/03
Date Finished	10/28/03
Drilling Equipment	Mobile B-57
Completion Depth	22 ft.
Rock Depth	NA
Size and Type of Bit	41/2" ID Hollow Stem Auger
Number of Samples	Disturbed: / Undisturbed: / Core:
Casing Diameter (in)	
Casing Depth (ft)	
Water Level (ft.)	First: 14 / Completion: / 24 HR.:
Casing Hammer	Weight (lbs): / Drop (in):
Drilling Foreman	Russel Tezlaf
Sampler	2" ID Splitspoon
Sampler Hammer	Auto
Weight (lbs)	140
Drop (in)	30
Inspecting Engineer	Prithviraj Patil

Env. Sample No.	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	6" Asphalt	0						
	Cuttings - Light-Dark Brown SAND, some silt, some gravel	1						Start Boring MW-14S at 2:12. Augered 2 ft bgs.
	18" Light Brown f SAND, tr silt, tr clay [MOIST]	2–4	S1	SS	18	1, 1, 2, 3	0, 0, 0	
	18" Light Brown f SAND, some silt, tr clay [MOIST]	4–6	S2	SS	18	2, 4, 2, 2	0, 0, 0	
	12" Light Brown f SAND, tr silt, tr clay (top 2") [MOIST]	6–8	S3	SS	12	4, 3, 3, 4	0, 0	
	18" Light Brown f SAND, tr silt	8–10	S4	SS	18	4, 4, 4, 5	0, 0, 0	
	18" Light Brown f SAND, tr silt, tr clay	10–12	S5	SS	18	4, 4, 4, 4	0, 0, 0	
21	18" Light Brown f SAND, tr silt	12–14	S6	SS	18	5, 4, 4, 2	0, 0, 0	Collected environmental sample MW-14S # 021 at 2:42 from 12-13 ft bgs.
	20" Light Brown-Gray f SAND, tr silt [WET]	14–16 (water level ∇ 14)	S7	SS	20	4, 3, 2, 1	0, 0, 0	
	12" Medium size COBBLES, some silt, tr f sand [WET]	16–18	S8	SS	12	15, 29, 31, 15	0, 0	
22	8" Medium size COBBLES, silt, tr f sand [WET]	18–20	S9	SS	8	51, 55, 90, 100/1"	0, 0	Collected environmental sample MW-14S # 022 at 3:25 from 18-18.7 ft bgs. Hard Augering. Auger grinding on cobbles. Augered to 20 ft bgs.

FPATIL2 1809102SRILGPJ LANGANNJ.GDT 3/4/04

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Log of Boring **MW-14S** Sheet 2 of 2

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 433.38 NAVD 88

Env. Sample No.	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
23	9" Medium size COBBLES, some silt, tr f sand [WET]	21	S10	SS	9	100 70 100/4"	0 0	Collected environmental sample MW-14S # 023 at 3:42 from 20-20.8 ft bgs. Hard Augering. Auger grinding on cobbles. Augered to 22 ft bgs.
		22						Boring MW-14S ended at 22 ft bgs at 3:58.
		23–45						

PPATIL2 1809102SSB.GPJ LANGANNJ.GDT 3/4/04

MONITORING WELL CONSTRUCTION SUMMARY
Well No. MW-14S

PROJECT O&R Pike Street Former MGP Site	**PROJECT NO.** 1809102	
LOCATION Port Jervis, New York	**ELEVATION AND DATUM** 433.38 NAVD 88	
DRILLING AGENCY Summit Drilling Inc.	**DATE STARTED** 10/28/2003	**DATE FINISHED** 10/28/2003
DRILLING EQUIPMENT Mobile B-57	**DRILLER** Russel Tezlaf	
SIZE AND TYPE OF BIT 4-1/4" ID Hollow Stem Auger	**INSPECTOR** Prithviraj Patil	

METHOD OF INSTALLATION

The 2" PVC well was constructed with a 10' screen (0.010" slot size) and 12' riser. The filter pack consisted of 13' of # 1 sand, 1' of bentonite seal over the sand, and the remaining annular space was grouted to approximately 0.4' bgs. The well was completed with a flush mount protective casing and a concrete well box.

METHOD OF WELL DEVELOPMENT

The well was pumped at approximately 0.7 gallon per minute (gpm) using a centrifugal pump until the purged water indicated turbidity value below 50 NTUs (silt free). Approximately 55 gallons were purged over a period of 1.25 hours.

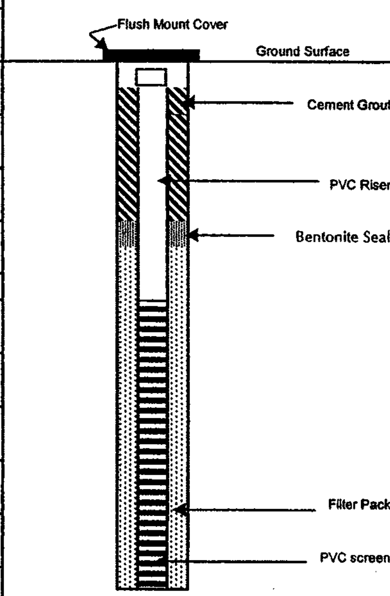
TYPE OF CASING PVC	**DIAMETER** 2"	**TYPE OF BACKFILL MATERIAL** Cement + Bentonite grout
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** Bentonite Seal
BOREHOLE DIAMETER	8"	**TYPE OF FILTER MATERIAL** # 1 Morie Sand

	ELEVATION	DEPTH
GROUND	433.73	0.0
TOP OF CASING	433.38	0.35
TOP OF SEAL	425.73	8.0
TOP OF FILTER	424.73	9.0
TOP OF SCREEN	421.73	12.0
BOTTOM OF WELL	411.73	22.00
SCREEN LENGTH	10'	
SLOT SIZE	0.010"	

GROUND WATER ELEVATIONS

DATE	ELEVATION	DEPTH
10/29/2003	422.33	11.40
10/30/2003	422.83	10.90
11/3/2003	422.86	10.87

WELL DETAILS | **SOIL CLASSIFICATION** | **DEPTH (FT)**



SOIL CLASSIFICATION	DEPTH (FT)
	0.4
	8.0
	9.0
	12.0
See MW-14S soil boring log for detailed soil classification	
	22.0

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Log of Boring **MW-15S** Sheet 1 of 2

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 436.24 NAVD 88
Drilling Agency: Summit Drilling	Date Started: 10/30/03 — Date Finished: 10/30/03
Drilling Equipment: Mobile B-57	Completion Depth: 24.1 ft. — Rock Depth: NA
Size and Type of Bit: 41/2" ID Hollow Stem Auger	Number of Samples: Disturbed — Undisturbed — Core
Casing Diameter (in) — Casing Depth (ft)	Water Level (ft.): First 12 — Completion — 24 HR
Casing Hammer — Weight (lbs) — Drop (in)	Drilling Foreman: Russel Tezlaf
Sampler: 2" ID Splitspoon	
Sampler Hammer: Auto — Weight (lbs): 140 — Drop (in): 30	Inspecting Engineer: Prithviraj Patil

Env. Sample No.	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist. BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	6" Light Brown SILT, tr f sand, tr clay, tr grass, tr roots; 6" Light Brown f SAND, tr silt, tr concrete piece	0–2	S1	SS	12	5, 12, 20, 19	0, 0	Start Boring MW-15S at 9:17.
		2–6						Hit obstruction (former concrete structure) at 2 ft bgs. Augered through concrete from 2 ft to 6 ft bgs.
51	4" Brown SILT, tr f-c sand, tr concrete pieces, tr f-m brick pieces	6–8	S2	SS	4	100/2"	13.2	Collected environmental sample MW-15S # 051 at 10:47 from 6-6.3 ft bgs.
	18" Brown SILT, some silt, tr f sand, tr clay	8–10	S3	SS	18	3, 3, 3, 3	0.4, 0.2, 0.1	
	18" Light Brown f SAND, some silt, tr clay [MOIST]	10–12	S4	SS	18	4, 4, 5, 5	0, 0, 0.1	
	18" Light Brown-Black f SAND, tr silt, tr clay [WET]	12–14	S5	SS	18	2, 1, 3, 5	0.1, 0, 0.2	Some odor.
52	12" Black f SAND, tr silt [WET]	14–16	S6	SS	12	4, 3, 5, 7	107, 137	Collected environmental sample MW-15S # 052 at 11:10 from 14-15 ft bgs. Petroleum-like odor. Slight sheen.
	12" Black f SAND, tr silt, cobbles (bottom 2") [WET]	16–18	S7	SS	12	13, 18, 32, 35	101, 97.4	Petroleum-like odor. Slight sheen.
53	18" Fine-Medium size COBBLES, some silt, tr f black sand	18–20	S8	SS	18	13, 28, 58, 41	67.4, 53.2, 69.2	Collected environmental sample MW-15S # 053 at 11:10 from 18-19.5 ft bgs. Petroleum-like odor. Slight sheen.

PPATIL2 1809102(SRD).GPJ LANGANSLGDT 3/4/04

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Log of Boring **MW-15S** Sheet 2 of 2

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 436.24 NAVD 88

Env. Sample No.	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
54	12" Fine-Medium size COBBLES, some black sand, tr silt	21	S9	SS	12	15 51 100/2"	18.4 9.5	Collected environmental sample MW-15S # 054 at 11:37 from 20-21 ft bgs. Petroleum-like odor. No sheen.
55	3" Fine-Medium size COBBLES, tr silt, tr sand	22–23	S10	SS	3	100/2"	8.4	Petroleum-like odor. No sheen.
	No Recovery.	24	S11	SS	NA	100/1"		Boring MW-15S ended at 24.1 ft bgs at 12:02. All slush inside the splitspoon.
		25–45						

FPATIL2 1809102(SR).GPJ LANGANNJ.GDT 3/4/04

MONITORING WELL CONSTRUCTION SUMMARY
Well No. MW-15S

PROJECT O&R Pike Street Former MGP Site	**PROJECT NO.** 1809102
LOCATION Port Jervis, New York	**ELEVATION AND DATUM** 436.24 NAVD 88
DRILLING AGENCY Summit Drilling Inc.	**DATE STARTED** 10/30/2003 — **DATE FINISHED** 10/30/2003
DRILLING EQUIPMENT Mobile B-57	**DRILLER** Russel Tezlaf
SIZE AND TYPE OF BIT 4-1/4" ID Hollow Stem Auger	**INSPECTOR** Prithviraj Patil

METHOD OF INSTALLATION

The 2" PVC well was constructed with a 10' screen (0.010" slot size) and 14' riser. The filter pack consisted of 13' of # 1 sand, 1' of bentonite seal over the sand, and the remaining annular space was grouted to approximately 0.4' bgs. The well was completed with a flush mount protective casing and a concrete well box.

METHOD OF WELL DEVELOPMENT

The well was pumped at approximately 0.6 gallon per minute (gpm) using a centrifugal pump until the purged water indicated turbidity value below 50 NTUs (silt free). Approximately 50 gallons were purged over a period of 1.5 hours.

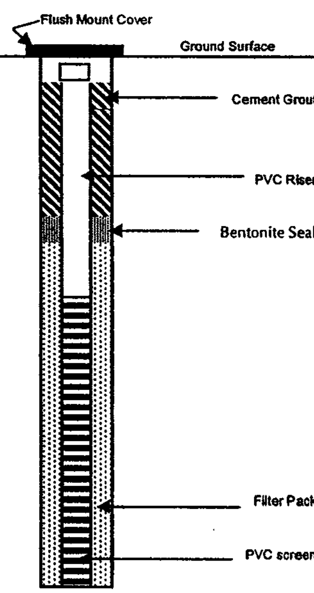
TYPE OF CASING PVC	**DIAMETER** 2"	**TYPE OF BACKFILL MATERIAL** Cement + Bentonite grout
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** Bentonite Seal
BOREHOLE DIAMETER	8"	**TYPE OF FILTER MATERIAL** # 1 Morie Sand

	ELEVATION	DEPTH
GROUND	436.52	0.0
TOP OF CASING	436.24	0.28
TOP OF SEAL	426.52	10.0
TOP OF FILTER	425.52	11.0
TOP OF SCREEN	422.52	14.0
BOTTOM OF WELL	412.52	24.00
SCREEN LENGTH	10'	
SLOT SIZE	0.010"	

GROUND WATER ELEVATIONS

DATE	ELEVATION	DEPTH
10/31/2003	422.76	13.76
11/3/2003	422.57	13.95

WELL DETAILS



SOIL CLASSIFICATION	DEPTH (FT)
	0.4
	10.0
	11.0
	14.0
See MW-15S soil boring log for detailed soil classification	
	24.0

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Log of Boring **MW-16S**

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 435.27 NAVD 88
Drilling Agency: Summit Drilling	Date Started: 10/29/03 — Date Finished: 10/29/03
Drilling Equipment: Mobile B-57	Completion Depth: 20.2 ft. — Rock Depth: NA
Size and Type of Bit: 41/2" ID Hollow Stem Auger	Number of Samples: Disturbed — Undisturbed — Core
Casing Diameter (in) — Casing Depth (ft)	Water Level (ft.): First ∇ 14 — Completion ▼ — 24 HR. ▼
Casing Hammer — Weight (lbs) — Drop (in)	Drilling Foreman: Russel Tezlaf
Sampler: 2" ID Splitspoon	
Sampler Hammer: Auto — Weight (lbs): 140 — Drop (in): 30	Inspecting Engineer: Prithviraj Patil

Env. Sample No.	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist. BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	6" Asphalt	0						Start Boring MW-16S at 11:10. Augered 2 ft bgs.
	Cuttings - Light-Dark Brown SILT, some f-m gravel, tr f sand	1						
	12" Dark Tan SILT, tr f sand, tr clay; 6" Dark Brown SILT, tr f sand, tr clay, tr clinker-like material (CLM) [MOIST]	2–4	S1	SS	18	2, 3, 2, 2	0, 0, 0	
	6" Dark Brown-Tan SILT, tr f sand, tr clay, tr CLM [MOIST]	4–6	S2	SS	6	3, 3, 2, 3	0	
	12" Light Brown f SAND, some silt, tr clay [MOIST]	6–8	S3	SS	12	4, 4, 3, 4	0, 0	
	12" Light Brown f SAND, tr silt [MOIST]	8–10	S4	SS	12	4, 2, 3, 4	0, 0	
	18" Light Brown f SAND, tr silt	10–12	S5	SS	18	2, 4, 2, 3	0, 0, 0	
26	16" Light Brown f SAND, tr silt	12–14	S6	SS	16	3, 3, 4, 3	0, 0, 0	Collected environmental sample MW-16S # 026 at 11:44 from 12-13.3 ft bgs.
	12" Light Brown f SAND, tr silt [WET]	∇ 14–16	S7	SS	12	3, 3, 4, 4	0, 0	
27	12" Light Brown f SAND, tr silt, some (f-m) gravel [WET]	16–18	S8	SS	12	12, 15, 31, 40	37.8, 40.2	Collected environmental sample MW-16S # 027 at 12:01 from 16-17 ft bgs. Petroleum-like odor. Slight sheen.
	6" Light Brown f SAND, some silt, medium size cobbles (bottom 4")	18–20	S9	SS	6	58, 40, 37, 29	34.2	Petroleum-like odor. Slight sheen.

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Log of Boring **MW-16S** Sheet 2 of 2

Project	Project No.
O&R Pike Street Former MGP Site	1809102
Location	**Elevation and Datum**
Port Jervis, New York	435.27 NAVD 88

Env. Sample No.	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
28	4" Fine-Medium size COBBLES, some silt, tr f sand	21	S10	SS	4	100/2"	1.2	Collected environmental sample MW-16S # 028 at 1:46 from 20-20.3 ft bgs. Slight Petroleum-like odor. No sheen.
		22						Boring MW-16S ended at 20.2 ft bgs at 1:43.
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						
		34						
		35						
		36						
		37						
		38						
		39						
		40						
		41						
		42						
		43						
		44						
		45						

MONITORING WELL CONSTRUCTION SUMMARY
Well No. MW-16S

PROJECT O&R Pike Street Former MGP Site	**PROJECT NO.** 1809102
LOCATION Port Jervis, New York	**ELEVATION AND DATUM** 435.27 NAVD 88
DRILLING AGENCY Summit Drilling Inc.	**DATE STARTED** 10/29/2003 — **DATE FINISHED** 10/29/2003
DRILLING EQUIPMENT Mobile B-57	**DRILLER** Russel Tezlaf
SIZE AND TYPE OF BIT 4-1/4" ID Hollow Stem Auger	**INSPECTOR** Prithviraj Patil

METHOD OF INSTALLATION

The 2" PVC well was constructed with a 10' screen (0.010" slot size) and 10' riser. The filter pack consisted of 13' of # 1 sand, 1' of bentonite seal over the sand, and the remaining annular space was grouted to approximately 0.5' bgs. The well was completed with a flush mount protective casing and a concrete well box.

METHOD OF WELL DEVELOPMENT

The well was pumped at approximately 0.5 gallon per minute (gpm) using a centrifugal pump until the purged water indicated turbidity value below 50 NTUs (silt free). Approximately 45 gallons were purged over a period of 1.5 hours.

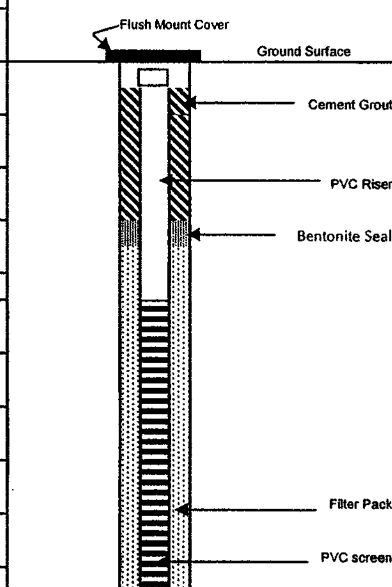
TYPE OF CASING PVC	**DIAMETER** 2"	**TYPE OF BACKFILL MATERIAL** Cement + Bentonite grout
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** Bentonite Seal
BOREHOLE DIAMETER	8"	**TYPE OF FILTER MATERIAL** # 1 Morie Sand

	ELEVATION	DEPTH
GROUND	435.63	0.0
TOP OF CASING	435.27	0.36
TOP OF SEAL	429.63	6.0
TOP OF FILTER	428.63	7.0
TOP OF SCREEN	425.63	10.0
BOTTOM OF WELL	415.63	20.00
SCREEN LENGTH	10'	
SLOT SIZE	0.010"	

GROUND WATER ELEVATIONS

DATE	ELEVATION	DEPTH
10/30/2003	421.98	13.65
11/3/2003	422.62	13.01

WELL DETAILS | **SOIL CLASSIFICATION** | **DEPTH (FT)**



SOIL CLASSIFICATION	DEPTH (FT)
	0.5
	6.0
	7.0
	10.0
See MW-16S soil boring log for detailed soil classification	
	20.0

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Log of Boring **MW-17S** Sheet 1 of

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 437.86 NAVD 88
Drilling Agency: Summit Drilling	Date Started: 10/31/03 — Date Finished: 10/31/03
Drilling Equipment: Mobile B-57	Completion Depth: 22.4 ft. — Rock Depth: NA
Size and Type of Bit: 41/2" ID Hollow Stem Auger	Number of Samples — Disturbed: — Undisturbed: — Core:
Casing Diameter (in): — Casing Depth (ft):	Water Level (ft.) — First: 12 — Completion: — 24 HR.:
Casing Hammer: — Weight (lbs): — Drop (in):	Drilling Foreman: Russel Tezlaf
Sampler: 2" ID Splitspoon	
Sampler Hammer: Auto — Weight (lbs): 140 — Drop (in): 30	Inspecting Engineer: Prithviraj Patil

Env. Sample No.	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	6" Asphalt.							
	Cuttings - Light-Dark Brown SILT, f sand, some gravel	1						Start Boring MW-17S at 9:25. Augered 2 ft bgs.
	12" Brown SILT, some f sand, tr clay [MOIST]	2–4	S1	SS	12	1, 1, 2, 1	0, 0	
	12" Brown SILT, tr f sand, tr clay [MOIST]	4–6	S2	SS	12	3, 2, 1, 3	0, 0	
	18" Brown f SAND, tr silt, tr clay [MOIST]	6–8	S3	SS	18	4, 3, 2, 4	0, 0, 0	
	18" Brown f SAND, tr silt [MOIST]	8–10	S4	SS	18	4, 4, 4, 2	0, 0, 0	
56	18" Brown f SAND, tr silt [MOIST]	10–12	S5	SS	18	5, 4, 2, 5	0, 0, 0	Collected environmental sample MW-17S # 056 at 9:54 from 10-11.5 ft bgs.
	18" Brown f SAND, tr silt [WET]	12–14	S6	SS	18	6, 5, 4, 3	0, 0, 0	
	12" Brown f SAND, silt [WET]	14–16	S7	SS	12	8, 11, 12, 15	0, 0	
57	12" Brown f SAND, tr silt, f-m size cobbles (bottom 4") [WET]	16–18	S8	SS	12	12, 15, 32, 40	0, 0	Collected environmental sample MW-17S # 057 at 10:10 from 16-17 ft bgs. Hard Augering. Augers grinding on cobbles. Augered to 18 ft bgs.
	No Recovery	18–19	S9	SS	NA	100/2"		Hard Augering. Augers grinding on cobbles. Augered to 20 ft bgs.

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Log of Boring **MW-17S**

Project	Project No.
O&R Pike Street Former MGP Site	1809102
Location	**Elevation and Datum**
Port Jervis, New York	437.86 NAVD 88

Env. Sample No.	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	No Recovery	21	S10	SS	NA	100/1"		Hard Augering. Augers grinding on cobbles. Augered to 22 ft bgs.
58	4" Brown-Gray f SAND, some silt, f-m cobbles	22	S1	SS	4	100/5"	137	Collected environmental sample MW-17S # 058 at 10:52 from 22-22.4 ft bgs. Petroleum-like odor. No sheen. Boring MW-17S ended at 22.4 ft bgs at 10:52.
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						
		34						
		35						
		36						
		37						
		38						
		39						
		40						
		41						
		42						
		43						
		44						
		45						

MONITORING WELL CONSTRUCTION SUMMARY
Well No. MW-17S

PROJECT O&R Pike Street Former MGP Site	**PROJECT NO.** 1809102
LOCATION Port Jervis, New York	**ELEVATION AND DATUM** 437.86 NAVD 88
DRILLING AGENCY Summit Drilling Inc.	**DATE STARTED** 10/31/2003 — **DATE FINISHED** 10/31/2003
DRILLING EQUIPMENT Mobile B-57	**DRILLER** Russel Tezlaf
SIZE AND TYPE OF BIT 4-1/4" ID Hollow Stem Auger	**INSPECTOR** Prithviraj Patil

METHOD OF INSTALLATION

The 2" PVC well was constructed with a 10' screen (0.010" slot size) and 12' riser. The filter pack consisted of 13' of # 1 sand, 1' of bentonite seal over the sand, and the remaining annular space was grouted to approximately 0.5' bgs. The well was completed with a flush mount protective casing and a concrete well box.

METHOD OF WELL DEVELOPMENT

The well was pumped at approximately 0.6 gallon per minute (gpm) using a centrifugal pump until the purged water indicated turbidity value below 50 NTUs (silt free). Approximately 29 gallons were purged over a period of 0.75 hours.

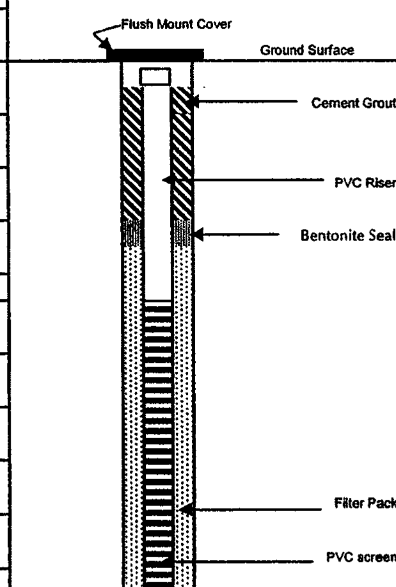
TYPE OF CASING PVC	**DIAMETER** 2"	**TYPE OF BACKFILL MATERIAL** Cement + Bentonite grout
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** Bentonite Seal
BOREHOLE DIAMETER	8"	**TYPE OF FILTER MATERIAL** # 1 Morie Sand

	ELEVATION	DEPTH
GROUND	438.26	0.0
TOP OF CASING	437.86	0.40
TOP OF SEAL	430.26	8.0
TOP OF FILTER	429.26	9.0
TOP OF SCREEN	426.26	12.0
BOTTOM OF WELL	416.26	22.00
SCREEN LENGTH	10'	
SLOT SIZE	0.010"	

GROUND WATER ELEVATIONS

DATE	ELEVATION	DEPTH
10/31/2003	423.72	14.54
11/3/2003	421.88	16.38

WELL DETAILS



SOIL CLASSIFICATION	DEPTH (FT)
	0.5
	8.0
	9.0
	12.0
See MW-17S soil boring log for detailed soil classification	
	22.0

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Log of Boring MW-17I Sheet 1 of 2

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 437.78 NAVD 88
Drilling Agency: Summit Drilling	Date Started: 11/5/03 / Date Finished: 11/6/03
Drilling Equipment: Air Rotary Rig (GUSPECH AR 1100)	Completion Depth: 34 ft. / Rock Depth: NA ft.
Size and Type of Bit: 6" Tricone Roller Bit	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in) / Casing Depth (ft)	Water Level (ft.): First ▽ NA / Completion ▼ / 24 HR. ▼
Casing Hammer / Weight (lbs) / Drop (in)	Drilling Foreman: Dan Burgess
Sampler: NA	Inspecting Engineer: Prithviraj Patil/Gaetano Termini
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Elev. (ft)	Sample Description	Symbol Log	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+437.8	(0'-5') Brown f SAND, some silt, gravel		0					PID = 0.0 ppm from (0'-25') ft bgs.
+432.8	(5'-10') Brown f SAND, some silt, gravel		5					
+427.8	(10'-15') Brown f SAND, some silt, gravel		10					
+422.8	(15'-20') Brown f SAND, some silt, gravel		15					

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Project	Project No.
O&R Pike Street Former MGP Site	1809102
Location	**Elevation and Datum**
Port Jervis, New York	437.78 NAVD 88

Elev. (ft)	Sample Description	Symbol Log	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist. Bl/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+417.8	(20'-25') Brown f SAND, some silt, gravel		21–24					
+412.8	(25'-30') Brown f-m SAND, some fine gravel, tr silt		25					PID = 0.3 ppm. Hard augering at 25' bgs. Some odor to soil cuttings.
			28					PID = 0.9 ppm. PID readings dropped to 0.2 ppm. Slight sheen observed on the water coming out along with the soil cuttings.
+407.8	(30'-34') Brown coarse SAND and GRAVEL, some large pieces of gravel		30					
+403.8			34					Boring MW-17I ended at 34 ft bgs at .
			35–45					

MONITORING WELL CONSTRUCTION SUMMARY
Well No. MW-17I

PROJECT O&R Pike Street Former MGP Site	**PROJECT NO.** 1809102
LOCATION Port Jervis, New York	**ELEVATION AND DATUM** 437.78 NAVD 88
DRILLING AGENCY Summit Drilling Inc.	**DATE STARTED** 11/5/2003 — **DATE FINISHED** 11/7/2003
DRILLING EQUIPMENT Air Rotary Rig (GUSPECH AR 1100)	**DRILLER** Dan Burgess
SIZE AND TYPE OF BIT 6" Tricone Roller Bit	**INSPECTOR** Prithviraj Patil/Gaetano Termini

METHOD OF INSTALLATION

The 2" PVC well was constructed with a 10' screen (0.010" slot size) and 27' riser. The filter pack consisted of 13' of # 1 sand, 1' of bentonite seal over the sand, and the remaining annular space was grouted to approximately 0.5' bgs. The well was completed with a flush mount protective casing and a concrete well box.

METHOD OF WELL DEVELOPMENT

The well was pumped at approximately 0.7 gallon per minute (gpm) using a centrifugal pump until the purged water indicated turbidity value below 50 NTUs (silt free). Approximately 55 gallons were purged over a period of 1.25 hours.

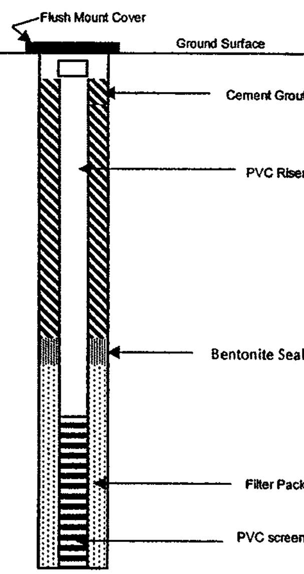
TYPE OF CASING PVC	**DIAMETER** 2"	**TYPE OF BACKFILL MATERIAL** Cement + Bentonite grout
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** Bentonite Seal
BOREHOLE DIAMETER	8"	**TYPE OF FILTER MATERIAL** # 1 Morie Sand

	ELEVATION	DEPTH
GROUND	438.20	0.0
TOP OF CASING	437.78	0.42
TOP OF SEAL	415.20	23.0
TOP OF FILTER	414.20	24.0
TOP OF SCREEN	411.20	27.0
BOTTOM OF WELL	401.20	37.00
SCREEN LENGTH	10'	
SLOT SIZE	0.010"	

GROUND WATER ELEVATIONS

DATE	ELEVATION	DEPTH
11/11/2003	420.19	18.01

WELL DETAILS



SOIL CLASSIFICATION	DEPTH (FT)
	0.5
See MW-17I soil boring log for detailed soil classification	
	23.0
	24.0
	27.0
	37.0

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Log of Boring **MW-18I**

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 438.42 NAVD 88
Drilling Agency: Summit Drilling	Date Started: 11/7/03 / Date Finished: 11/10/04
Drilling Equipment: Air Rotary Rig (GUSPECH AR 1100)	Completion Depth: 57 ft. / Rock Depth: NA ft.
Size and Type of Bit: 6" Tricone Roller Bit	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in) / Casing Depth (ft)	Water Level (ft.): First ∇ NA / Completion ▼ / 24 HR. ▼
Casing Hammer / Weight (lbs) / Drop (in)	Drilling Foreman: Dan Burgess
Sampler: NA	Inspecting Engineer: Gaetano Termini
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Elev. (ft)	Sample Description	Symbol Log	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist Bl/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+438.4	(0'-5') Brown f-m SAND, some silt, tr gravel		0					PID = 0.0 ppm (0'-30') ft bgs.
+433.4	(5'-10) Brown f-m SAND, some silt, tr gravel		5					
+428.4	(10'-15') Brown f-m SAND, some silt, tr gravel		10					
+423.4	(15'-20') Light Brown f-m SAND, some f-m gravel, tr silt		15					Petroleum odor.

Depth scale: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

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Log of Boring MW-18I Sheet 2 of 3

Project	Project No.
O&R Pike Street Former MGP Site	1809102
Location	**Elevation and Datum**
Port Jervis, New York	438.42 NAVD 88

Elev. (ft)	Sample Description	Symbol Log	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in		Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+418.4	(20'-25') Light Brown f-m SAND, some f-m gravel, tr silt		20–25						
+413.4	(25'-30') Light Brown f-m SAND, some f-m gravel, tr silt		25–30						Petroleum like odor in soil.
+408.4	(30'-35') f-m GRAVEL, c-f sand, silt		30–35						PID = 36.2 ppm. PID readings drop.
+403.4	(35'-40') Brown-Light brown SAND, some silt, tr f gravel		35–40						Sheen observed on water coming out along with soil cuttings.
+398.4	(40'-45') Brown-Light brown SAND, some silt, tr f gravel		40–45						
+393.4			45						

BORING 1809102(GR).GPJ LANGAN.GDT 4/15/04

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Log of Boring MW-18I Sheet 3 of 3

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 438.42 NAVD 88

Elev. (ft)	Sample Description	Symbol Log	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	(45'-50') Brown-Light brown SAND, some silt, tr f gravel		46					
			47					
			48					
			49					
+388.4	(50'-54') Brown-Light brown SAND, some silt, tr f gravel		50					
			51					
			52					
			53					
+384.4			54					Boring MW-18I ended at 54 ft bgs at .
			55					
			56					
			57					
			58					
			59					
			60					
			61					
			62					
			63					
			64					
			65					
			66					
			67					
			68					
			69					
			70					

MONITORING WELL CONSTRUCTION SUMMARY
Well No. MW-18I

PROJECT O&R Pike Street Former MGP Site	**PROJECT NO.** 1809102
LOCATION Port Jervis, New York	**ELEVATION AND DATUM** 438.42 NAVD 88
DRILLING AGENCY Summit Drilling Inc.	**DATE STARTED** 11/5/2003 — **DATE FINISHED** 11/7/2003
DRILLING EQUIPMENT Air Rotary Rig (GUSPECH AR 1100)	**DRILLER** Dan Burgess
SIZE AND TYPE OF BIT 6" Tricone Roller Bit	**INSPECTOR** Prithviraj Patil/Gaetano Termini

METHOD OF INSTALLATION

The 2" PVC well was constructed with a 10' screen (0.010" slot size) and 44' riser. The filter pack consisted of 13' of # 1 sand, 1' of bentonite seal over the sand, and the remaining annular space was grouted to approximately 0.5' bgs. The well was completed with a flush mount protective casing and a concrete well box.

METHOD OF WELL DEVELOPMENT

The well was pumped at approximately 0.8 gallons per minute (gpm) using a centrifugal pump followed by a whale pump. Approximately 100 gallons were purged over a period of 2.0 hours.

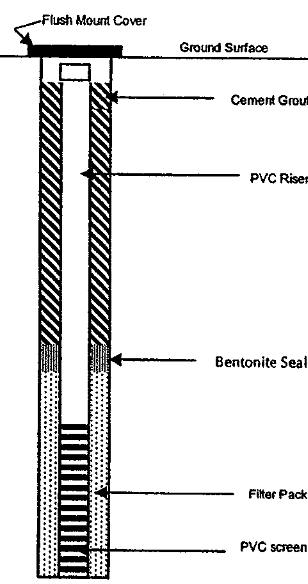
TYPE OF CASING PVC	**DIAMETER** 2"	**TYPE OF BACKFILL MATERIAL** Cement + Bentonite grout
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** Bentonite Seal
BOREHOLE DIAMETER	8"	**TYPE OF FILTER MATERIAL** # 1 Morie Sand

	ELEVATION	DEPTH
GROUND	439.13	0.0
TOP OF CASING	438.42	0.71
TOP OF SEAL	399.13	40.0
TOP OF FILTER	398.13	41.0
TOP OF SCREEN	395.13	44.0
BOTTOM OF WELL	385.13	54.00
SCREEN LENGTH	10'	
SLOT SIZE	0.010"	

GROUND WATER ELEVATIONS

DATE	ELEVATION	DEPTH
11/11/2003	420.53	18.60
DATE	ELEVATION	DEPTH
DATE	ELEVATION	DEPTH
DATE	ELEVATION	DEPTH
DATE	ELEVATION	DEPTH
DATE	ELEVATION	DEPTH

WELL DETAILS



SOIL CLASSIFICATION	DEPTH (FT)
	0.5
See MW-17I soil boring log for detailed soil classification	
	40.0
	41.0
	44.0
	54.00

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Log of Boring **MW-19S** Sheet 1 of 2

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 435.01 NAVD 88
Drilling Agency: Summit Drilling	Date Started: 10/31/03 — Date Finished: 10/31/03
Drilling Equipment: Mobile B-57	Completion Depth: 22 ft. — Rock Depth: NA
Size and Type of Bit: 41/2" ID Hollow Stem Auger	Number of Samples — Disturbed: — Undisturbed: — Core:
Casing Diameter (in): — Casing Depth (ft):	Water Level (ft.) — First: 12 — Completion: — 24 HR.:
Casing Hammer: — Weight (lbs): — Drop (in):	Drilling Foreman: Russel Tezlaf
Sampler: 2" ID Splitspoon	
Sampler Hammer: Auto — Weight (lbs): 140 — Drop (in): 30	Inspecting Engineer: Prithviraj Patil

Env. Sample No.	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	6" Asphalt.							Start Boring MW-19S at 1:45. Augered 2 ft bgs.
	Cuttings - Brown-Black f SAND, tr silt, tr f gravel	1						
	18" Brown f SAND, silt, tr f gravel, tr clay [MOIST]	2–4	S1	SS	18	3, 2, 1, 2	0, 0, 0	
	18" Brown f SAND, tr silt [MOIST]	4–6	S2	SS	18	3, 2, 3, 1	0, 0, 0	
	18" Brown f SAND, tr silt [MOIST]	6–8	S3	SS	18	4, 4, 3, 2	0, 0, 0	
	14" Brown f SAND, tr silt [MOIST]	8–10	S4	SS	14	5, 3, 5, 8	0, 0, 0	
59 61	16" Brown f SAND, tr silt [MOIST]	10–12	S5	SS	16	6, 5, 4, 4	0, 0, 0	Collected environmental and duplicate sample MW-19S # 059, 061 at 2:17 from 10-11.3 ft bgs.
	12" Brown f SAND, tr silt [WET]	12–14	S6	SS	12	5, 4, 4, 5	0, 0	
	17" Brown f SAND, tr silt [WET]	14–16	S7	SS	17	4, 8, 8, 5	0, 0, 0	
60	12" Brown-Tan f SAND, tr silt, some f gravel [WET]	16–18	S8	SS	12	11, 2, 1, 8	0, 0	Collected environmental sample MW-19S # 060 at 2:40 from 16-17 ft bgs.
	Fine-Medium COBBLES, some silt, tr f sand [WET]	18–19	S9	SS	NA	60, 100/6"		Hard Augering. Augers grinding on cobbles. Augered to 20 ft bgs. All slush inside the splitspoon.

PPATIL2 1809102(SR).GPJ LANGANHJ.GDT 3/4/04

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Log of Boring **MW-19S** Sheet 2 of 2

Project	Project No.
O&R Pike Street Former MGP Site	1809102
Location	**Elevation and Datum**
Port Jervis, New York	435.01 NAVD 88

Env. Sample No.	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	No Recovery	21	S10	SS	NA	40 100/2"		Hard Augering. Augers grinding on cobbles. Augered to 22 ft bgs. All slush inside the splitspoon.
		22						Boring MW-15S ended at 22 ft bgs at 2:55.
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						
		34						
		35						
		36						
		37						
		38						
		39						
		40						
		41						
		42						
		43						
		44						
		45						

MONITORING WELL CONSTRUCTION SUMMARY
Well No. MW-19S

PROJECT O&R Pike Street Former MGP Site	**PROJECT NO.** 1809102
LOCATION Port Jervis, New York	**ELEVATION AND DATUM** 435.01 NAVD 88
DRILLING AGENCY Summit Drilling Inc.	**DATE STARTED** 10/31/2003 **DATE FINISHED** 10/31/2003
DRILLING EQUIPMENT Mobile B-57	**DRILLER** Russel Tezlaf
SIZE AND TYPE OF BIT 4-1/4" ID Hollow Stem Auger	**INSPECTOR** Prithviraj Patil

METHOD OF INSTALLATION

The 2" PVC well was constructed with a 10' screen (0.010" slot size) and 12' riser. The filter pack consisted of 13' of # 1 sand, 1' of bentonite seal over the sand, and the remaining annular space was grouted to approximately 0.5' bgs. The well was completed with a flush mount protective casing and a concrete well box.

METHOD OF WELL DEVELOPMENT

The well was pumped at approximately 1 gallon per minute (gpm) using a centrifugal pump until the purged water indicated turbidity value below 50 NTUs (silt free). Approximately 35 gallons were purged over a period of 1 hour.

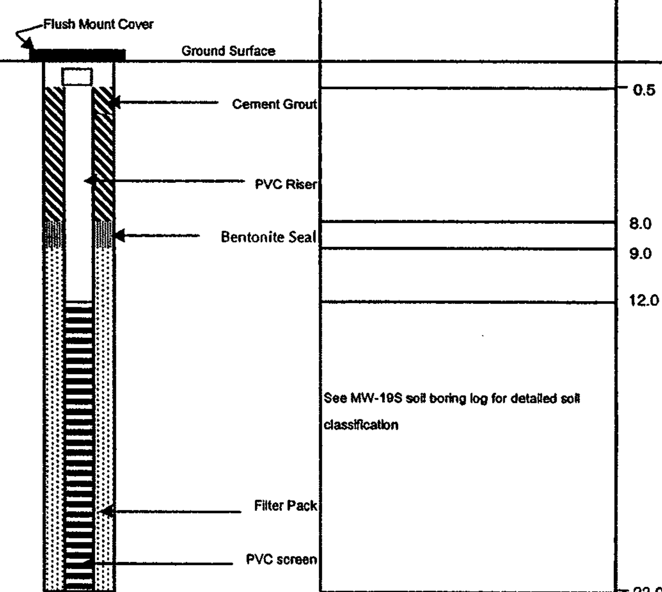
TYPE OF CASING PVC	**DIAMETER** 2"	**TYPE OF BACKFILL MATERIAL** Cement + Bentonite grout
TYPE OF SCREEN PVC	**DIAMETER** 2"	**TYPE OF SEAL MATERIAL** Bentonite Seal
BOREHOLE DIAMETER	8"	**TYPE OF FILTER MATERIAL** # 1 Morie Sand

	ELEVATION	DEPTH
GROUND	435.38	0.0
TOP OF CASING	435.01	0.37
TOP OF SEAL	427.38	8.0
TOP OF FILTER	426.38	9.0
TOP OF SCREEN	423.38	12.0
BOTTOM OF WELL	413.38	22.00
SCREEN LENGTH	10'	
SLOT SIZE	0.010"	

GROUND WATER ELEVATIONS

DATE	ELEVATION	DEPTH
11/3/2003	421.61	13.77

WELL DETAILS | **SOIL CLASSIFICATION** | **DEPTH (FT)**



See MW-19S soil boring log for detailed soil classification

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River Drive Center 1, Elmwood Park, NJ 07407

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Log of Boring L TWP-1 Sheet 1 of 1

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 437.22 NAVD 88
Drilling Agency: Summit Drilling	Date Started: 10/28/03 / Date Finished: 10/28/03
Drilling Equipment: Mobile B-57	Completion Depth: 19 ft. / Rock Depth: NA
Size and Type of Bit: 41/2" ID Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in): / Casing Depth (ft):	Water Level (ft.): First ▽ 16 / Completion ▼ / 24 HR. ▽
Casing Hammer: / Weight (lbs): / Drop (in):	Drilling Foreman: Russel Tezlaf
Sampler: 2" ID Splitspoon	Inspecting Engineer: Prithviraj Patil
Sampler Hammer: Auto / Weight (lbs): 140 / Drop (in): 30	

Env. Sample No.	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	6" Light Brown f SAND, tr silt, tr grass, tr clay 6" Light Brown f SAND, silt, tr clay	0–2	S1	SS	12	5, 6, 2, 2	0, 0	Start Boring TWP-1 at 10:05.
	12" Light Brown f SAND, tr silt [MOIST]	2–4	S2	SS	12	1, 2, 1, 1	0, 0	
	12" Light Brown f SAND, tr silt [MOIST]	4–6	S3	SS	12	3, 3, 3, 4	0, 0	
	18" Light Brown f SAND, tr silt [MOIST]	6–8	S4	SS	18	5, 3, 3, 2	0, 0, 0	
	18" Light Brown f SAND, tr silt, tr clay (bottom 2") [MOIST]	8–10	S5	SS	18	4, 3, 3, 5	0, 0, 0	
	18" Light Brown f SILT, sand [MOIST]	10–12	S6	SS	18	5, 4, 6, 5	0, 0, 0	
	18" Light Brown f SAND, tr silt [MOIST]	12–14	S7	SS	18	6, 5, 8, 6	0, 0, 0	
13 14	18" Light Brown f SAND, tr silt [MOIST]	14–16	S8	SS	18	6, 7, 8, 6	0, 0, 0	Collected environmental sample and a duplicate sample TWP-1 # 013, 014 at 10:42 from 14-15.5 ft bgs.
15	12" Light Brown f SAND, tr silt [WET]	16–18 (▽ 16)	S9	SS	12	6, 4, 8, 13	0, 0	Collected environmental sample TWP-1 # 015 at 10:57 from 16-17 ft bgs.
		18–19						Augered to 19 ft bgs.
		19						Boring TWP-1 ended at 19 ft bgs at 10:59.

PPATIL2 1809102(SRI).GPJ LANGANNJ.GDT 3/4/04

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Log of Boring L-TWP-2 Sheet 1 of 2

Project: O&R Pike Street Former MGP Site	Project No.: 1809102
Location: Port Jervis, New York	Elevation and Datum: 438.49 NAVD 88
Drilling Agency: Summit Drilling	Date Started: 10/28/03 / Date Finished: 10/28/03
Drilling Equipment: Mobile B-57	Completion Depth: 20 ft. / Rock Depth: NA
Size and Type of Bit: 41/2" ID Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in) / Casing Depth (ft)	Water Level (ft.): First ▽ 16 / Completion ▼ / 24 HR. ▼
Casing Hammer / Weight (lbs) / Drop (in)	Drilling Foreman: Russel Tezlaf
Sampler: 2" ID Splitspoon	
Sampler Hammer: Auto / Weight (lbs): 140 / Drop (in): 30	Inspecting Engineer: Prithviraj Patil

Env. Sample No.	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	14" Light Brown f SAND, tr silt 4" Dark Brown f SAND, tr clinker-like material (CLM), tr clay	0–2	S1	SS	18	3, 5, 5, 4	0, 0, 0	Start Boring TWP-2 at 12:43.
	12" Light Brown f SAND, tr CLM, tr silt [MOIST]	2–4	S2	SS	12	3, 1, 1, 2	0, 0	
	18" Light-Dark Brown f SAND, some silt, tr clay [MOIST]	4–6	S3	SS	18	2, 3, 1, 4	0, 0, 0	
	18" Light Brown f SAND, tr silt [MOIST]	6–8	S4	SS	18	3, 3, 3, 4	0, 0, 0	
	18" Light Brown f SAND, tr silt [MOIST]	8–10	S5	SS	18	5, 7, 5, 5	0, 0, 0	
	12" Light Brown f SAND, tr silt [MOIST]	10–12	S6	SS	12	5, 6, 4, 4	0, 0	
	18" Light Brown f SAND, tr silt [MOIST]	12–14	S7	SS	18	3, 2, 3, 5	0, 0, 0	
19	18" Light Brown f SAND, some silt, clay lens (bottom 1") [MOIST]	14–16	S8	SS	18	6, 3, 3, 5	0, 0, 0	Collected environmental sample TWP-2 # 019 at 1:22 from 14-15.5 ft bgs.
	12" Light Brown f SAND, tr silt, tr clay [WET]	16–18 ▽	S9	SS	12	5, 3, 3, 4	0, 0	
20	12" Light Brown f SAND, tr silt, tr clay, medium size rock at bottom of splitspoon [WET]	18–20	S10	SS	12	3, 4, 13, 22	0, 0	Collected environmental sample TWP-2 # 020 at 1:33 from 18-19 ft bgs.

PPATIL2 1809102(SRI).GPJ LANGANNJ.GDT 3/4/04

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Log of Boring **TWP-2** Sheet 2 of 2

Project	Project No.
O&R Pike Street Former MGP Site	1809102
Location	**Elevation and Datum**
Port Jervis, New York	438.49 NAVD 88

Env. Sample No.	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		21 – 45						Boring TWP-2 ended at 20 ft bgs at 1:30.

PFATIL2 1809102(SRI).GPJ LANGANNJ.GDT 3/4/04

SRI Wells
Completed by RETEC

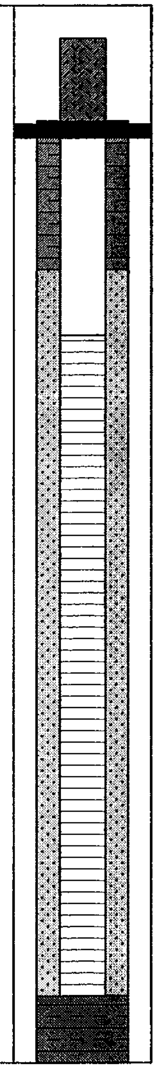
RETEC
1001 W Seneca St, Suite 204
Ithaca, NY 14850

Well ID: TW1/RBB1

Project Name:	Port Jervis MGP Site	**Drilling Method:**	Tripod and Cathead
Project Number:	ORAN2-18420	**Sampling Method:**	2 ft Split-Spoon
Date Started:	9/13/04	**Ground Elevation (ft/msl):**	421.23
Date Finished:	9/14/04	**Total Depth (ft):**	13.0 ft bgs
Drilling Company:	Aqua Survey	**Logged By:**	James Edwards

Depth (Feet)	Blow Counts	Recovery (Feet)	PID (ppm)	Sample ID	USCS	Geologic Description	Remarks
2 to 0						Ground surface.	Stick-up well casing.
0 to -2	NA	0.8	0.0		SM	Brown medium-fine SAND, some angular gravel; moist.	Bentonite seal from 0-2 ft bgs.
-2 to -4	NA	0.9	0.0	RBB1 (3.3-4.3)		Brown medium-coarse SAND and rounded gravel. Becomes wet at 3.5 ft bgs. Brown and gray SAND and rounded-angular gravel; wet.	
-4 to -6	NA	1.9	0.2				#2 Sand from 2-13 ft bgs.
-6 to -8	NA	1.9	0.3			Brown and gray SAND and angular gravel; firm, wet.	1.5", 0.020 Slot PVC screen from 3-13 ft bgs.
-8 to -10	NA	1.0	0.4		GM	Brown rounded-subangular GRAVEL, some coarse SAND; wet.	
-10 to -12	NA	1.0	0.4			Gray GRAVEL, some coarse sand; wet.	
-12 to -14	NA	1.2	0.6	RBB1 (13-14)		Gray and brown GRAVEL, some gray coarse sand; wet.	Bentonite seal from 13-14 ft bgs.

Well Construction



Remarks: Samples analyzed for BTEXs, PAHs, TAL metals and cyanide.

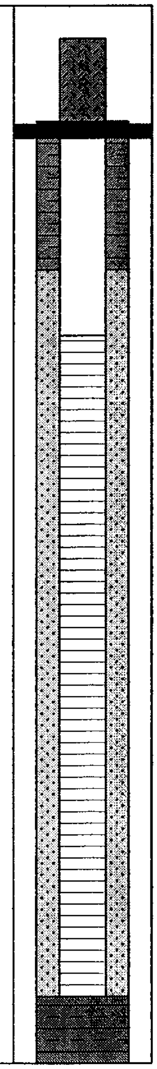
RETEC
1001 W Seneca St, Suite 204
Ithaca, NY 14850

Well ID: TW2/RBB3

Project Name:	Port Jervis MGP Site	**Drilling Method:**	Tripod and Cathead
Project Number:	ORAN2-18420	**Sampling Method:**	2 ft Split-Spoon
Date Started:	9/14/04	**Ground Elevation (ft/msl):**	420.23
Date Finished:	9/15/04	**Total Depth (ft):**	14.0 ft bgs
Drilling Company:	Aqua Survey	**Logged By:**	James Edwards

Depth (Feet)	Blow Counts	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Geologic Description	Remarks
2 to 0								Ground Surface.	Stick-up well casing.
0 to -2	NA	1.0	0.0				SM	Brown fine-medium SAND, trace gravel and roots; moist.	Bentonite seal from 0-2 ft bgs.
-2 to -4	NA	1.3	0.1	RBB3 (3-4)	3-4		GM	Gray and brown GRAVEL, some gray fine-coarse sand; moist. Becomes wet at 3.1 ft bgs.	#2 Sand from 2-13 ft bgs.
-4 to -6	NA	0.7	0.3				SM	Gray medium SAND, some angular gravel, trace roots; wet.	1.5", 0.020 Slot PVC screen from 3-13 ft bgs.
-6 to -8	NA	0.9	0.5				GM	Gray angular GRAVEL, some gray coarse sand, trace reddish sandstone fragments; wet.	
-8 to -10	NA	1.6	0.1				GM	Gray angular GRAVEL, some coarse sand; loose, wet.	
-10 to -12	NA	1.3	1.2				GM	Gray and brown coarse GRAVEL; wet.	
-12 to -14	NA	1.2	0.3	RBB3 (12-14)	12-14		SM	Gray and brown, fine-medium SAND, some angular gravel; wet.	Bentonite seal from 13-14 ft bgs.

Well Construction



Remarks: Sample analyzed for BTEXs, PAHs, TAL metals and cyanide.

RETEC
1001 W Seneca St, Suite 204
Ithaca, NY 14850

Well ID: TW3/RBB4

Project Name:	Port Jervis MGP Site	**Drilling Method:**	Tripod and Cathead
Project Number:	ORAN2-18420	**Sampling Method:**	Split-Spoon
Date Started:	9/16/04	**Ground Elevation (ft/msl):**	422.58
Date Finished:	10/14/04	**Total Depth (ft):**	34.0 ft bgs
Drilling Company:	Aqua Survey	**Logged By:**	James Edwards/Jesse Lloyd

Depth (Feet)	Blow Counts	Recovery (Feet)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Geologic Description	Remarks	Well Construction
2										
1									Stick-up well casing.	
0								Ground surface.		
-1	NA	0.9	0.2					Brown fine SAND; loose, moist.	Bentonite seal from 0-4 ft bgs.	
-2							SM	Gray medium SAND, trace coal fragments; moist.		
-3	NA	0.8	0.6					Becomes wet at 3.8 ft bgs.		
-4				RBB4 (3.8-4.8)				Gray GRAVEL; loose, wet.	#2 Sand from 4-8 ft bgs.	
-5	NA	0.4	1.5				GM			
-6								Gray medium-coarse SAND, some angular gravel; wet.	Port #1, TW-3(6'), at 6 ft bgs.	
-7	NA	1.7	1.7				SM			
-8								Gray subrounded-subangular GRAVEL, some gray fine sand; wet.	Bentonite seal from 8-18 ft bgs.	
-9	NA	1.4	3.8							
-10							GM			
-11	NA	1.2	1.4					Gray rounded-subangular GRAVEL, some gray fine sand; wet.		
-12			1.1					Gray coarse SAND; wet.		
-13	NA	0.6								
-14								Gray coarse SAND; firm, wet.		
-15	NA	0.7	0.4							
-16							SM	Gray medium-fine SAND, some rounded gravel; wet.		
-17	NA	1.0	0.8							
-18								Gray and brown fine SAND, trace angular-subangular gravel; wet.	#2 Sand from 18-22 ft bgs.	
-19	NA	1.0	1.4	RBB4 (19-20)						

Remarks: Samples analyzed for BTEXs, PAHs, TAL metals and cyanide.

RETEC
1001 W Seneca St, Suite 204
Ithaca, NY 14850

Well ID: TW3/RBB4

Depth (Feet)	Blow Counts	Recovery (Inches)	PID (ppm)	Sample ID	Sample Interval	Lithology	USCS	Geologic Description	Well Construction	Remarks
-20 to -22	NA	0.3	1.6				GM	Gray rounded-angular GRAVEL, some silt and fine sand.	Port #2, TW-3(20'), at 20 ft bgs.	
-22 to -24	NA	1.5	1.9				SM	Brown medium-coarse SAND and rounded gravel; wet.	Bentonite seal from 22-30 ft bgs.	
-24 to -26	NA	1.5	1.8							
-26 to -28	NA	2.0	1.1					Brown medium SAND, little rounded gravel; wet.		
-28 to -30	NA	2.0	1.4				SM	Brown fine-medium SAND, trace silt; moist.		
-30 to -32	NA	2.0	1.6					Brown fine-medium SAND; firm, moist.	#2 Sand from 30-34 ft bgs.	
-32 to -34	NA	2.0	1.7	RBB4 (32-34)				Brown fine-medium SAND; firm, moist.	Port #3, TW-3(30'), at 32 ft bgs.	

Remarks: Samples analyzed for BTEXs, PAHs, TAL metals and cyanide.

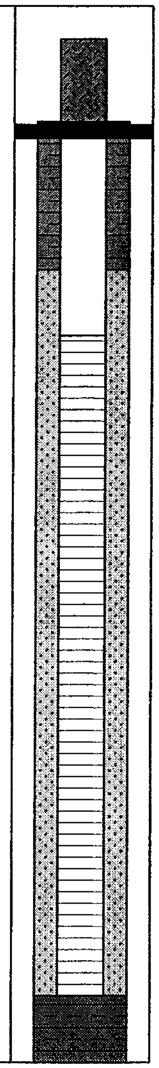
RETEC
1001 W Seneca St, Suite 204
Ithaca, NY 14850

Well ID: TW4/RBB2

Project Name:	Port Jervis MGP Site	**Drilling Method:**	Tripod and Cathead
Project Number:	ORAN2-18420	**Sampling Method:**	2 ft Split-Spoon
Date Started:	9/15/04	**Ground Elevation (ft/msl):**	421.48
Date Finished:	9/16/04	**Total Depth (ft):**	14.0 ft bgs
Drilling Company:	Aqua Survey	**Logged By:**	James Edwards

Depth (Feet)	Blow Counts	Recovery (Feet)	PID (ppm)	Sample ID	USCS	Geologic Description	Remarks
2							
1							Stick-up well casing.
0						Ground surface.	
-1	NA	0.4	0.0			Brown fine SAND; moist.	Bentonite seal from 0-2 ft bgs.
-2						Gray and brown fine SAND, trace brick fragments.	#2 Sand from 2-13 ft bgs.
-3	NA	0.6	0.1		SM		
-4				RBB2 (3.8-4.8)		Becomes wet at 3.8 ft bgs. Gray and brown fine SAND, some rounded gavel; wet.	
-5	NA	1.4	0.3				1.5", 0.020 Slot PVC screen from 3-13 ft bgs.
-6						Gray, rounded, fine GRAVEL, some gray fine-coarse sand; wet.	
-7	NA	1.6	0.1				
-8						Gray rounded-subangular GRAVEL, some gray sand; loose, wet.	
-9	NA	1.6	0.3		GP		
-10						Gray and brown angular GRAVEL, some gray fine sand; wet.	
-11	NA	1.2	1.4		GP		
-12				RBB2 (12-13)		Gray angular GRAVEL and gray medium sand; wet.	Bentonite seal from 13-14 ft bgs.
-13	NA	1.8	0.4				
-14							

Well Construction



Remarks: Sample analyzed for BTEXs, PAHs, TAL metals and cyanide.

RETEC

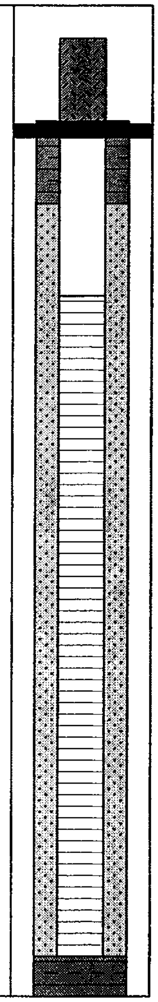
1001 W Seneca St, Suite 204
Ithaca, NY 14850

Well ID: TW5/RBB5

Project Name:	Port Jervis MGP Site	**Drilling Method:**	Tripod and Cathead
Project Number:	ORAN2-18420	**Sampling Method:**	2 ft Split-Spoon
Date Started:	9/8/04	**Ground Elevation (ft/msl):**	420.58
Date Finished:	9/10/04	**Total Depth (ft):**	13.0 ft bgs
Drilling Company:	Aqua Survey	**Logged By:**	James Edwards

Depth (Feet)	Blow Counts	Recovery (Feet)	PID (ppm)	Sample ID	USCS	Geologic Description	Remarks
2 to 0						Ground surface.	Stick-up well casing.
0 to -2	NA	0.2	0.0		Fill	Brown medium SAND, some angular gravel; moist.	Bentonite seal from 0-1.5 ft bgs.
-2 to -4	NA	0.4	0.0	RBB5 (3.5-4.5)	Fill	Brown medium SAND, little glass fragments. Becomes wet at 3.5 ft bgs.	
-4 to -6	NA	1.1	0.0		SM	Gray medium SAND; wet.	#2 Sand from 1.5-12.4 ft bgs.
-6 to -8	NA	1.7	0.0		SM	Gray medium-coarse SAND, some angular gravel; loose, wet.	1.5", 0.020 Slot PVC screen from 2.4-12.4 ft bgs.
-8 to -10	NA	1.6	0.0		SM	Gray medium-coarse SAND; firm, wet.	
-10 to -12	NA	1.5	0.0		SM	Gray medium-coarse SAND, trace angular gravel.	Bentonite seal from 12.4-13.0 ft bgs.
-12 to -13		1.0	0.0	RB5 (12-13)		Gray medium SAND, trace rounded gravel.	

Well Construction



Remarks: Sample analyzed for BTEXs, PAHs, TAL metals and cyanide.

Appendix B

NYSDOH Indoor Air Sampling and Inventory Forms

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH ASSESSMENT
BUREAU OF TOXIC SUBSTANCE ASSESSMENT

INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY

This form must be completed for each residence involved in indoor air testing.

Preparer's Name Jesse Lloyd Date Prepared 6/22/04

Preparer's Affiliation The RETEC Group, Inc. Phone No. (607) 277-5716

1. **OCCUPANT**

Name: Restaurant/Apartment Building

Address: 28 Pike Street
Port Jervis, NY 12771

County: Orange County

Home Phone No. 845-856-3965 Office Phone No N/A

2. **OWNER OR LANDLORD:**
(If different than occupant)

Name Rich and Mary Codichini

Address: 28 Pike Street
Port Jervis, NY 12771

Phone No. 845-856-3965

A. Building Construction Characteristics

Type (circle appropriate responses): Single Family Multiple Dwelling Commercial

Ranch
~~Raised Ranch~~
Split Level
Colonial
Mobile Home

2-Family
Duplex
Apartment House 2 Units, 2^{nd} and 3^{rd} floors.
Number of floors 3 floors and a full basement
Other specify Restaurant is on 1^{st} floor

Residence Age 1880's General Description of Building Construction Materials Concrete basement floor; stone and block foundation; and wood framing.

Is the building insulated? Yes / No How air tight is the building Substantially air tight

OSR-3 (continued)

B. Basement construction characteristics (circle all that apply):

1. Full basement, crawlspace, slab on grade, other ___________
2. Basement floor: concrete, dirt, other ___________
3. Concrete floor: unsealed, painted, covered; with _________
4. Foundation walls: poured concrete, block, laid up stone, other ___________
5. The basement is: wet, damp, dry _ Sump present? y / n Water in sump? y / n ______
6. The basement is: finished, unfinished _Used for storage
7. Identify potential soil vapor entry points (e.g., cracks, utility ports, etc.)
   Utility ports for water, natural gas, sump pit, cracks in basement floor, basement floor is dirt in places.
8. Describe how air tight the basement is Two windows are present that are not typically opened.

C. HVAC (circle all that apply):

1. The type of heating system(s) used in this residence is/are:

Hot Air Circulation	Heat Pump
Hot Water Radiation	Unvented Kerosene Heater
Steam Radiation	Wood stove
Electric Baseboard	Other (specify)________________

2. The type(s) of fuel(s) used is/are: Natural Gas, Fuel Oil, Electric, Wood, Coal Solar

   Other (specify)________________.
3. Is the heating system's power plant located in the basement or another area: ________________
4. Is there air-conditioning? Yes / No Central Air or Window Units?

   Specify the location fist floor; used intermittently.
5. Are there air distribution ducts present? Yes / No
6. Describe the supply and cold air return duct work in the basement including whether there is a cold air return, the tightness of duct joints
   Make-up air for hot air, natural gas furnace comes from the basement, ducts distribute hot air to areas in the above floors. Duct joints appear tight.

OSR-3 (continued)

D. Potential Indoor Sources of Pollution

1. Has the house ever had a fire? Yes / No
2. Is there an attached garage? Yes / No
3. Is a vehicle normally parked in the garage? Yes / No
4. Is there a kerosene heater present? Yes / No
5. Is there a workshop, hobby or craft area in the residence? Yes / No
6. An inventory of all products used or stored in the home should be performed. Any products that contain volatile organic compounds or chemicals similar to the target compounds should be listed. The attached product inventory form should be used for this purpose.
7. Is there a kitchen exhaust fan? Yes / No Where is it vented? Outside
8. Has the house ever been fumigated? If yes describe date, type and location of treatment.
   No

E. Water and Sewage (Circle the appropriate response)

Source of Water

Public Water Drilled Well Driven Well Dug Well Other (Specify)____________

Water Well Specifications:

Well Diameter ____________ Grouted or Ungrouted ____________

Well Depth ____________ Type of Storage Tank ____________

Depth to Bedrock ____________ Size of Storage Tank ____________

Feet of Casing ____________ Describe type(s) of Treatment ____________

Water Quality:

Taste and/or odor problems? y / n If so, describe ____________

How long has the taste and/or odor been present? ____________

Sewage Disposal: Public Sewer Septic Tank Leach Field Other (Specify) ____________

Distance from well to septic system____________Type of septic tank additive ____________

OSR-3 (continued)

F. Plan View

Draw a plan view sketch for each floor of the residence and if applicable, indicate air sampling locations, possible indoor air pollution sources and PID meter readings.

Provided in the Report

OSR-3 (continued)

G. Potential Outdoor Sources of Pollution

Draw a sketch of the area surrounding the residence being sampled. If applicable, provide information on the spill location (if known), potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system if applicable, and a qualifying statement to help locate the site on a topographical map.

Provided in the Report.

Household Products Inventory

Occupant / residence Restaurant and apartments

Investigator: Jesse Lloyd Date: 6/22/04

Location	Description	Quantity
See Attached Household Products Inventory List		
Kitchen	Febreze	Quart
Kitchen	Orange Glo Wood Cleaner & Polish	3 quarts
Kitchen	Murphy's Oil Soap	Half-gallon
Kitchen	SYSCO Crème Cleanser	Pint
Kitchen	Swell Instant Furniture Polish	Pint
Kitchen	ZEP Stainless Steel Cleaner	Half-gallon
Kitchen	Hot Shot Insect Cleaner	Quart
Kitchen	All in One Metal Polish	Pint
Kitchen	Oasis Exterior Heavy Duty Deodorizer	10 gallons
Kitchen	Oasis Multi-Surface Heavy Duty Degreaser	10 gallons
Kitchen	Wham Drain & Waste System Cleaner	Gallon
Kitchen	Comet Crème Disinfectant Cleanser	Quart
Kitchen	Ecolab Ultra Lime-Away	Gallon
Kitchen	Xtra-Pine Antibacterial Floor Cleaner	Quart
Kitchen	Barfoam glassware detergent	Gallon
Kitchen	SYSCO Heavy Duty Kitchen Cleaner	Gallon
Kitchen	SYSCO Reliance Liquid Hand Soap	Gallon
Kitchen	SYSCO Carpet & Textile Stain Digester	Half-gallon
Kitchen	Johnson & Son Jubilee Kitchen Wax	Quart
Kitchen	Apple Barrel Craft Paint	Cup
Kitchen	Bissell 9351 Fabric & Upholstery Cleaner	Pint
Kitchen	Step Saver Floor Cleaner	Pint
Kitchen	Brite No-Wax Floor Cleaner	Half-gallon
Kitchen	Unidentified SYSCO bottles	Half-gallon
Kitchen	Future Floor Finish	Quart
Kitchen	Unidentified aerosol can	Pint
Bathroom	Comet Crème Disinfectant Cleanser	Quart
Bathroom	Scott's Liquid Gold Wood Cleaner & Preservative	Half-gallon
Bathroom	Windex No Drip Glass Cleaner	Quart
Bathroom	SYSCO Reliance Liquid Hand Soap	Gallon
Bathroom	Unidentified bottle	Gallon
Furnace Room, Basement	Minwax Concrete Patch	Gallon
Furnace Room, Basement	Sherwin Williams Classic 99 Interior Semi-Gloss Latex Paint	3 Gallons
Furnace Room, Basement	Rust-Oleum	Gallon
Furnace Room, Basement	Surface Enamel	Quart
Furnace Room, Basement	Sherwin Williams A-100 Exterior Flat Latex Paint	Gallon
Furnace Room, Basement	Sherwin Williams Industrial Enamel	Gallon
Furnace Room, Basement	Satin Floor Paint	Gallon
Furnace Room, Basement	Sherwin Williams Paint	Gallon
Furnace Room, Basement	Wood Stain or Varnish	Quart
Furnace Room, Basement	Protective Enamel	Quart
Furnace Room, Basement	Rust Tough Rust Preventative Enamel	Pint
Furnace Room, Basement	Unidentified tub	Half-gallon
Furnace Room, Basement	Henry Multi-Purpose Floor Covering Adhesive	Gallon
Furnace Room, Basement	Unidentified multi-purpose substance	Pint

Furnace Room, Basement	Unidentified Tube	Cup
Furnace Room, Basement	Sherwin Williams Polyurethane Floor Enamel	Gallon
Furnace Room, Basement	Sherwin Williams Industrial Maintenance Coatings Kromik Metal Primer	Gallon
Furnace Room, Basement	Spray Enamel	Pint
Furnace Room, Basement	Unidentified tub	Quart
Furnace Room, Basement	Minwax Wood Finish Stain	Quart
Furnace Room, Basement	Unidentified buckets	12 gallons
Furnace Room, Basement	Unidentified paint can	Gallon
Basement	Electronic Cell Cleaner Concentrate	Gallon
Basement	SYSCO Kitchen Cleaner	Gallon
Basement	Bleach	Gallon
Basement	Unidentified bottles	Gallon
Basement	SYSCO Blue Concentrate	Gallon
Basement	SYSCO Easy Diamond Shine Finish Fortified Floor Finish	Gallon
Basement	SYSCO Green Detergent	Gallon
Basement	SYSCO Kitchen Cleaner	Gallon
Basement	Ecolab Ultra Lime-Away	Gallon

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH ASSESSMENT
BUREAU OF TOXIC SUBSTANCE ASSESSMENT

INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY

This form must be completed for each residence involved in indoor air testing.

Preparer's Name Jesse Lloyd Date Prepared 6/20/04

Preparer's Affiliation The RETEC Group, Inc. Phone No. (607) 277-5716

1. **OCCUPANT**

Name: Orange and Rockland Utilities Inc.

Address: 16 Pike Street

Port Jervis, NY 12771

County: Orange

Home Phone No. NA Office Phone No 845-856-5141

2. **OWNER OR LANDLORD:**
(If different than occupant)

Name: Orange and Rockland Utilities, Inc.

Address: N/A

N/A

Phone No. N/A

A. Building Construction Characteristics

Type (circle appropriate responses): Single Family Multiple Dwelling Commercial

Ranch	2-Family
Raised Ranch	Duplex
Split Level	Apartment House ____
Colonial	Number of floors 1
Mobile Home	Other specify Commercial building

Residence Age 1950's General Description of Building Construction Materials Brick exterior, painted concrete floors.

Is the building insulated? Yes / No How air tight is the building Substantially air tight

OSR-3 (continued)

B. Basement construction characteristics (circle all that apply):

1. Full basement, crawlspace, slab on grade, other No Basement present
2. Basement floor: concrete, dirt, other NA
3. Concrete floor: unsealed, painted, covered; with Painted
4. Foundation walls: poured concrete, block, laid up stone, other Concrete
5. The basement is: wet, damp, dry _ Sump present? y / n Water in sump? y / n NA ______
6. The basement is: finished, unfinished NA
7. Identify potential soil vapor entry points (e.g., cracks, utility ports, etc.)
   Utility ports for water, natural gas, sump pit, cracks in floor.
8. Describe how air tight the basement is NA

C. HVAC (circle all that apply):

1. The type of heating system(s) used in this residence is/are:

Hot Air Circulation	Heat Pump
Hot Water Radiation	Unvented Kerosene Heater
Steam Radiation	Wood stove
Electric Baseboard	Other (specify)________________

2. The type(s) of fuel(s) used is/are: Natural Gas, Fuel Oil, Electric, Wood, Coal Solar

   Other (specify)________________.

3. Is the heating system's power plant located in the basement or another area: Located in storage/work room area
4. Is there air-conditioning? Yes / No Central Air or Window Units?

   Specify the location first floor; used intermittently.

5. Are there air distribution ducts present? Yes / No
6. Describe the supply and cold air return duct work in the basement including whether there is a cold air return, the tightness of duct joints
   Make-up air for hot air, natural gas furnace, central air, Ducts distribute hot air to areas in the building. Duct joints appear tight.

OSR-3 (continued)

D. Potential Indoor Sources of Pollution

1. Has the house ever had a fire? Yes / No
2. Is there an attached garage? Yes / No
3. Is a vehicle normally parked in the garage? Yes / No
4. Is there a kerosene heater present? Yes / No
5. Is there a workshop, hobby or craft area in the residence? Yes / No
6. An inventory of all products used or stored in the home should be performed. Any products that contain volatile organic compounds or chemicals similar to the target compounds should be listed. The attached product inventory form should be used for this purpose.
7. Is there a kitchen exhaust fan? Yes / No, No kitchen present Where is it vented? NA
8. Has the house ever been fumigated? If yes describe date, type and location of treatment.
   No

E. Water and Sewage (Circle the appropriate response)

Source of Water

Public Water Drilled Well Driven Well Dug Well Other (Specify)__________

Water Well Specifications:

Well Diameter __________	Grouted or Ungrouted __________
Well Depth __________	Type of Storage Tank __________
Depth to Bedrock __________	Size of Storage Tank __________
Feet of Casing __________	Describe type(s) of Treatment __________

Water Quality:

Taste and/or odor problems? y / n If so, describe __________

How long has the taste and/or odor been present? __________

Sewage Disposal: Public Sewer Septic Tank Leach Field Other (Specify) __________

Distance from well to septic system__________ Type of septic tank additive __________

OSR-3 (continued)

F. Plan View

Draw a plan view sketch for each floor of the residence and if applicable, indicate air sampling locations, possible indoor air pollution sources and PID meter readings.

Provided in the Report.

OSR-3 (continued)

G. Potential Outdoor Sources of Pollution

Draw a sketch of the area surrounding the residence being sampled. If applicable, provide information on the spill location (if known), potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system if applicable, and a qualifying statement to help locate the site on a topographical map.

Provided in the Report.

Household Products Inventory

Occupant / residence Orange and Rockland Employees

Investigator: Jesse Lloyd Date: 6/20/04

Location	Description	Quantity
See Attached Household Products Inventory List		
Storage/Work area	Castrol Diesel all	3-1 qt bottles
Storage/Work area	2 cycle gas additive	6 12 oz bottles
Storage/Work area	Noco wind shield washer fluid	2- 1 gallon bottles
Storage/Work area	Road Flares	2 cases
Storage/Work area	Kolors Tri polar silicone aluminum enamel	5 gallon bucket
Storage/Work area	Artic ice melt	5 gallon bucket
Storage/Work area	Air-tec	1 gallon bottle
Storage/Work area	Burndy Hypress fluid	2- 1 qt bottles
Storage/Work area	Citrikleen,	aerosol can
Storage/Work area	Homelite oil	3- 12 oz bottles
Storage/Work area	Homelite 32:1 oil	3- 12 oz bottles
Storage/Work area	Spray Solvs it, multi purpose cleaner/degreaser	1- 24 oz bottle
Storage/Work area	GC - 202	1- 24 oz bottle
Storage/Work area	BC - 101	1- 24 oz bottle
Storage/Work area	C - 203	1- 24 oz bottle
Storage/Work area	BC - 107	1- 24 oz bottle
Storage/Work area	Valley natural detergent	1- 5 gallon bucket
Storage/Work area	AMP dust mop treatment	1- 24 oz bottle
Storage/Work area	Citrikleen	1- 5 gallon bucket
Storage/Work area	Low luster house paint	4 – 1 gallon cans
Woman's Bathroom	Hydrogen peroxide	1- 32 oz bottle
Woman's Bathroom	Orange clean degreaser	1- 32 oz bottle
Woman's Bathroom	Nail polish remover	1- 16 oz bottle
Woman's Bathroom	Opti-free contact lens cleaner	1- 40 oz box
Woman's Bathroom	Pledge wood polish	1- 24 oz can
Woman's Bathroom	Arm and Hammer vacuum free carpet freshener	1- 24 oz can
Woman's Bathroom	Windex	1-32 oz can
Woman's Bathroom	Bar keeper's freind	1 – 24 oz can
Break room	Borax hand soap	24 oz box
Break room	Caulk	1 tube
Break room	Rub-Out hand cleaner	1- 24 oz can
Break room	Generic glass cleaner	1- 24 oz can
Break room	Black flag wasp and hornet killer	1- 24 oz can
Break room	AMP all-purpose cleaner	1- 24 oz can
Break room	Spray solves it	1- 24 oz can
Break room	Comet powder	1- 24 oz can
Break room	SOS dish detergent	1- 24 oz can

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH ASSESSMENT
BUREAU OF TOXIC SUBSTANCE ASSESSMENT

INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY

This form must be completed for each residence involved in indoor air testing.

Preparer's Name Scott Hauswirth Date Prepared 3/30/05

Preparer's Affiliation RETEC Phone No. 607-277-5716

1. **OCCUPANT**

Name: Several Tenants

Address: 9 Pike St, Port Jervis, NY 12771

County: Orange

Home Phone No. ____________ Office Phone No ____________

2. **OWNER OR LANDLORD:**
(If different than occupant)

Name: Reverend Meder

Address: 9 Pike Street

Port Jervis, NY 12771.

Phone No. ____________

A. Building Construction Characteristics

Type (circle appropriate responses): Single Family Multiple Dwelling Commercial Public School

Ranch	2-Family
Raised Ranch	Duplex
Split Level	Apartment House ____________ Units
Colonial	Number of floors 3
Mobile Home	Other specify ____________

Residence Age ____________ General Description of Building Construction Materials Stone/brick foundation, wood frame

Is the building insulated? Yes / No How air tight is the building? Upstairs (first floor) fairly air tight with good storm doors. Basement door is loose fitting, not air tight.

B. Basement construction characteristics (circle all that apply):

1. Full basement, crawlspace, slab on grade, other ___________
2. Basement floor: concrete, dirt, other _Slate flagstone
3. Concrete floor: unsealed, painted, covered, with _NA______
4. Foundation walls: poured concrete, block, laid up stone, other ___________
5. The basement is: wet, damp, dry___ Sump present? y / n ______ Water in sump? y / n _NA__
6. The basement is: finished, unfinished_____________
7. Identify potential soil vapor entry points (e.g., cracks, utility ports, etc.)
   0.5-1-inch cracks between each flagstone.
8. Describe how air tight the basement is _Not air tight. Gaps around edges of door to outside.______

C. HVAC (circle all that apply):

1. The type of heating system(s) used in this residence is/are:

Hot Air Circulation	Heat Pump
Hot Water Radiation	Unvented Kerosene Heater
Steam Radiation	Wood stove
Electric Baseboard	Other (specify)________________________________

2. The type(s) of fuel(s) used is/are: Natural Gas, Fuel Oil, Electric, Wood, Coal Solar

   Other (specify)_______________________________

3. Is the heating system's power plant located in the basement or another area? ________________
4. Is there air-conditioning? Yes / No Central Air or Window Units?

   Specify the location _In apartment windows___________

5. Are there air distribution ducts present? Yes / No
6. Describe the supply and cold air return duct work in the basement including whether there is a cold air return, the tightness of duct joints
   None.

OSR-3 (continued)

D. Potential Indoor Sources of Pollution

1. Has the house ever had a fire? Yes / No
2. Is there an attached garage? Yes / No
3. Is a vehicle normally parked in the garage? Yes / No
4. Is there a kerosene heater present? Yes / No
5. Is there a workshop, hobby or craft area in the residence? Yes / No
6. An inventory of all products used or stored in the home should be performed. Any products that contain volatile organic compounds or chemicals similar to the target compounds should be listed. The attached product inventory form should be used for this purpose.
7. Is there a kitchen exhaust fan? Yes / No Where is it vented? ___________________
8. Has the house ever been fumigated? If yes describe date, type and location of treatment.

____

E. Water and Sewage (Circle the appropriate response)

Source of Water

Public Water Drilled Well Driven Well Dug Well Other (Specify)_____________

Water Well Specifications:

Well Diameter ______________________ Grouted or Ungrouted ________________

Well Depth ________________________ Type of Storage Tank _________________

Depth to Bedrock ___________________ Size of Storage Tank __________________

Feet of Casing ______________________ Describe type(s) of Treatment __________

____

Water Quality:

Taste and/or odor problems? y / n If so, describe ____

How long has the taste and/or odor been present? ____

Sewage Disposal: Public Sewer Septic Tank Leach Field Other (Specify) ______________________

Distance from well to septic system__________Type of septic tank additive ___________________

OSR-3 (continued)

F. Plan View

Draw a plan view sketch for each floor of the residence and if applicable, indicate air sampling locations, possible indoor air pollution sources and PID meter readings.

Provided in the Report.

OSR-3 (continued)

G. Potential Outdoor Sources of Pollution

Draw a sketch of the area surrounding the residence being sampled. If applicable, provide information on the spill location (if known), potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system if applicable, and a qualifying statement to help locate the site on a topographical map.

Provided in the Report

Household Products Inventory

Occupant / residence Meder Property, Port Jervis, NY

Investigator: Scott Hauswirth / John Finn   Date: 3/30/05

Product description (dispenser, size, manufacturer …)   **VOC Ingredients**

2-cycle motor oil (sealed cans)	Petroleum compounds
Starter fluid spray, 10 oz	Ether, petroleum compounds.
Radiator flush, 12 oz.	Petroleum distillates
Lube concentrate, 8 oz	Petroleum distillates
Cooling system cleaner, 8 oz.	Oxalic acid
"Marvel Oil", 16 oz	Petroleum distillates
Sunoco transmission fluid, 32 oz	Petroleum distillates
WD-40	Petroleum distillates
Gasoline antifreeze	Methanol
Super freeze mist	?
Gun treatement, 8 oz.	"contains solvents"
Chassis grease, 1 gal.	
Gasget seal 2 x 8 oz	Isopropanol
Motor oil, 2 gal	petroleum
Minwax wood finish stain, 6 oz	Petroleum distillates
Kerosene, 6 oz.	Petroleum distillates

Appendix C

Phase I Laboratory Data Package and Data Usability Summary Report

Previously submitted to the NYSDEC on June 18, 2001

Appendix D

Phase I NYSDEC Analytical Services Protocol Category B Deliverable Package – Samples Collected from 1998-2001

Previously submitted to the NYSDEC on June 18, 2001

Fish and Wildlife Impact Analysis Step I Through Step IIB

Port Jervis MGP Site Port Jervis, New York

Prepared by:

The RETEC Group, Inc.
1001 West Seneca Street, Suite 204
Ithaca, New York 14850

RETEC Project Number: ORAN2-18420

Prepared for:

Orange and Rockland Utilities
390 West Route 59
Spring Valley, New York 10977

October 25, 2005

Fish and Wildlife Impact Analysis
Step I Through Step IIB

Port Jervis MGP Site
Port Jervis, New York

Prepared by:

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390 West Route 59
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Prepared by:

Kenneth Pinnella, Toxicologist

Reviewed by:

Bjorn Bjorkman, Senior Scientist

October 25, 2005

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1 Introduction

This report presents a New York State Department of Environmental Conservation (NYSDEC) Fish and Wildlife Impact Analysis (FWIA) in support of the Remedial Investigation (RI) for the Port Jervis Manufactured Gas Plant (MGP) Site located in the city of Port Jervis, Orange County, New York. The report presents the following steps of the FWIA process as outlined in NYSDEC guidance document *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites* [NYSDEC, 1994]:

- Step I – Site Description
- Step IIA – Pathway Analysis
- Step IIB – Criteria-Specific Analysis

A RETEC biologist conducted a site reconnaissance on November 4, 2004 to document site conditions and associated habitats.

2 Step I – Site Description

This section identifies fish and wildlife resources that may or potentially could have existed at the site. The objective is to describe and identify the presence of valuable ecological resources and evaluate the potential exposure of these resources. The outcome of Step I is a determination of whether potentially exposed ecological resources are present, requiring further evaluation in Step II of the FWIA process.

2.1 Step IA – Site Maps

A series of maps were developed to depict the site and surrounding area per the requirements of NYSDEC [1994]. These maps focus on both the ecological and physical attributes of the area:

Figure 1. Presents a topographic depiction of the site encompassed by a 2-mile buffer;

Figure 2. Presents potential ecological habitat and vegetative cover types within one-half mile of the site; and

Figure 3. Depicts the drainage features of the site and adjacent areas.

Each map will be discussed in the context of the description of fish and wildlife resources presented in the following sections.

2.2 Step IB – Description of Fish and Wildlife Resources

2.2.1 General Site Description

The Port Jervis MGP site is located at 16 Pike Street in the city of Port Jervis, New York (Figure 1). The site occupies one urban block (approximately 1.2 acres) bounded by city streets: Pike Street to the southeast, Water Street to the southwest, Brown Street to the northwest, and King Street to the northeast. MGP operations were discontinued around 1959. The aboveground features of the MGP process areas have been completely removed, and an Orange and Rockland Utilities, Inc. (O&R) Operations center is currently present at the site. The entire footprint of the site is comprised of recent buildings or is a paved parking lot. All adjoining properties are commercial or residential. The urban location and absence of vegetation at the footprint of the site indicates that there are no important ecological resources present at this location.

Based on the sampling performed during the RI, MGP-related residuals are present in the subsurface soil and groundwater at the site. Impacted groundwater and NAPL are present down gradient of the site. The site boundary is located approximately 160-feet from the shore of the Delaware River (see Figures 1 through 3), and a major focus of the RI has been to determine if migration of site-related constituents to the adjacent commercial and residential areas and the river has occurred.

This FWIA therefore focuses on the potential exposure of ecological resources in the Delaware River area and the adjacent riparian habitat areas. A flood control levee (in sections consisting of a concrete wall) separates the river from the developed areas of the city (Figure 3). For the purposes of the FWIA, the site and surrounding area can be divided into ecological communities per the New York Natural Heritage Program (NYNHP) Classes [Reschke, 1990] as follows:

Upland Areas. This area includes NYNHP Classes:

- VI(A)19 - Terrestrial System, Open Uplands, Rocky Summit Grassland;
- VI(A)22 - Terrestrial System, Open Uplands, Successional Old Field;
- VI(D)11 - Terrestrial Cultural, Mowed Lawn With Trees;
- VI(D)12 - Terrestrial Cultural, Mowed Lawn;
- VI(D)15 - Terrestrial Cultural, Unpaved Road/Path;
- VI(D)16 - Terrestrial Cultural, Paved Road/Path;
- VI(D)30 - Terrestrial Cultural, Junkyard; and
- VI(D)31 - Terrestrial Cultural, Urban Vacant Lot.

Riparian Corridor. Includes the north shore of the Delaware River that is located between the river's edge and the retaining wall and/or flood-control levee. This area includes NYNHP Classes:

- VI(A)10 - Terrestrial System, Open Uplands, Riverside Sand/Gravel Bar; and
- VI(A)13 - Terrestrial System, Open Uplands, Cobble Shore.

Delaware River. Includes the river reach adjacent to Port Jervis. This area includes the NYNHP Class:

- III(A)3 - Riverine System, Natural Streams, Midreach Stream.

Downstream Riparian and Wetland Areas. Includes downstream riparian/wetland areas of NYNHP Classes:

- V(A)4 - Palustrine System, Open Mineral Soil Wetlands, Cobble Shore Wet Meadow;
- VI(A)9 - Terrestrial System, Open Uplands, Riverside Ice Meadow;
- VI(A)10 - Terrestrial System, Open Uplands, Riverside Sand/Gravel Bar;
- VI(A)13 - Terrestrial System, Open Uplands, Cobble Shore; and
- VI(A)22 - Terrestrial System, Open Uplands, Successional Old Field.

Figure 2 depicts all ecological communities found within one-half mile of the site. Port Jervis is located at the boundary of the Appalachian Plateau ecozone and the Delaware Hills ecozone.

2.2.1.1 Upland Areas (Including Site)

The former MGP process area is entirely covered by impervious surfaces consisting of paved parking lots or buildings (NYNHP Class VI(D)16). A small patch of maintained lawn (NYNHP Class VI(D)12) is present on the east side of the site. Ecological resources in this area are absent, and due to the impervious surfaces, exposure to subsurface residuals is not possible. The city block that comprises the former MGP process area will not be discussed further.

The land use in the urban area surrounding the site, except towards the river and towards the north end of town, is mixed commercial (NYNHP Class VI(D)30 and 31) and residential (NYNHP Class VI(D)11 and 12). Railroad trackage operated by Conrail, and associated industrial facilities, are present to the north. As shown on Figure 2, to the north is Elks-Brox Park (City-owned), whose boundary is located about 1/3 mile north of the site (upland habitat of Class VI(A)19). The urban core is dense and the nearby residences have relatively small manicured lawns and trees (see Figure 3 and Photo 1). Ecological exposure to MGP-related constituents in groundwater will not occur, as no surface expression of residuals has been observed for these areas and the groundwater table is deep (approximately 18 feet bgs). The urban core areas around the site will not be discussed further.

To the east of the site a mixed residential (Photo 1) and industrial area is present (Figure 2). Beyond this area is Port Jervis City Park, an urban parkland habitat (NYNHP Classes VI(D)11 and 12; Photo 2). Based on the sampling performed during the RI, MGP-related constituents are not present in this area.

The vegetation cover types for the areas discussed above are limited to maintained ornamental plants and lawns or to opportunistic weed species. No unusual vegetation was noted. Wildlife is limited to common urban-adapted species (e.g. gray squirrel, American robin, killdeer, house sparrow). Due to absence of habitat and urban disturbance, wildlife species are not expected to linger in the open areas.

2.2.1.2 Riparian Zone

A riparian strip is present between the flood control levee and the Delaware River (Figure 3). This strip varies in width depending on the location of the flood control structures. Immediately south (downgradient) of the site, the riparian strip is reduced to 10 feet or less (Photo 3) between the concrete wall and the river; upstream (Photo 4) and downstream (Photo 5) of the site the strip widens to approximately 30-50 feet. The portion of the riparian strip associated with potential impacted groundwater discharge occupies (approximately) the narrowest portion of the riparian strip, as shown in Photo 6.

Within this strip is a storm sewer outfall (Photo 7). Surface drainage after storm events, from the northern portion of the City of Port Jervis, collects in municipal storm sewer pipes and empties into the Delaware River at this location (Photo 8). Surface drainage features for the area of the site are depicted in Figure 3.

Land cover types identified in the riparian zone immediately downgradient of the storm water discharge outfall between the levee and the river are NYNHP Classes VI(A)10 (Riverside sand/gravel bar) and VI(A)13 (cobble shore). Vegetation in this area consists of primarily grasses (*Panicum sp*.) and forbs (e.g. dogbane, *Apocynum cannabimum*) (Photo 9). Upstream and downstream of this area the shoreline is not kept open and the habitat is more typical of the class, dominated by willows (*Salix exigua*) in the tree layer and sand-cherry (*Prunus pumila*) in the shrub layer. This community thrives between the flood control levee and the river's edge, although extensive damage was incurred during the flood of September 2004 (Photos 10 and 11).

2.2.1.3 Delaware River

The Delaware River is the main watercourse and dominant landscape feature for the area (Photos 12 and 13). In this reach, the river is best characterized as Class III(A)3, a mid-reach stream, due to the shallow nature, fast current and abundant riffles, and even rapids. However, the flow of the Delaware where it passes Port Jervis is large. It drains 3,070 square miles upstream of Port

Jervis, and has a mean datum of 415.3 feet (amsl) at this location. Flows are high as seen in the hydrograph below. During high floods such as that seen in September 2004, six weeks prior to the site reconnaissance, the river reached flow rates of over 50,000 cubic feet per second, which would be expected to have a strong scouring and erosive effect. Seldom does the flow drop below 1,000 cubic feet per second:

Long-term mean monthly flow, in 1,000 cubic feet per second (cfs) (USGS Port Jervis gauge data):

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5.3	5.2	9.8	10.9	6.3	3.9	2.7	2.3	2.5	3.1	4.7	5.4

The nearest tributaries to the river are the Mongaup River (6.5 miles upstream) and the Neversink River (1.2 miles downstream).

The aquatic habitat expected in the river has a well-defined pattern of alternating riffle (Photos 14 and 15) and run sequences (Photo 16). The high flows and coarse substrate results in mostly lateral erosion. Substrate varies from silty sand via a sand/gravel/cobble matrix (Photos 17 and 18) to areas downstream with a higher admixture of silt due to the eddy like characteristics of the river in this area (Photo 19).

Macrophyte vegetation is generally absent in the study area for the RI, likely due to the absence of backwaters or protected eddies or bays.

2.2.1.4 Downstream Riparian and Wetland Areas

Approximately 2 miles downstream of the site, the Delaware River makes a wide turn to the south (demarcating the New Jersey/Pennsylvania border (Figure 1). Here the riparian strip widens, as there is no constructed flood control levee to the west or south/east of Port Jervis and Matramoras, Pennsylvania. The native riparian areas here are unprotected by the levee and thus the shoreline areas are subject to periodic flooding over a wider area (Photos 20 and 21). These areas are vegetated with typical riparian vegetation (primarily willow thickets). Floodplain flats are present in sections of the south shore of the Delaware (Photo 22).

Figures 1 and 2 show the federal National Wetland Inventory (NWI) registered wetlands in the vicinity of Port Jervis [USFWS, 2005]. No NYSDEC significant habitats or regulated wetlands are present within a 2-mile radius of the site [NYSDEC, 2004]. The closest federally registered wetland area downgradient to the site occurs in the riparian area near a point bar formed by the mouth of the Neversink River. This is a small wetland (less than one acre) of NWI habitat class R2UBHx (riverine, lower perennial, unconsolidated bottom, permanently flooded, excavated), and is located approximately 0.8 miles from the site. On the western shore (Pennsylvania) the bend in the river has laid down extensive point bars that are vegetated with thickets of willow and sand-cherry (wetland classification PFO1A – palustrine, forested, broad-leaved deciduous, temporarily flooded). A small pond is also located within this area of type PUBH (palustrine, unconsolidated bottom, permanently flooded). Further inland there is brushy cleared land (Class VI(D)22) maintained by the town of Matamoras, PA mostly for recreational uses (Figure 2). A few mid-river gravel bars (Class VI (A)10) are also present downstream of the site, as seen in Figure 2.

Downstream riparian areas would not be expected to have any potential for impact from site-related residuals due to the absence of direct pathways and the very high dilution factor due to the volume of river flow.

2.2.2 Expected Fauna

2.2.2.1 Upland Areas

The upland areas are characterized by entirely urban land uses and include residential, commercial, and urban park areas. The wildlife occurring in upland areas would be expected to be typical of urban environments. For the upland land use classes identified within ½-mile of the site (Figure 2) typical wildlife species include:

Birds: killdeer (*Chardrius vociferous*), American robin (*Turdus migratorious)*, mockingbird (*Mimus polyglottus*), mourning dove(*Zenaida macroura*), upland sandpiper ((*Bartramia* longicauda), rock dove (*Colubia livia*) and house sparrow (*Passer domesticus*); and

Mammals: grey squirrel (*Sciurus carolinensis*).

No federal or state listed species are expected to occur or frequent the upland areas [NYSDEC, 2004].

The MGP site lacks resources for wildlife due to the presence of buildings and pavement that cover the majority of the property. The typical species listed above would be expected to frequent residential yards/structures and parkland but exposure to site-related residuals in groundwater and subsurface soil is not expected.

2.2.2.2 Riparian Zone

The riparian corridor, along the Delaware River, provides habitat for urban-adapted species and other wildlife that may use this corridor in transit (e.g., white-tailed deer (*Odocoileus virginianus*)) to other areas less influenced by human activity. For the riparian use classes identified within ½-mile of the site (Classes VI(A) 10 and 13; Figure 2) typical wildlife species include many of the upland species identified above as well as semi-aquatic species such as the Canada Goose (*Branta canadensis*) (Photo 23), the raccoon (*Procyon lotor*) and other semi-aquatic wildlife.

Based on the sampling performed during the RI, the potential exposure to site-related residuals in the riparian zone is limited to an approximately 120 foot long portion of the riparian zone where low concentrations of COI, including PAHs have been detected in groundwater (Photos 5 and 6).

2.2.2.3 Delaware River Aquatic Fauna

The Delaware River in the vicinity of Port Jervis is classified as a mid-reach stream (Class VIII(A)3). The aquatic wildlife community expected to occur in this area includes a variety of introduced and native game and non-game fish species [Reschke, 1990]:

Game Fish: rainbow trout (*Salmo gairneri*), brown trout (*Salmo trutta*), and smallmouth bass (*Micropterus dolomieui*); and

Non-Game Fish: creek chub (*Semotilus atromaculatus*), pumpkinseed (*Lepomis gibbosus*), common shiner (*Notropis conutus*), troutperch (*Percosis omiscomaycus*), tessellated darter (*Etheostoma omstedi*), greenside darter (*Etheostoma blennioides*), longnose dace (*Rhinichthys cataraculatus*), slimy sculpin (*Cottus cognatus*), stonecat (*Noturus flavus*), bluntnose minnow (*Pimephales notatus*) and northern hogsucker (*Hypentelium nigricans*).

Other aquatic communities include aquatic/benthic invertebrates (e.g., crawfish, mollusks). The NYNHP [NYSDEC, 2004] reports that two species of bivalve mollusks, the brook floater (*Alasmidonta avicosa*) and the alewife floater (*Anodonta implicata*), may occur in the vicinity of Port Jervis. These species are given a New York State rank as “critically imperiled” in the state. The brook floater has been found in 2 sections of the Delaware River near Port Jervis, extending approximately 400 meters upstream and downstream of the Route 209/6 Bridge. The alewife floater is found in every mile of the Upper Delaware River, from just south of Hancock, NY, to Port Jervis (76 miles).

2.2.3 Observations of Stress

Signs of contaminant-related stress or hydrocarbon-like sheen were not observed along the river in the RI study area. None of the following were observed during the survey of site conditions:

- Stained soil or sediment, hydrocarbon odors, seeps or exposed residual materials;

- Sheens developing when sediments or embedded cobbles are disturbed;

- Bare areas where vegetation is expected; or obviously stressed vegetation;

- Signs of stressed or dead animals (dead fish, unusual concentrations of clam shells, injured or unhealthy birds and animals, etc.).

Riparian vegetation was clearly stressed upstream of the site (Photos 20 and 21). This stress is related to the effects of the flooding in September 2004, when the Delaware River reached flows of 52,100 cubic feet per second (cfs) and is unrelated to site activities. Photo 10 shows the situation immediately upstream of the site following partial clearance of vegetation debris resulting from flooding.

No visual or historic evidence was found indicating that site-related residuals have historically or currently had an adverse effect on biota along the riverfront. Inquiries to the NYSDEC Fish Kills and Wildlife Mortality units indicate that no contaminant-related mortality has occurred in the Port Jervis area according to NYSDEC records (personal communication between Ken Pinnella (RETEC) and Tim Preddice [NYSDEC, 2005a] and Dr. Ward Stone [NYSDEC, 2005b], February 2005 – see Attachment 2).

2.3 Step IC – Description of Fish and Wildlife Resource Value

2.3.1 Resource Value to Associated Fauna

2.3.1.1 Upland Areas (including the site)

The area within a ½-mile radius of the site incorporates primarily urban, industrial and commercial sections of Port Jervis and Matamoras, PA. Dense single-family dwellings with small yards and mature trees dominate residential neighborhoods (VI(D)11 and 12). The industrial areas include empty lots (VI(D)31) (particularly in the western (upgradient) direction), junkyards (VI(D)30), active railroads (VI(D)15), and active industrial facilities (VI(D)15 and 16). None of these land cover types is of significant value to fauna. The communities and rare species associated with these land cover classes are ranked as G5 (demonstrably secure throughout its range) and S5 (demonstrably secure in New York State) by the NYNHP.

The upland communities in general provide few resources to wildlife. In active industrial areas any wildlife is actively discouraged. In other areas wildlife is limited to species adapted to human disturbance and urban conditions. The resources represented by the site are of minimal value to associated fauna.

2.3.1.2 Riparian zone

The riparian zone within ½-mile includes VI(A)10 (Riverside sand/gravel bar), VI(A)13 (cobble shore), and VI(D)22 (brushy cleared land). Communities in these areas are common and demonstrably secure globally and in New York State (G5/S5).

The riparian area provides resources for a wide variety of terrestrial wildlife (deer, songbirds, raccoon, etc.) and aquatic-dependent (ducks, mink, muskrat, etc.) wildlife. The riparian corridor can also serve as an important migration corridor for wildlife through the migration barrier represented by the urban area.

The only listed species that might use resources in this area are occasional winter visits by Bald Eagles that may use trees as rest areas. However, in the area potentially impacted by the site, the limited natural vegetation has reduced the value of this area for the Bald Eagle habitat and far richer habitat is available upstream. Overall, the resource value of this area to wildlife is low in the immediate vicinity of the site, but high further away.

2.3.1.3 Delaware River

The Delaware River is a very high value resource for aquatic life. In the immediate area upstream and downstream of the site the river contains high value riffle/run sequences that are expected to provide abundant shelter and invertebrate food resources for fish. The absence of major industrial activity upstream (and for a significant distance downstream) indicates that the river should be considered a major resource, albeit not specifically protected in the reaches near Port Jervis.

Aquatic communities in the Delaware River in the vicinity of Port Jervis are common and demonstrably secure globally and in New York State (G5/S5) with the possible exception of two bivalve mollusks: alewife floater (G5/S2) and brook floater (G3/S2). Port Jervis lies at the edge of the range observed for the alewife floater. Its occurrence at or downstream of the area of potential groundwater discharge is not expected. The brook floater occurs in the area potentially impacted by site contaminants. However, no evidence of site-related impact is evident at this location.

2.3.2 Resource Value to Humans

Except for the Delaware River, the land use within ½-mile of the site has little or no value for hunting, fishing, wildlife observation as all the area is urban.

Recreational use is limited to recreational activities typically undertaken in urban parks (e.g. ball games, picnicking).

The Delaware River is a very high value resource to human activity. Segments both upstream and downstream are National Recreation Areas and/or protected Wild and Scenic River areas. The Upper Delaware River is designated as National Park Service and State Wild, Scenic and Recreational River for 73.4 miles upstream of Port Jervis (between Port Jervis and Hancock, NY), and a designated National Recreation Area (Delaware Water Gap) several miles downstream of Port Jervis, from Milford to Stroudsburg, PA.

2.4 Step ID – Identification of Applicable Fish and Wildlife Regulatory Criteria

The NYDEC mission is to protect the public and the environment from potential threats to health and welfare. Article 27 (*Collection, Treatment And Disposal Of Refuse And Other Solid Waste* [ECL, 2005]) of the Environmental Conservation Law (Chapter 43B) entrusts NYSDEC with determining remediation requirements for inactive hazardous waste sites in New York State. The rules, regulations, and standards cited in *Fish and Wildlife Impact Analysis* [NYSDEC, 1994] that directly apply to conducting a Step II evaluation for this FWIA are presented below.

Historical operations of the MGP have resulted in impacts to subsurface media (subsurface soil and groundwater). Potential impact to media downgradient of the site in the riparian corridor of the Delaware River is of concern from MGP-related chemicals, including volatile and semi-volatile organic compounds and metals. Applicable contaminant-specific screening criteria were identified for all site-related media of concern (discussed below). The following media-based criteria and sources were identified:

Groundwater

- Classifications – Surface Waters and Groundwaters (6NYCRR, Part 701) [NYSDEC, 1998] and Surface Water and Groundwater Classifications and Standards [NYSDEC, 1999b], as it applies to the best usage of surface water and groundwater, and effects on organism usage of such waters;

- *Ambient Water Quality Standards And Guidance Values And Groundwater Effluent Limitations* [TOGS 1.1.1 – NYCRR, 1998] as it pertains to groundwater and the protection of aquatic organisms from potential influx of groundwater to surface waters;

- *National Ambient Water Quality Criteria* (NAWQC) [U.S. EPA, 2002] as it pertains to groundwater and the protection of aquatic organisms from potential influx of groundwater to surface waters; and

- Sediment - *Technical Guidance for Screening of Contaminated Sediments* [NYSDEC, 1999a], as it applies to sediment contaminants and the protection of benthic organisms

For those chemicals and media for which no applicable regulatory standard exists, additional sources may be consulted as applicable per NYSDEC [1994a]. For groundwater/surface water standards the following additional sources may be consulted, in order of preference: NOAA SQuiRTs [Buchman, 1999], and OSWER EcoTox Thresholds [U.S. EPA, 1996]. Similarly for sediments the following sources may be consulted: MacDonald et al. [2001], and Buchman [1999].

3 Step II – Contaminant Specific Impact Assessment

The fish and wildlife resources present in the vicinity (within 2-mile radius) of the site are described in Step I. The following sections provide a summary of the biological resources listed therein as they pertain to the Step II pathway analysis.

Step IIA (Pathway Analysis) includes:

- Identification of Potential Habitats and Ecological Resources;
- Determination of Contaminants of Concern;
- Potential Contaminant Sources; and
- Relevant Transport and Exposure Pathways.

Step IIB (Criteria-Specific Analysis) includes:

Comparison of site-related constituent concentrations to applicable screening levels.

3.1 Step IIA – Pathway Analysis

The Step IIA analysis identifies potential migration for site-related constituents and exposure pathways for potential fish and wildlife species and ecological communities in the area. The following sections provide a brief summary of the applicable habitats and ecological resources, site-related contaminants of concern (COC), potential COC migration pathways, and the potential of exposure for biological resources.

3.1.1 Identification of Habitats and Ecological Resources

Ecologically significant habitats and wildlife resources include those associated with the riparian corridor and riverine habitats. Ecologically significant feeding guilds and representative species for the riparian corridor along the Delaware River were identified from observations made by RETEC biologists and knowledge of those species known or suspected of occurring in the area. Potentially significant ecological receptors were selected based on the likely potential for exposure and a qualitative evaluation of the following factors: guild representation, probability of habitat use, social/economic value, ecological significance, and availability of natural history/toxicological data.. For the purposes of the Pathway Analysis, only the river-associated ecological communities (i.e., aquatic and benthic community) are evaluated in Step IIB.

3.1.2 Contaminants of Concern

Two media of concern were investigated as part of the FWIA: groundwater and sediment in the site-related reach of the Delaware River. A total of 37 sediment samples and 10 groundwater samples were collected in Fall 2004. RI Report Figure 4-9 depicts the sampling locations. Site-related COC are summarized in Tables 1, 2 and 3 and include volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) (including PAHs). Contaminants of concern by media are summarized below:

Groundwater. The following chemical classes were analyzed for in the groundwater at the site: VOCs (eg., BTEX), polycyclic aromatic hydrocarbons (PAHs), and SVOCs (e.g., 2-methylphenol). Of these, the following compounds were detected:

- **VOCs** – benzene, ethyl benzene, xylene, isopropyl benzene;
- **SVOCs** – carbazole, 1,1-biphenyl, bis(2-ethylhexyl)phthalate; and
- **PAHs** – acenaphthene, acenaphthylene, anthracene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene.

Sediment. The following PAHs were detected in the sediment samples collected in the river:

- **PAHs** – 2-methylnapthelene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(a)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene.

These chemicals of concern are further evaluated in Step IIB.

3.1.3 Potential Sources and Migration Pathways

Potential migration pathways of site-related COC were evaluated to determine the potential of exposure for ecological receptors. Several potential COC migration pathways were identified:

- Leaching of residuals from soils to groundwater;
- Migration of residuals in groundwater to transition zones along the site-related reach of the Delaware River.

Migration pathways and potential ecological receptors are summarized in the context of a conceptual site model for the area of investigation (Figure 4). Note that direct contact of process residuals at on-site locations is not a complete pathway, as the site is located amidst an urban setting and the site proper is covered with an impervious surface (pavement). Ecological exposures at the former process area are not significant.

3.2 Step IIB Criteria-Specific Analysis

Criteria-specific analysis is used to evaluate those analytes determined to be potential COC in site media. Based on available site history and data, groundwater, subsurface soil, and sediments in the riparian corridor of the Delaware River were identified as site-related media of concern. These data are compared to NYSDEC-recommended screening concentrations to identify those constituents and pathways that may require further. A summary of the NYSDEC and other applicable screening criteria sources was provided in Section 2.4. Comparison of these criteria to site data is provided in the following sections.

3.2.1 Groundwater Pathway Analysis

Groundwater is a media of concern as migration of groundwater from the site to transition zones along the Delaware River may occur, which may impact riparian zone subsurface soils, sediments and/or surface water (see Figure 4). Potential impact to sediment from groundwater is addressed in the context of the sediment analysis presented in the following section. Potential impact of groundwater flux into Delaware River surface water under current conditions is conservatively evaluated (without consideration for transition zone attenuation, biodegradation and dilution) by direct comparison of groundwater concentrations obtained from well locations adjacent to the river (TW-1, 2, 3, 4 and 5; see Figure 4-9 of the RI Report) to ambient water quality criteria for the protection of aquatic life per NYSDEC [1998 and 1999b] (Table 1).

Groundwater COC with concentrations in excess of ambient water quality criteria are identified in Table 1:

- SVOCs/PAHs - acenaphthene, fluorine, and phenanthrene at TW-3 and TW-4; and
- VOCs – ethylbenzene and isopropylbenzene at TW-3 and TW-4.

Several PAHs lacked applicable screening levels, as tabulated in Table 1. Acenaphthene and fluorene were detected above the probable effect indices (acute) at TW-3. Only fluorene exceeded the probable effect level at TW-4. No SVOCs were detected above the applicable screening level but two of the three detected SVOC lacked screening levels. Both VOC were in exceedance of the threshold (chronic) groundwater screening criteria but below the upper effects threshold (acute) standard.

Impacts to ecological resources from groundwater influx, via transition zones, to Delaware River surface water is not expected to be significant. The transition zone potentially affected by site-related constituents is small (ca 120 feet) and the extent of groundwater potentially affecting benthic-related organisms is therefore limited. Comparison of groundwater concentrations directly to surface water standards is highly conservative and does not take into account the effect of attenuation, biodegradation and dilution, which would be substantial for the low molecular weight monaromatic and PAH compounds.

3.2.2 Sediment Criteria and Analysis

Polycyclic aromatic hydrocarbons are the only COC identified in river sediment. The primary source is related to an urban storm water outfall located up gradient of the site. Sediment may also be impacted groundwater influx to transition zones along the Delaware River (see Figure 4). Potential impacts of both the storm water outfall and groundwater to river sediments are evaluated by comparison to NYSDEC-recommended sediment screening criteria contained in *Technical Guidance for Screening of Contaminated Sediments* (NYSDEC, 1999a). Recent data collected by the Northeast Gas Association indicates that PAHs present in sediments at MGP sites are often significantly less toxic than is assumed from equilibrium partitioning theory and water quality criteria used to develop NYSDEC PAH screening values. As such the screening values presented in Table 2 are highly conservative for MGP sites.

For the purposes of this evaluation, PAHs were also evaluated on a total PAH (tPAH) basis (Table 2). The following locations/site IDs were identified to have a tPAH concentration in exceedance of the applicable sediment standard:

- **Upgradient (of groundwater plume)** – The following site IDs had a tPAH concentration in exceedance of the ERL (4,000 μg/kg) SD-6, SD-7, SD-9, SD-36 and SD-37. Of these, SD-37 was in exceedance of the tPAH ERM (45,000 μg/kg). These locations are located at or immediately downgradient of the upstream storm water outfall for the northern portion of the city of Port Jervis.

- **Adjacent (to groundwater plume)** – The following site IDs had a tPAH concentration in exceedance of the ERL: SD-10, SD-13, SD-15, and SD-23. No location had a tPAH concentration in exceedance of the ERM.

- **Downgradient (of groundwater plume)** – The following site ID had a tPAH concentration in exceedance of the ERL: SD-30. No location had a tPAH concentration in exceedance of the ERM. Note that these site locations are associated with the downstream storm water outfall for the southern portion of the city of Port Jervis.

Sediment impacts in the Delaware River are largely related to the upgradient urban storm water outfall. The highest observed PAH concentrations in the study area are associated with this outfall, and the sediment PAH plume follows a gradient from the upstream outfall to downstream sampling locations (Table 2), suggesting this to be the primary source of urban-derived residual sediment PAHs in the study area. In addition to the distribution of PAHs, the type of PAHs observed in sediment is strongly suggestive of combustion-produced urban sources, which are typically dominated by high molecular weight PAHs.

Although sediment impact from site-related PAHs at locations directly in the path of the groundwater plume cannot be discounted, this contribution is minimal under current conditions, as only relatively low levels of low molecular weight PAHs (e.g., acenaphthene) were detected in groundwater. As shown on Table 3, subsurface soil is impacted by site-related constituents in the plume path (i.e., RBB4 and RBB2) and therefore the contribution from residual PAHs in subsurface soil cannot be excluded. However, exceedance of threshold sediment screening levels was marginal (tPAH 4-19 mg/Kg) in the reach associated with the groundwater plume. While impact to benthic ecological resources cannot be discounted, significant impacts to the benthic community are not likely under current conditions.

4 Summary

This report presents Steps I through IIB of a NYSDEC FWIA [NYSDEC, 1994] in support of the RI for the Port Jervis MGP site located in Port Jervis, New York. Conclusions drawn from the FWIA indicate that the assessment of impacts to fish and wildlife are well defined and subsequent FWIA steps beyond Step IIB are not warranted.

Based on the Step I descriptive summary of the site and surrounding ecological resources, the Delaware River (riverine covertype) and associated fauna is of concern for site-related impact and potential ecological exposure. The river provides high resource value to aquatic life and humans, especially at locations upstream and downstream of the site-related reach of the river.

The Step IIA analysis indicates that a complete and potentially significant migration and exposure pathway exists from the site to the river. While the groundwater flux to river sediment and surface water may contribute to low-level impacts to Delaware River sediments, it appears that the primary source of residual contamination in the river in the RI study area is the urban storm water outfall.

Step IIB analysis of constituents present in river sediments demonstrate that tPAH concentrations decrease in concentration from the urban outfall to down stream locations, indicating that the urban outfall is the primary source of impacts in the RI study area. The concentration of tPAH exceeds sediment criteria in the areas directly adjacent to the urban storm water outfall, down gradient of the urban storm sewer, and adjacent to the area of the groundwater plume path. The concentration of PAHs in sediments located in the area potentially impacted by contaminated groundwater are low (<19 mg tPAH/Kg).

Analysis of constituents present in groundwater adjacent to the river indicates that some groundwater concentrations are in exceedance of applicable surface water criteria at a few locations directly in the groundwater plume path. However, exceedances of surface water criteria are localized and observed for only a few low molecular weight PAHs. Furthermore, the transition zone potentially affected by site-related constituents (in path of groundwater plume) is small and the extent of groundwater potentially affecting benthic-related organisms is therefore limited.

Development of remedial action to manage impacted groundwater will provide a mechanism to eliminate continued migration of low concentrations of PAHs from the site to river sediments. The majority of PAHs in River sediments are associated with the urban storm sewer and primarily the result of urban runoff sediment contamination.

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Tables

Table 1
River Bank Groundwater Results and Comparison to Screening Criteria
SVOC Results
Port Jervis MGP Site

Sample Designation	Groundwater Screening Criteria (ug/L) [Note 1]				TW1	TW1	TW2	TW2	TW3(10)	TW3(20)	TW3(30)	TW4	TW4	TW40	TW5	TW5
Laboratory Identification Date Sampled	Acute	Basis	Chronic	Basis	C4I180236001 9/17/04	C4K050180001 11/4/04	C4I180236002 9/17/04	C4K050180002 11/4/04	C4K050180003 11/3/04	C4K050180004 11/3/04	C4K050180005 11/3/04	C4I180236003 9/17/04	C4K050180007 11/4/04	C4K050180008 11/4/04 Duplicate TW4	C4I180236004 9/17/04	C4K050180006 11/3/04
Semi-Volatile Organic Compounds (ug/L)																
2-Methylnaphthalene	42	g	4.7	g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Acenaphthene	48	g	5.3	g	11 U	9.7 U	9.4 U	**1.7** J	**58**	**30**	9.9 U	**47**	**35**	**28**	10 U	9.5 U
Acenaphthylene	NA	NA	NA		11 U	9.7 U	9.4 U	9.5 U	**4.9** J	**11**	9.9 U	**2.3** J	**1.7** J	**1.6** J	10 U	9.5 U
Anthracene	35	g	3.8	g	11 U	9.7 U	9.4 U	9.5 U	**2.3** J	9.4 U	9.9 U	**1.8** J	9.4 U	9.5 U	10 U	9.5 U
Benzo(a)anthracene	0	g	0.0	g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Benzo(a)pyrene	NA	NA	NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Benzo(b)fluoranthene	NA	NA	NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Benzo(ghi)perylene	NA	NA	NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Benzo(k)fluoranthene	NA	NA	NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Chrysene	NA	NA	NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Dibenz(a,h)anthracene	NA	NA	NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Fluoranthene	NA	NA	NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	**1.7** J	**1.8** J	**1.7** J	10 U	9.5 U
Fluorene	5	g	0.5	g	11 U	9.7 U	9.4 U	9.5 U	**6.7** J	**2.3** J	9.9 U	**13**	**1.7** J	**1.4** J	10 U	9.5 U
Indeno(1,2,3-cd)pyrene	NA	NA	NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Naphthalene	110	g	13.0	g	11 U	9.7 U	9.4 U	9.5 U	**2.5** J	9.4 U	9.9 U	**3.7** J	9.4 U	9.5 U	10 U	9.5 U
Phenanthrene	45	g	5.0	g	11 U	9.7 U	9.4 U	9.5 U	**8.8** J	**1.3** J	9.9 U	**8** J	9.4 U	9.5 U	10 U	9.5 U
Pyrene	42	g	4.6	g	11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	**2.1** J	**2** J	**1.9** J	10 U	9.5 U
Total PAHs	NA		NA		**- U**	**- U**	**- U**	**1.7**	**83.2**	**44.6**	**- U**	**79.6**	**42.2**	**34.6**	**- U**	**- U**
1,1'-Biphenyl	NA		NA		11 U	9.7 U	9.4 U	9.5 U	**4.2** J	**1.3** J	9.9 U	1.6 J	9.4 U	9.5 U	10 U	9.5 U
2,2'-oxybis(1-Chloropropane)	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2,4,5-Trichlorophenol	NA		NA		26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
2,4,6-Trichlorophenol	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2,4-Dichlorophenol	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2,4-Dimethylphenol	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2,4-Dinitrophenol	NA		NA		26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
2,4-Dinitrotoluene	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2,6-Dinitrotoluene	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2-Chloronaphthalene	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2-Chlorophenol	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2-Methylphenol	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
2-Nitroaniline	NA		NA		26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
2-Nitrophenol	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
3,3'-Dichlorobenzidine	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
3-Nitroaniline	NA		NA		26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
4,6-Dinitro-2-methylphenol	NA		NA		26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
4-Bromophenyl phenyl ether	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
4-Chloro-3-methylphenol	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
4-Chloroaniline	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
4-Chlorophenyl phenyl ether	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
4-Methylphenol	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
4-Nitroaniline	NA		NA		26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
4-Nitrophenol	NA		NA		26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
Acetophenone	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Atrazine	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Benzaldehyde	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
bis(2-Chloroethoxy)methane	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
bis(2-Chloroethyl) ether	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
bis(2-Ethylhexyl) phthalate	NA		0.6	s	**1.2** J	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	**1.1** J	9.5 U
Butyl benzyl phthalate	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Caprolactam	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Carbazole	NA		NA		11 U	9.7 U	9.4 U	9.5 U	**2** J	9.4 U	9.9 U	**1.7** J	**1** J	**1** J	10 U	9.5 U
Di-n-butyl phthalate	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Di-n-octyl phthalate	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Dibenzofuran	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Diethyl phthalate	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Dimethyl phthalate	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Hexachlorobenzene	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Hexachlorobutadiene	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Hexachlorocyclopentadiene	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Hexachloroethane	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Isophorone	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
N-Nitrosodi-n-propylamine	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
N-Nitrosodiphenylamine	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Nitrobenzene	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Pentachlorophenol	NA		NA		26 U	24 U	24 U	24 U	24 U	24 U	25 U	26 U	24 U	24 U	26 U	24 U
Phenol	NA		NA		11 U	9.7 U	9.4 U	9.5 U	9.4 U	9.4 U	9.9 U	10 U	9.4 U	9.5 U	10 U	9.5 U
Total SVOCs (Note 2)					**1.2**	**- U**	**- U**	**1.7**	**89.4**	**45.9**	**- U**	**82.9**	**43.2**	**35.6**	**1.1**	**- U**

Notes:
U - The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
NL - Not Listed
J - The associated numerical value is an estimated quantity.
(Note 1) - Guidance (g) or Standard (s) Values for the protection of aquatic life - NYSDEC, Division of Water, TOGS (1.1.1) - 6 NYCRR 703.5 [NYSDEC, 1998] and *Water Quality Regulations - Surface Water and Groundwater Classifications and Standards* (1999).
(Note 2) - Total VOCs includes all BTEX compounds.
Total PAH = sum of all detected PAHs
Green Shading = Exceeds the threshold (chronic) effects value only
Yellow Shading = Exceeds the probable (acute) effects value

Table 1
River Bank Groundwater Results and Comparison to Screening Levels
VOC Results
Port Jervis MGP Site

Sample Designation / Laboratory Identification / Date Sampled	Groundwater Screening Criteria (ug/L) [Note 1] Acute	Basis	Chronic	Basis	TW1 C4I180236001 9/17/04		TW1 C4K050180001 11/4/04		TW2 C4I180236002 9/17/04		TW2 C4K050180002 11/4/04		TW3(10) C4K050180003 11/3/04		TW3(20) C4K050180004 11/3/04		TW3(30) C4K050180005 11/3/04		TW4 C4I180236003 9/17/04		TW4 C4K050180007 11/3/04		TW40 C4K050180008 11/3/04 Duplicate TW4		TW5 C4I180236004 9/17/04		TW5 C4K050180006 11/3/04	
Volatile Organic Compounds (ug/Kg)																												
Benzene	760	g	210	g	10	U	10	U	10	U	10	U	**22**		**7.3**	J	10	U	**12**		**9.8**	J	**9.3**	J	10	U	10	U
Ethylbenzene	150	g	17	g	10	U	10	U	10	U	10	U	**26**		**14**		10	U	**43**		**2.7**	J	**2.3**	J	10	U	10	U
Toluene	480	g	92	g	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Xylenes (total)	590	g	65	g	10	U	10	U	10	U	10	U	**24**		**6.4**	J	10	U	**4.6**	J	**3.1**	J	**2.8**	J	10	U	10	U
Total BTEX (ug/Kg)					**-**	**U**	**-**	**U**	**-**	**U**	**-**	**U**	**72**		**27.7**		**-**	**U**	**59.6**		**15.6**		**14.4**		**-**	**U**	**-**	**U**
1,1,1-Trichloroethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloro-1,2,2-trifluoroethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromo-3-chloropropane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromoethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Butanone	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-pentanone	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromoform	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon tetrachloride	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloromethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
cis-1,2-Dichloroethene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
cis-1,3-Dichloropropene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cyclohexane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dichlorodifluoromethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	23	g	2.6	g	10	U	10	U	10	U	10	U	**13**		**5.8**	J	10	U	**2.9**	J	**1.3**	J	**1.2**	J	10	U	10	U
Methyl acetate	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl tert-butyl ether	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylcyclohexane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene chloride	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Styrene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene	NA		NA		10	U	**1.4**	J	**1.1**	J	**1.2**	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Trichlorofluoromethane	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Vinyl chloride	NA		NA		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Total VOCs (Note 2)					**-**	**U**	**1.4**		**1.1**		**1.2**		**85**		**33.5**		**-**	**U**	**62.5**		**16.9**		**15.6**		**-**	**U**	**-**	**U**

Notes:

U - The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.

NL - Not Listed

J - The associated numerical value is an estimated quantity.

(Note 1) - Guidance (g) or Standard (s) Values for the protection of aquatic life - NYSDEC, Division of Water, TOGS (1.1.1) - 6 NYCRR 703.5 [NYSDEC, 1998] and *Water Quality Regulations - Surface Water and Groundwater Classifications and Standards* (1999).

(Note 2) - Total VOCs includes all detected BTEX compounds.

Green Shading = Exceeds the threshold (chronic) effects value only

Table 2
Sediment PAH Sample Results and Comparison to NYSDEC-Recommended Screening Criteria
Port Jervis MGP Site

Sample Designation	Acute Toxicity	Chronic Toxicity	SD5		SD6		SD60		SD7		SD8		SD9		SD10		SD11		SD12		SD13		SD14		SD15		SD16		SD17	
Laboratory Identification			C4K020186008		C4K020186009		C4K020186002		C4K020186005		C4K020186007		C4K020186001		C4K020197005		C4K020197002		C4K020197001		C4K020197003		C4K020197006		C4K020197004		C4K020197007		C4K020197008	
Date Sampled			10/28/2004		10/28/2004		10/28/2004		10/28/2004		10/28/2004		10/28/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004	
Semi-Volatile Organic Compounds (μg/g-OC)																														
2-Methylnaphthalene	NA	NA	20	U	75	U	1	J	40	U	127	U	120	U	65	U	581	U	315	U	9	J	325	U	63	U	336	U	241	U
Acenaphthene	NA	140	20	U	75	U	14	U	40	U	127	U	120	U	65	U	581	U	315	U	7	J	65	J	29	J	336	U	241	U
Acenaphthylene	NA	NA	20	U	33	J	5	J	28	J	127	U	75	J	31	J	581	U	315	U	85		48	J	51	J	336	U	241	U
Anthracene	986	107	20	U	41	J	5	J	29	J	127	U	90	J	22	J	581	U	315	U	37	J	35	J	38	J	336	U	241	U
Benzo(a)anthracene	94	12	2	J	127		16		76		127	U	265		67		581	U	315	U	78		135	J	112		37	J	57	J
Benzo(a)pyrene	NA	NA	2	J	116		14		67		127	U	238		68		581	U	315	U	98	J	151	J	113	J	336	U	71	J
Benzo(b)fluoranthene	NA	NA	3	J	133		18		86		127	U	286		84		581	U	315	U	115	J	167	J	130	J	336	U	92	J
Benzo(ghi)perylene	NA	NA	20	U	92		10	J	57		127	U	157		58	J	581	U	315	U	76	J	111	J	72	J	336	U	67	J
Benzo(k)fluoranthene	NA	NA	20	U	52	J	6	J	28	J	127	U	111	J	31	J	581	U	315	U	32	J	57	J	45	J	336	U	30	J
Chrysene	NA	NA	2	J	121		15		71		127	U	247		75		581	U	315	U	96	J	127	J	115		336	U	65	J
Dibenz(a,h)anthracene	NA	NA	20	U	19	J	2	J	13	J	127	U	33	J	12	J	581	U	315	U	20	J	325	U	20	J	336	U	241	U
Fluoranthene	NA	1020	4	J	382	J	48	J	238		127	U	813		121		71	J	315	U	249		214	J	241		62	J	106	J
Fluorene	73	8	20	U	26	J	4	J	14	J	127	U	60	J	65	U	581	U	315	U	10	J	325	U	12	J	336	U	241	U
Indeno(1,2,3-cd)pyrene	NA	NA	20	U	87		10	J	57		127	U	160		51	J	581	U	315	U	75	J	95	J	74	J	336	U	54	J
Naphthalene	258	30	20	U	12	J	3	J	5	J	127	U	17	J	65	U	581	U	315	U	69	U	325	U	14	J	336	U	241	U
Phenanthrene	NA	120	20	U	272		34		162		127	U	542		64	J	581	U	315	U	108		103	J	106		73	J	36	J
Pyrene	8775	961	3	J	283	J	34	J	162		127	U	572		86	J	79	J	315	U	144		183	J	124		55	J	92	J
Total PAHs (ug/kg) (ERM, ERL)	44,792	4,022	339		31,060		14,009		22,950		NA		12,177		4,946		108		NA		6,975		1,879		8,584		271		945	
TOC (mg/kg)	NL	NL	20,700	J	17,300	J	61,900	J	21,000	J	3,150	U	3,320		6,430		723	J	1,270	J	5,630	J	1,260	J	6,630	J	1,190	J	1,410	J
TOC (percent)	-	-	2.1		1.7		6.2		2.1		0.32		0.33		0.64		0.07		0.13		0.56		0.13		0.66		0.12		0.14	
Percent Solids	NL	NL	77.9		76.8		77.3		77.5		82.6		81.1		78.3		77.8		81.6		85.7		81		79.5		82.3		95.7	

Notes:

[1] NYSDEC Technical Guidance for Screening Contaminated Sediments; Division of Fish, Wildlife, and Marine Resources (NYSDEC, 1999).

NA - Not Analyzed/Not Applicable

U - The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.

NL - Not Listed

J - The associated numerical value is an estimated quantity.

Bolded Total PAH values (bulk or OC-normalized) are those concentrations evaluated (i.e., tPAH concentrations were compared on a dry weight basis if TOC was less than 0.2%, otherwise OC-normalized value were used)

Green Shading = Exceeds the Chronic Toxicity Screening guidance value only

Yellow Shading = Exceeds the Acute Toxicity Screening value

Table 2
Sediment PAH Sample Results and Comparison to NYSDEC-Recommended Screening Criteria
Port Jervis MGP Site

Sample Designation	Acute Toxicity	Chronic Toxicity	SD18		SD19		SD20		SD21		SD22		SD23		SD24	
Laboratory Identification			C4K020197009		C4K020197010		C4K020197011		C4K020197012		C4K020197013		C4K020197014		C4K020197015	
Date Sampled			10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004	
Semi-Volatile Organic Compounds (μg/g-OC)																
2-Methylnaphthalene	NA	NA	465	U	286	U	437	U	395	U	361	U	4	J	320	U
Acenaphthene	NA	140	465	U	286	U	437	U	194	J	51	J	10	J	320	U
Acenaphthylene	NA	NA	465	U	42	J	437	U	109	J	361	U	23		320	U
Anthracene	986	107	465	U	286	U	437	U	78	J	361	U	15	J	320	U
Benzo(a)anthracene	94	12	465	U	114	J	437	U	186	J	361	U	73		320	U
Benzo(a)pyrene	NA	NA	465	U	107	J	437	U	140	J	361	U	69	J	320	U
Benzo(b)fluoranthene	NA	NA	465	U	136	J	437	U	155	J	361	U	73	J	320	U
Benzo(ghi)perylene	NA	NA	465	U	63	J	437	U	116	J	361	U	23	J	320	U
Benzo(k)fluoranthene	NA	NA	465	U	58	J	437	U	51	J	361	U	25	J	320	U
Chrysene	NA	NA	465	U	150	J	437	U	217	J	361	U	77		320	U
Dibenz(a,h)anthracene	NA	NA	465	U	286	U	437	U	395	U	361	U	7	J	320	U
Fluoranthene	NA	1020	465	U	200	J	437	U	349	J	361	U	126		320	U
Fluorene	73	8	465	U	286	U	437	U	55	J	361	U	3	J	320	U
Indeno(1,2,3-cd)pyrene	NA	NA	465	U	61	J	437	U	93	J	361	U	24	J	320	U
Naphthalene	258	30	465	U	286	U	437	U	60	J	352	J	16	U	320	U
Phenanthrene	NA	120	465	U	56	J	437	U	217	J	361	U	32		320	U
Pyrene	8775	961	465	U	193	J	437	U	372	J	361	U	154		320	U
Total PAHs (ug/kg) (ERM, ERL)	44,792	4,022	NA		1,652		NA		3,085		435		18,192		NA	
TOC (mg/kg)	NL	NL	860	J	1,400		915	J	1,290	J	1,080	J	24,600	J	1,220	
TOC (percent)	-	-	0.09		0.14		0.09		0.13		0.11		2.46		0.12	
Percent Solids	NL	NL	82.8		83.3		82.1		64.5		84.3		83.4		84.4	

Sample Designation	SD25		SD26		SD27		SD28		SD29		SD30		SD31	
Laboratory Identification	C4K020186013		C4K020186014		C4K020186015		C4K020186016		C4K020186017		C4K020252001		C4K020252008	
Date Sampled	10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/27/2004		10/26/2004		10/26/2004	
Semi-Volatile Organic Compounds (μg/g-OC)														
2-Methylnaphthalene	92	U	259	U	138	U	210	U	65	U	43	U	90	U
Acenaphthene	92	U	259	U	138	U	210	U	65	U	43	U	90	U
Acenaphthylene	92	U	27	J	32	J	210	U	7	J	43	U	90	U
Anthracene	92	U	259	U	31	J	210	U	13	J	10	J	16	J
Benzo(a)anthracene	9	J	88	J	94	J	46	J	29	J	34	J	60	J
Benzo(a)pyrene	92	U	102	J	84	J	37	J	32	J	35	J	60	J
Benzo(b)fluoranthene	10	J	88	J	101	J	49	J	33	J	45		86	J
Benzo(ghi)perylene	92	U	75	J	74	J	40	J	30	J	30	J	41	J
Benzo(k)fluoranthene	92	U	48	J	40	J	210	U	14	J	16	J	30	J
Chrysene	9	J	82	J	94	J	48	J	32	J	41	J	73	J
Dibenz(a,h)anthracene	92	U	259	U	17	J	210	U	65	U	8	J	11	J
Fluoranthene	15	J	122	J	279		118	J	44	J	94		146	
Fluorene	92	U	259	U	16	J	210	U	65	U	4	J	90	U
Indeno(1,2,3-cd)pyrene	92	U	64	J	70	J	23	J	24	J	27	J	41	J
Naphthalene	92	U	259	U	138	U	210	U	65	U	43	U	90	U
Phenanthrene	10	J	31	J	164		77	J	21	J	53		79	J
Pyrene	15	J	156	J	198		92	J	54	J	61		105	
Total PAHs (ug/kg) (ERM, ERL)	300		1,300		3,853		1,034		2,095		4,609		3,484	
TOC (mg/kg)	4,370		1,470		2,980		1,950		6,300	J	10,100	J	4,660	J
TOC (percent)	0.44		0.15		0.30		0.20		0.63		1.0		0.47	
Percent Solids	82.1		87.9		80		80.9		81.4		77		78.1	

Notes:
[1] NYSDEC Technical Guidance for Screening Contaminated Sediments; Division of Fish, Wildlife, and Marine Resources (NYSDEC, 1999).
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Green Shading = Exceeds the Chronic Toxicity Screening guidance value only
Yellow Shading = Exceeds the Acute Toxicity Screening value

Table 2
Sediment PAH Sample Results and Comparison to NYSDEC-Recommended Screening Criteria
Port Jervis MGP Site

Sample Designation	Acute Toxicity	Chronic Toxicity	SD32		SD33		SD34		SD35		SD36		SD37		SD38		SD39		SD40		SD41	
Laboratory Identification			C4K020252004		C4K020252007		C4K020252005		C4I180236007		C4K020186004		C4K020186006		C4K020186003		C4K020186011		C4K020186010		C4K020186012	
Date Sampled			10/26/2004		10/26/2004		10/26/2004		10/26/2004		10/28/2004		10/28/2004		10/28/2004		10/28/2004		10/28/2004		10/28/2004	
Semi-Volatile Organic Compounds (µg/g-OC)																						
2-Methylnaphthalene	NA	NA	38	U	268	U	33	U	291	U	33	J	19	J	59	U	54	U	11	U	75	U
Acenaphthene	NA	140	38	U	268	U	33	U	291	U	33	J	17	J	59	U	54	U	11	U	75	U
Acenaphthylene	NA	NA	38	U	268	U	33	U	291	U	230		71	J	59	U	6	J	2	J	75	U
Anthracene	986	107	4	J	268	U	33	U	36	J	278		109	J	59	U	5	J	2	J	75	U
Benzo(a)anthracene	94	12	16	J	35	J	13	J	154	J	581		213		59	U	21	J	5	J	12	J
Benzo(a)pyrene	NA	NA	14	J	34	J	11	J	166	J	530		202		59	U	18	J	5	J	12	J
Benzo(b)fluoranthene	NA	NA	20	J	40	J	14	J	229	J	606		235		7	J	20	J	5	J	16	J
Benzo(ghi)perylene	NA	NA	13	J	268	U	8	J	154	J	404		137		59	U	13	J	4	J	75	U
Benzo(k)fluoranthene	NA	NA	7	J	268	U	5	J	86	J	253		82	J	59	U	9	J	2	J	75	U
Chrysene	NA	NA	19	J	39	J	13	J	194	J	556		202		59	U	20	J	5	J	14	J
Dibenz(a,h)anthracene	NA	NA	38	U	268	U	33	U	36	J	81	J	19	J	59	U	54	U	11	U	75	U
Fluoranthene	NA	1020	40		57	J	25	J	400		1,768		765		8	J	39	J	10	J	24	J
Fluorene	73	8	38	U	268	U	33	U	291	U	240		104	J	59	U	54	U	11	U	75	U
Indeno(1,2,3-cd)pyrene	NA	NA	12	J	268	U	8	J	177	J	379		131		59	U	13	J	3	J	9	J
Naphthalene	258	30	38	U	268	U	33	U	291	U	205		142		59	U	54	U	11	U	75	U
Phenanthrene	NA	120	21	J	268	U	12	J	234	J	1,768		820		59	U	19	J	5	J	11	J
Pyrene	8775	961	29	J	56	J	23	J	343		1,439		601		7	J	33	J	10	J	20	J
Total PAHs (ug/kg) (ERM, ERL)	44,792	4,022	2,071		411		1,784		3,866		37,150		70,820		159		1,828		2,588		693	
TOC (mg/kg)	NL	NL	10,600	J	1,570	J	13,500	J	1,750	J	3,960		18,300	J	6,990		8,410	J	45,000	J	5,890	
TOC (percent)	-	-	1.1		0.16		1.4		0.18		0.40		1.8		0.7		0.8		4.5		0.6	
Percent Solids	NL	NL	82.3		78.4		73.4		NA		82.6		71.2		80.8		73.9		68.7		74.8	

Notes:
[1] NYSDEC Technical Guidance for Screening Contaminated Sediments; Division of Fish, Wildlife, and Marine Resources (NYSDEC, 1999).
NA - Not Analyzed/Not Applicable
U - The material was analyzed for but not detected at, or above, the reporting limit. The associated numerical value is the sample quantitation limit.
NL - Not Listed
J - The associated numerical value is an estimated quantity.

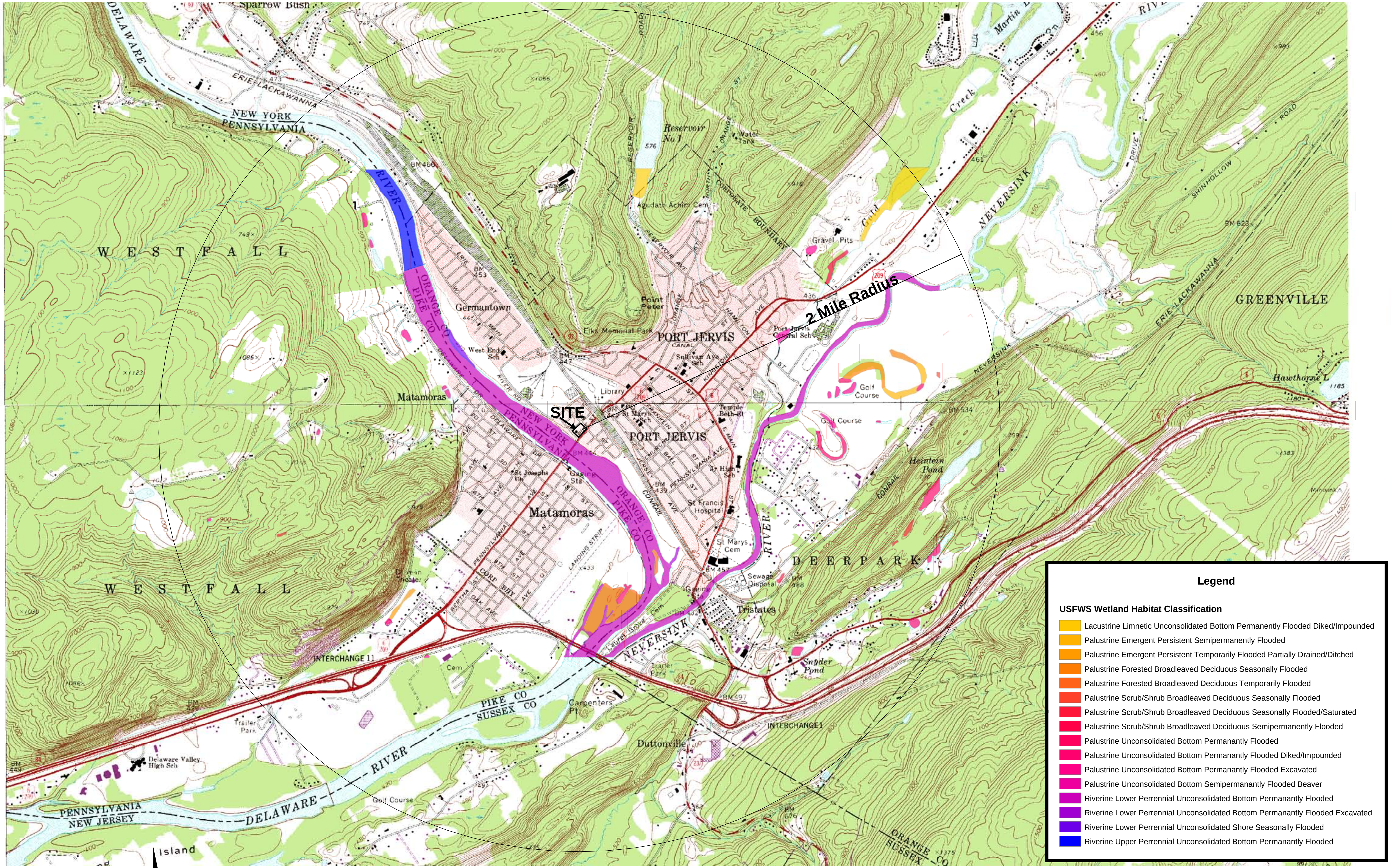
Green Shading = Exceeds the Chronic Toxicity Screening guidance value only
Yellow Shading = Exceeds the Acute Toxicity Screening value

Table 3
River Bank Subsurface Soil Sample Results (at Water Table)
SVOC Results
Port Jervis MGP Site

Sample Designation / **Laboratory Identification** / **Date Sampled**	**NYSDEC Recommended Soil Cleanup Objective (Note 1)**	**RBB1 (3.3-4.3) C4I170326001 9/13/2004**		**RBB2 (3.8-4.8) C4I170326005 9/15/2004**		**RBB3 (3-4) C4I170326004 9/14/2004**		**RBB4 (3.8-4.8) C4I180236005 9/16/2004**		**RBB5 (3.5-4.5) C4I130217001 9/9/2004**	
Semi-Volatile Organic Compounds (ug/Kg)											
2-Methylnaphthalene	36,400	360	U	390	U	360	UJ	330	J	430	U
Acenaphthene	50,000	360	U	390	U	360	UJ	310	J	430	U
Acenaphthylene	41,000	66	J	48	J	270	J	350	J	210	J
Anthracene	50,000	39	J	80	J	130	J	890		120	J
Benzo(a)anthracene	224/MDL	230	J	410		890	J	1800		530	
Benzo(a)pyrene	61/MDL	270	J	310	J	1200	J	1400		780	
Benzo(b)fluoranthene	1,100	280	J	350	J	1200	J	1600		710	
Benzo(ghi)perylene	50,000	350	J	210	J	1100	J	760		720	
Benzo(k)fluoranthene	1,100	100	J	160	J	480	J	620		260	J
Chrysene	400	240	J	360	J	1000	J	1600		590	
Dibenz(a,h)anthracene	14/MDL	51	J	62	J	210	J	220	J	150	J
Fluoranthene	50,000	340	J	600		850	J	5300		520	
Fluorene	50,000	360	U	390	U	58	J	640		430	U
Indeno(1,2,3-cd)pyrene	3,200	310	J	240	J	1100	J	920		660	
Naphthalene	13,000	360	U	390	U	58	J	640		140	J
Phenanthrene	50,000	130	J	300	J	390	J	6200		180	J
Pyrene	50,000	570		630		1500	J	4800		630	
Total PAHs	< 500,000	**2,976**		**3,760**		**10,436**		**28,380**		**6,200**	
LPAH		**575**		**1028**		**1756**		**14660**		**1170**	
HPAH		**2401**		**2732**		**8680**		**13720**		**5030**	

Notes:
NA = Not Analyzed
NL = Not Listed
MDL - Minimum Detection Limit
U = The material was analyzed for but not detected at or above the reporting limit. The associated numerical value is the sample quantitation limit.
J = The associated numerical value is an estimated quantity.
Bold value - compound detected at concentration greater than the reporting limit.
(Note 1) - NYSDEC TAGM HWR-94-4046 - Determination of Soil Cleanup Objectives and Cleanup Levels [NYSDEC, Jan. 1994]. Provided for reference only.
(Note 2) - Total SVOCs includes all of the PAH and SVOC compounds.
Total PAH = sum of all detected PAHs
LPAH = sum of all detected low molecular weight PAHs (bold/italics)
HPAH = sum of all high molecular weight PAHs (normal text)

Figures



RETEC

0 1,000 2,000 Feet

N

Fish and Wildlife Impact Analysis Manufactured Gas Plant Site Port Jervis, New York (ORAN2-18420)	SITE LOCATION
DATE: 02/04/05 · DWN. BY: KP_ftc · FILE: T:ORUtilities_PortJervis/Projects/Location	FIGURE 1

RETEC

N

0 200 400 800 Feet

Fish and Wildlife Impact Analysis Manufactured Gas Plant Site Port Jervis, New York (ORAN2-18420)			**Ecological Habitat and Cover Types**
DATE: 02/04/05	DWN. BY: KP_ftc	FILE: T:ORUtilities_PortJervis/Projects/EcoHabitat.mxd	**FIGURE 2**

RETEC

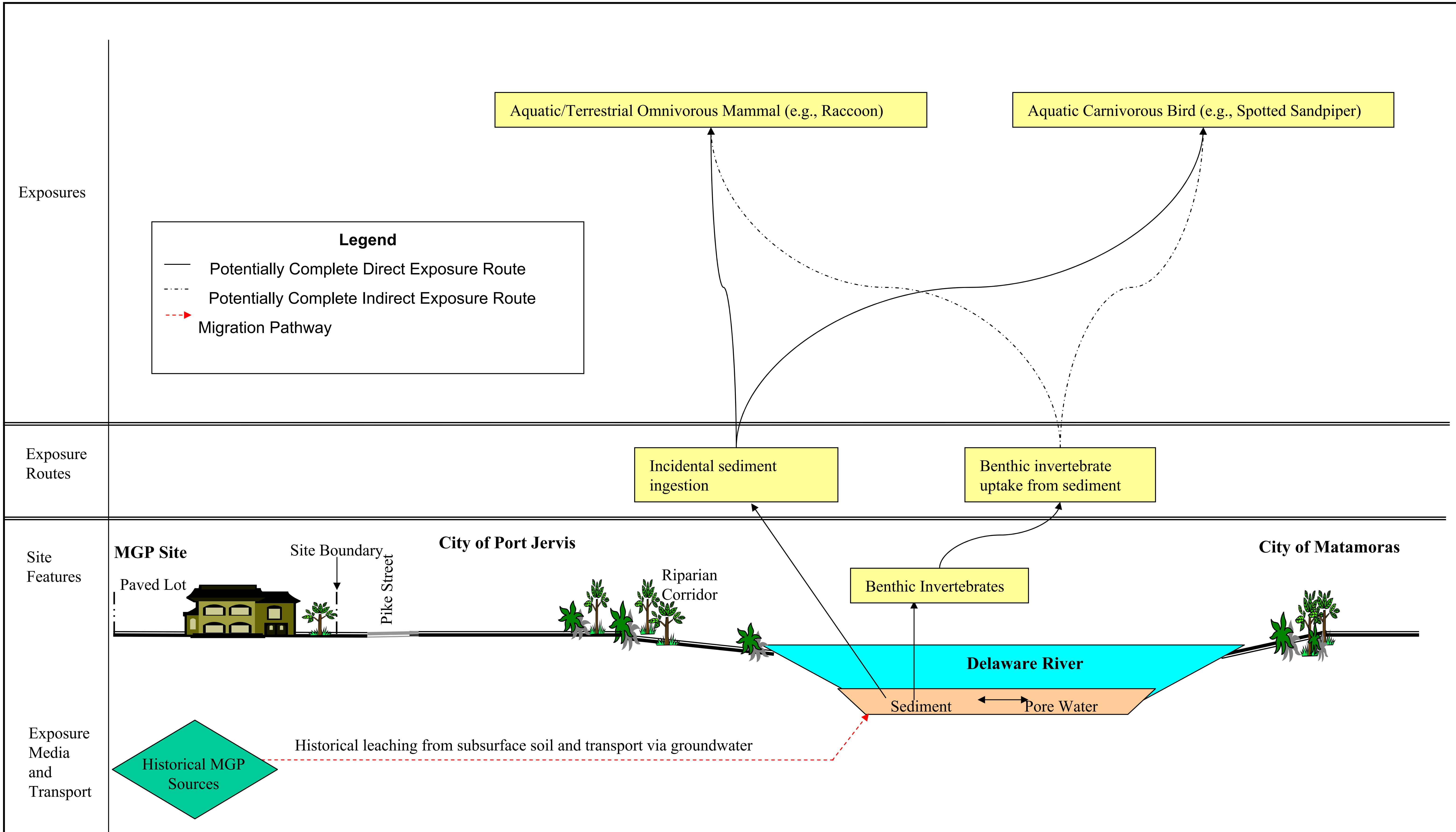
N

0 50 100 200 300
Feet

Fish and Wildlife Impact Analysis
Manufactured Gas Plant Site
Port Jervis, New York
(ORAN2-18420)

AREA DRAINAGE AND FLOOD PLAIN FEATURES

DATE: 02/21/05 | DWN. BY: KP_ftc | FILE: T:ORUtilities_PortJervis/Projects/Drainage.mxd | **FIGURE 3**



Port Jervis MGP Site
Port Jervis, New York
(ORAN2-18420)

Ecological Site Conceptual Model for Port Jervis MGP Site

DATE: 02/14/05

Figure 4

Attachment 1

Photo Documentation

Photo 1 – Residential neighborhood southeast of site, behind river levee.

Photo 2– Recreational facilities east of site, behind river levee.

Photo 3– Riparian zone, immediately west of bridge abutment.

Photo 4 – Riparian area west (upstream) of bridge. Area has been recently cleared and mowed.

Photo 5– View of area downstream of potential discharge zone east of bridge. Note flood protection levee.

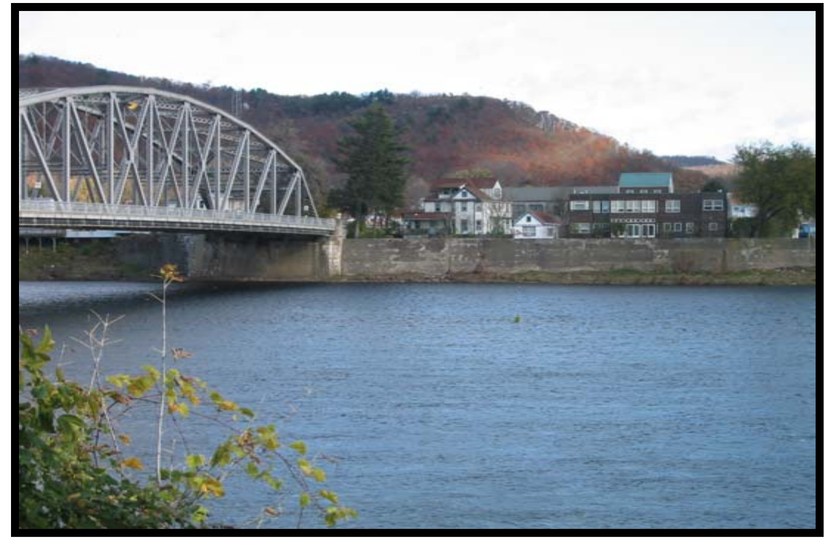


Photo 6– View of potential discharge zone east of bridge from south side of river. Former MGP plant is located 1 block north (behind the large tree in the center).

Photo 7– Storm sewer outfall structure.

Photo 8– Storm sewer drainage to river. Silt, sand, and grit substrate.

Photo 9 – Close-up, riparian vegetation east (downstream) of bridge.

Photo 10– Riparian area looking west (upstream) of site, at edge of cleared area.

Photo 11 – Riparian area west of site, looking east (downstream) from edge of cleared area.

Photo 12– Panoramic view of Delaware River looking downstream from approx. 1 mile upstream of site.

Photo 13– Panoramic view of river downstream of site, at location of lower storm drain outfall. Note extensive riffle areas.

Photo 14– Riffle area west (upstream) of site.

Photo 15– Large riffle area, downstream of site. Regular shape suggests an artificial structure.

Photo 16 – View of Delaware River from shoreline east (downstream) of bridge.

Photo 17 – Sand/gravel/cobble substrate at waters edge, immediately below bridge.

Photo 18 – Silty sand substrate along water's edge, west of site.

Photo 19 – Shoreline in calm eddy area downstream of site. Substrate in this area is silty.

Photo 20– Native riparian area unprotected by levees, ½-mile upstream of site. Note recent flood damage.

Photo 21– Riparian willow flats impacted by recent flooding,
1 mile upstream of site.

Photo 22 – Floodplain flats on south (Pennsylvania) shore, ½ -
mile downstream of site.

Photo 23 – Canada geese flocking on shoreline, ½-mile
upstream of site.

Attachment 2A

Natural Heritage Program Correspondence

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925
Website: www.dec.state.ny.

Erin M. Crotty
Commissioner

December 16, 2004

Kenneth Pinnella
R E T E C Group
2409 Research Blvd, Suite 106
Fort Collins, CO 80526

Dear Mr. Pinnella:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the 1.2 acre (one city block), Fish and Wildlife Impact Analysis, site as indicated on the map you provided, located in the City of Port Jervis, Orange County.

Enclosed is a report of rare or state-listed animals and plants, significant natural communities, and other significant habitats, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site. The information contained in this report is considered sensitive and may not be released to the public without permission from the New York Natural Heritage Program.

The presence of rare species may result in this project requiring additional permits, permit conditions, or review. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environment impact assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,
Betty Ketcham
Betty A. Ketcham, Information Services
NY Natural Heritage Program

Encs.
cc: Reg. 3, Wildlife Mgr.
Peter Nye, Endangered Species Unit, Albany

Natural Heritage Report on Rare Species and Ecological Communities

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor,
Albany, NY 12233-4757
(518) 402-8935

~This report contains **SENSITIVE** information that may not be released to the public without permission from the NY Natural Heritage Program.
~Refer to the User's Guide for explanations of codes, ranks and fields.
~Location maps for certain species and communities may not be provided if 1) the species is vulnerable to disturbance, 2) the location and/or extent is not precisely known, and/or 3) the location and/or extent is too large to display.

BIRDS

Haliaeetus leucocephalus — Office Use

Bald Eagle

NY Legal Status: Threatened — **NYS Rank:** Imperiled — 9195

Federal Listing: Threatened — **Global Rank:** Apparently secure

Last Report: ** — **EO Rank:** ** — ESU

County: Orange, Sullivan, Delaware, Broome

Town: Sanford, Lumberland, Hancock, Highland, Delaware, Fremont, Tusten, Cochecton, City Of Port Jervis, Deposit, Deerpark

Location: Delaware River

Directions: Eagles have been seen along the Delaware River in New York and Pennsylvania from Port Jervis to Deposit.

General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager or NYS DEC Endangered Species Unit at 518-402-8859.

BIVALVE MOLLUSKS

Alasmidonta varicosa — Office Use

Brook Floater

NY Legal Status: Threatened — **NYS Rank:** Critically imperiled — 11126

Federal Listing: — **Global Rank:** Vulnerable

Last Report: ** — **EO Rank:** ** — ESU

County: Orange

Town: City Of Port Jervis

Location: Delaware River Port Jervis

Directions: Brook floaters have been found in 2 sections of the Delaware River at Port Jervis, NY. One section extends from 200 to 400 meters upstream of the Route 6/Route 209 bridge. The other section extends from 230 to 460 meters downstream of the same bridge.

General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager or NYS DEC Endangered Species Unit at 518-402-8859.

Anodonta implicata — Office Use

Alewife Floater

NY Legal Status: Unlisted — **NYS Rank:** Critically imperiled — 11121

Federal Listing: — **Global Rank:** Demonstrably secure

Last Report: 2002-09-16 — **EO Rank:** Excellent or Good

County: Sullivan, Delaware, Orange

Town: Cochecton, Hancock, Delaware, City Of Port Jervis, Highland, Lumberland, Tusten, Fremont, Deerpark

Location: Upper Delaware River

Directions: Alewife floaters have been found in every river mile within the continuous 76.9-mile stretch of the Delaware River extending from just south of Hancock, NY, to Port Jervis, NY, except at 4 locations where the distance of the gap ranged from 1 to 1.8 miles.

General Quality and Habitat: Surveys were accomplished by visual observation and hand-counting of mussels while snorkeling downstream the Delaware River. The large numbers of individuals that have been found throughout the continuous 76.9-mile stretch of the Delaware River indicates The Delaware River is a large river.

3 Records Processed

DIVISION OF ENVIRONMENTAL PERMITS REGIONAL OFFICES

January 2004

REGION	COUNTIES	REGIONAL PERMIT ADMINISTRATORS
1	Nassau & Suffolk	John Pavacic NYS-DEC BLDG. 40 SUNY at Stony Brook Stony Brook, NY 11790-2356 Telephone: (631) 444-0365
2	New York City (Boroughs of Manhattan, Brooklyn, Bronx, Queens, & Staten Island	John Cryan NYS-DEC One Hunters Point Plaza 47-40 21st Street Long Island City, NY 11101-5407 Telephone: (718) 482-4997
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster & Westchester	Margaret Duke NYS-DEC 21 South Putt Corners Road New Paltz, NY 12561-1696 Telephone: (845) 256-3054
4	Albany, Columbia, Greene, Montgomery, Rensselaer & Schenectady	William Clarke NYS-DEC 1150 North Wescott Road Schenectady, NY 12306-2014 Telephone: (518) 357-2069
4 (sub-office)	Delaware, Otsego & Schoharie	Kent Sanders NYS-DEC Route 10 HCR#1, Box 3A Stamford, NY 12167-9503 Telephone: (607) 652-7741
5	Clinton, Essex, Franklin & Hamilton	Thomas Hall NYS-DEC Route 86, PO Box 296 Ray Brook, NY 12977-0296 Telephone: (518) 897-1234
5 (sub-office)	Fulton, Saratoga, Warren & Washington	Thomas Hall NYS-DEC County Route 40 PO Box 220 Warrensburg, NY 12885-0220 Telephone: (518) 623-1281
6	Jefferson, Lewis & St. Lawrence	Brian Fenlon NYS-DEC State Office Building 317 Washington Street Watertown, NY 13601-3787 Telephone: (315) 785-2245
6 (sub-office)	Herkimer & Oneida	J. Joseph Homburger* NYS-DEC State Office Building 207 Genesee Street Utica, NY 13501-2885 Telephone: (315) 793-2555

7	Cayuga, Madison, Onondaga & Oswego	John Feltman NYS-DEC 615 Erie Blvd. West (Env.Permits Room 206) Syracuse, NY 13204-2400 Telephone: (315) 426-7438
7 (sub-office)	Broome, Chenango, Cortland, Tioga & Thompkins	Michael Barylski* NYS-DEC 1285 Fisher Avenue Cortland, NY 13045-1090 Telephone: (607) 753-3095
8	Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne & Yates	Peter Lent NYS-DEC 6274 East Avon Lima Road Avon, NY 14414-9519 Telephone: (716) 226-2466
9	Erie, Niagara & Wyoming	Steve Doleski NYS-DEC 270 Michigan Avenue Buffalo, NY 14203-2999 Telephone: (716) 851-7165
9 (sub-office)	Allegany, Cattaraugus, Chautauqua	Ken Taft* NYS-DEC 182 East Union, Suite 3 Allegany, NY 14706-1328 Telephone: (716) 372-0645

* Deputy Regional Permit Administrator

USERS GUIDE TO NY NATURAL HERITAGE DATA

New York Natural Heritage Program, 625 Broadway, 5th Floor, Albany, NY 12233-4757 phone: (518) 402-8935

NATURAL HERITAGE PROGRAM: The NY Natural Heritage Program is a partnership between the NYS Department of Environmental Conservation (NYS DEC) and The Nature Conservancy. Our mission is to enable and enhance conservation of rare animals, rare plants, and significant communities. We accomplish this mission by combining thorough field inventories, scientific analyses, expert interpretation, and the most comprehensive database on New York's distinctive biodiversity to deliver the highest quality information for natural resource planning, protection, and management.

DATA SENSITIVITY: The data provided in the report are ecologically sensitive and should be treated in a sensitive manner. The report is for your in-house use and should <u>not</u> be released, distributed or incorporated in a public document without prior permission from the Natural Heritage Program.

EO RANK: A letter code for the quality of the occurrence of the rare species or significant natural community, based on population size or area, condition, and landscape context.

A-E = Extant: A=Excellent, B=Good, C=Fair, D=Poor, E=Extant but with insufficient data to assign a rank of A-D.
F = Failed to find. Did not locate species during a limited search, but habitat is still there and further field work is justified.
H = Historical. Historical occurrence without any recent field information.
X = Extirpated. Field/other data indicates element/habitat is destroyed and the element no longer exists at this location.
U = Extant/Historical status uncertain.
Blank = Not assigned.

LAST REPORT: The date that the rare species or significant natural community was last observed at this location, as documented in the Natural Heritage databases. The format is most often YYYY-MM-DD.

NY LEGAL STATUS – Animals:

Categories of Endangered and Threatened species are defined in New York State Environmental Conservation Law section 11-0535. Endangered, Threatened, and Special Concern species are listed in regulation 6NYCRR 182.5.

E - **Endangered Species**: any species which meet one of the following criteria:
- Any native species in imminent danger of extirpation or extinction in New York.
- Any species listed as endangered by the United States Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.

T - **Threatened Species**: any species which meet one of the following criteria:
- Any native species likely to become an endangered species within the foreseeable future in NY.
- Any species listed as threatened by the U.S. Department of the Interior, as enumerated in the Code of the Federal Regulations 50 CFR 17.11.

SC - **Special Concern Species**: those species which are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York. Unlike the first two categories, species of special concern receive no additional legal protection under Environmental Conservation Law section 11-0535 (Endangered and Threatened Species).

P - **Protected Wildlife** (defined in Environmental Conservation Law section 11-0103): wild game, protected wild birds, and endangered species of wildlife.

U - **Unprotected** (defined in Environmental Conservation Law section 11-0103): the species may be taken at any time without limit; however a license to take may be required.

G - **Game** (defined in Environmental Conservation Law section 11-0103): any of a variety of big game or small game species as stated in the Environmental Conservation Law; many normally have an open season for at least part of the year, and are protected at other times.

NY LEGAL STATUS – Plants:

The following categories are defined in regulation 6NYCRR part 193.3 and apply to NYS Environmental Conservation Law section 9- 1503.

E - **Endangered Species**: listed species are those with:
- 5 or fewer extant sites, or
- fewer than 1,000 individuals, or
- restricted to fewer than 4 U.S.G.S. 7 ½ minute topographical maps, or
- species listed as endangered by U.S. Department of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.

T - **Threatened**: listed species are those with:
- 6 to fewer than 20 extant sites, or
- 1,000 to fewer than 3,000 individuals, or
- restricted to not less than 4 or more than 7 U.S.G.S. 7 and ½ minute topographical maps, or
- listed as threatened by U.S. Department of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.

R - **Rare**: listed species have:
- 20 to 35 extant sites, or
- 3,000 to 5,000 individuals statewide.

continued on back

V - Exploitably vulnerable: listed species are likely to become threatened in the near future throughout all or a significant portion of their range within the state if causal factors continue unchecked.

U - Unprotected; no state status.

FEDERAL STATUS (PLANTS and ANIMALS): The categories of federal status are defined by the United States Department of the Interior as part of the 1974 Endangered Species Act (see Code of Federal Regulations 50 CFR 17). The species listed under this law are enumerated in the Federal Register vol. 50, no. 188, pp. 39526 - 39527. The codes below without parentheses are those used in the Federal Register. The codes below in parentheses are created by Heritage to deal with species which have different listings in different parts of their range, and/or different listings for different subspecies or varieties.

(blank) = No Federal Endangered Species Act status.
LE = The element is formally listed as endangered.
LT = The element is formally listed as threatened.
PE = The element is proposed as endangered.
PT = The element is proposed as threatened.
C= The element is a candidate for listing.
LE,LT = The species is formally listed as endangered in part of its range, and as threatened in the other part; or, one or more subspecies or varieties is listed as endangered, and the others are listed as threatened.
LT,PDL = Populations of the species in New York are formally listed as threatened, and proposed for delisting.
(LE) = If the element is a full species, all subspecies or varieties are listed as endangered; if the element is a subspecies, the full species is listed as endangered.
LT,T(S/A) = One or more subspecies or populations of the species is formally listed as threatened, and the others are treated as threatened because of similarity of appearance to the listed threatened subspecies or populations.
PS = Partial status: the species is listed in parts of its range and not in others; or, one or more subspecies or varieties is listed, while the others are not listed.

GLOBAL AND STATE RANKS (animals, plants, ecological communities and others): Each element has a global and state rank as determined by the NY Natural Heritage Program. These ranks carry no legal weight. The global rank reflects the rarity of the element throughout the world and the state rank reflects the rarity within New York State. Infraspecific taxa are also assigned a taxon rank to reflect the infraspecific taxon's rank throughout the world. ? = Indicates a question exists about the rank. Range ranks, e.g. S1S2, indicate not enough information is available to distinguish between two ranks.

GLOBAL RANK:

G1 - Critically imperiled globally because of extreme rarity (5 or fewer occurrences), or very few remaining acres, or miles of stream) or especially vulnerable to extinction because of some factor of its biology.
G2 - Imperiled globally because of rarity (6 - 20 occurrences, or few remaining acres, or miles of stream) or very vulnerable to extinction throughout its range because of other factors.
G3 - Either rare and local throughout its range (21 to 100 occurrences), or found locally (even abundantly at some of its locations) in a restricted range (e.g. a physiographic region), or vulnerable to extinction throughout its range because of other factors.
G4 - Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5 - Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
GH - Historically known, with the expectation that it might be rediscovered.
GX - Species believed to be extinct.

NYS RANK:

S1 - Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.
S2 - Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.
S3 - Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.
S4 - Apparently secure in New York State.
S5 - Demonstrably secure in New York State.
SH - Historically known from New York State, but not seen in the past 15 years.
SX - Apparently extirpated from New York State.
SZ - Present in New York State only as a transient migrant.

SxB and SxN, where Sx is one of the codes above, are used for migratory animals, and refer to the rarity within New York State of the breeding (B)populations and the non-breeding populations (N), respectively, of the species.

TAXON (T) RANK: The T-ranks (T1 - T5) are defined the same way as the Global ranks (G1 - G5), but the T-rank refers only to the rarity of the subspecific taxon.
T1 through T5 - See Global Rank definitions above.
Q - Indicates a question exists whether or not the taxon is a good taxonomic entity.

Revised Sept. 1, 2004

Attachment 2B

Bureau of Habitat Correspondence

New York State Department of Environmental Conservation
Bureau of Habitat
Division of Fish, Wildlife and Marine Resources
625 Broadway
Albany, NY 12233-4756

Erin M. Crotty
Commissioner

Ken Pinnella
The RETECH Group
2409 Research Blvd., Suite 106
Fort Collins, CO. 80526

Jan. 3, 2005

Dear Mr. Pinnella,

Glad my FAX reply found your desk. I have sufficient information to respond to your request regarding fish kills in the Delaware River or the Neversink River in the City of Port Jervis near the former gas plant known as the Port Jervis Gas and Light Co. and other aliases.

My files took me back into the 1920s <u>with no fish mortalities attributable to the site in question</u>. I found two references to pollution complaints to the Hudson River in 1947 dealing with the Rockland Gas Company, Nyack, NY. I have included copies of these with this letter only because the company name is similar in name to the Rockland Light and Power Co., one of the former names of the site in question.

Regarding any possible wildlife mortalities attributable to the site I suggest that you contact the NYS DEC Region 3 wildlife manage, Theodore Kerpez, in New Paltz (845 256-3060) and our wildlife pathologist, Ward Stone, at his Delmar office (518 478-3032). If you provide them with the information that you FAXed to me I'm sure they will be able to help you. [Sorry I don't have their FAX numbers available].

Best Wishes for '05

Timothy L. Preddice

Timothy L. Preddice
Biologist I (Aquatic)

FAXED 1/3/05

CC: Mr. Burdick

April 18, 1947

Memo to Dr. W. C. Senning

From Cecil Heacox

Re: Pollution complaint of John Osborne, Nyack, N. Y. regarding tar and oil pollution in Hudson River at Rockland Gas Company, Nyack.

This is to confirm our telephone conversation today regarding the above matter.

In short, the pollution by the Rockland Gas Company has ceased and Mr. Osborne is satisfied.

Due to the shortage of natural gas, it is possible that the situation may arise again when the Company has to force production.

If a repetition of the situation occurs, Mr. Osborne will again notify Protector Conklin.

Mr. F. L. Lovett, General Manager of the Rockland Power and Light Company is the key man in the situation. Unless Mr. Conklin knows Mr. Lovett and is on friendly terms with him I'd appreciate it if he would permit me to do the interviewing as it has taken some hard spade work on previous situations involving his company to get him in a cooperative mood. If we keep Mr. Lovett in his present frame of mind, he may go to some expense in building structures to remedy the trouble if the pollution is to be a periodic affair.

I think Burdick will want to make an investigation the next time he is in the area. If he will let me know, if possible, when he makes the study, we can supply our boat and team up with him on the job.

A copy of this memo is being forwarded to District Protector Goodman and an extra copy is enclosed for Burdick's information.

CH:PF
Enc. 1

April 30, 1947

Memo to Dr. W. C. Senning

From: G. E. Burdick

Re: Memo from Cecil Heacox on complaint of tar and oil pollution in Hudson River at Rockland Gas Co. at Nyack.

I note that Mr. Heacox states that he thinks I would want to make an investigation in this matter the next time I am in that area. If, as he states, the pollution has ceased and it is not again started, it seems to me that little information of any value can be derived from an investigation in this matter after the pollution has ceased.

The above statement is based on the premise that this was a case of an intermittent type of pollution which did not continue for a length of time which would produce permanent damage by means of an oil and tar soaked bottom sediment. If this premise is wrong it may be that an investigation is called for though at present it seems more advisable to hold up such a study until further discharge is being made by this company.

GEB:LS
cc Mr. Cecil Heacox

Attachment 2C

Wildlife Pathology Unit Correspondence

Ken Pinnella/Ft-Collins/RETEC
02/11/2005 03:55 PM

To wbstone@gw.dec.state.ny.us
cc
bcc
Subject Port Jervis FWIA Inquiry

Dr. Stone,

Please find attached a copy of the letter written to request information regarding fish and wildlife mortality data that I presented to Tim Preddice. Any information that you could provide regarding reports wildlife mortality related to site operations would be greatly appreciated.

You can respond via email or at the address below.

Thanks for your time.

NYDEC_Letter.doc location_PJ.pdf

Kenneth D. Pinnella
Toxicologist
The RETEC Group, Inc
2409 Research Blvd., Suite 106
Fort Collins, CO 80526
Phone: (970) 493-3700 ext. 140
Fax: (970) 493-2328

"Joseph Okoniewski"
<jcokonie@gw.dec.state.ny.us>

02/16/2005 01:34 PM

To <kpinnella@retec.com>

cc "Ward Stone" <wbstone@gw.dec.state.ny.us>

bcc

Subject Historical wildlife mortality data for Port Jervis, New York

Dr. Pinnella,

A review of the records of the Wildlife Pathology Unit of NYSDEC from 1970 to the present yielded 12 cases (13 animals) that had been submitted from the municipality of Port Jervis (see attached). The recent birds were submitted as part of the State's West Nile virus surveillance program.

Please contact us if you have any questions.

Sincerely,

Joe Okoniewski
Biologist 1(Wildlife)
NYS Department of Environmental Conservation
Wildilfe Pathology Unit
108 Game Farm Road
Delmar, NY 12054

PortJervisSubs.xls

Wildlife specimens received by NYSDEC's Wildlife Pathology Unit from the municipality of Port Jervis, 1970 through 2004.

WPUNUM	SPECIES	LOCATION	ADDRESS	DATE FOUND	DIAGNOSIS
772615	RED-TAILED HAWK	Port Jervis	Not Disclosed	09/16/77	Blunt Impact Trauma
825522	RED FOX	Port Jervis	Not Disclosed	01/19/82	Open: anticoagulant toxicosis suspect
832734A	HOUSE SPARROW	Port Jervis	14 Stoll Street	12/12/82	Trauma
832734B	HOUSE SPARROW	Port Jervis	14 Stoll Street	12/12/82	Salmonellosis
842317	SKUNK	Port Jervis	Warren Place	07/25/84	Open; canine distemper suspect
ORA000084	AMERICAN CROW	Port Jarvis	75 Hammond Street	05/20/00	Blunt Impact Trauma
ORA000399	NORTHERN CARDINAL	Port Jervis	Lower Brook Road	08/13/00	No necropsy; neg. for West Nile virus
ORA000395	EMPIDONAX FLYCATCHER	Port Jervis	Owens Street, C. Port Jervis	08/14/00	No necropsy; neg. for West Nile virus
ORA010015	AMERICAN ROBIN	Port Jervis	195 West Main Street	04/27/01	Blunt Impact Trauma
ORA010021	EUROPEAN STARLING	Port Jervis	20 Hammond Street	04/28/01	Killed by Predator, Probably Housecat
ORA010036	HOUSE SPARROW	Port Jervis	5 First Street	05/29/01	Blunt Impact Trauma
ORA020059	AMERICAN ROBIN	Port Jervis	7 Crawford St	09/04/02	West Nile virus
ORA020074	BLUE JAY	Port Jervis	4 Upper Canal St	09/16/02	West Nile virus
ORA030055	COMMON GRACKLE	Port Jervis	8 Schultz St	08/04/03	Trauma
ORA040020	AMERICAN ROBIN	Port Jervis	39 Pennsylvania	07/14/04	Trauma
ORA040021	AMERICAN ROBIN	Port Jervis	39 Pennsylvania	07/14/04	Trauma

Attachment 2D

US Fish and Wildlife Service

January 6, 2005

Mike Stoll
US Fish and Wildlife Service
New York Field Office
3817 Luker Road
Cortland, New York 13045

RE: Fish and Wildlife Impact Analysis (FWIA): Request for general wildlife and fish occurrence records and threatened and endangered species/sensitive habitats for the vicinity of a former MGP site located in Port Jervis, New York

Dear Mike:

This letter is written to request information from the US Fish and Wildlife Service (USFWS) regarding the historical and/or current occurrence of rare and sensitive species and habitats that may occur in the vicinity of a former manufactured gas plant (MGP) project site located in Port Jervis, Orange County, New York (see enclosed Figure). In addition, general occurrence records of fish and wildlife species expected to occur locally and/or regionally are requested. Information from the USFWS will be used in support of a Fish And Wildlife Impact Analysis (FWIA) being conducted at the project site and in areas down gradient of the site (i.e., along Delaware River). The New York State Department of Environmental Conservation (NYSDEC) is the ultimate recipient of this proposed evaluation.

The site is located at 16 Pike Street in the City of Port Jervis, Orange County, New York and occupies approximately 1.2 acres. The center point of the site is located at the following latitude/longitude coordinates: 74°41'47.57'' W by 41°22'23.39'' N. The site is currently zoned industrial and is expected to remain such in the future. Surrounding land use is mixed and includes industrial/commercial and residential land uses. The Delaware River is approximately 160 feet to the southwest of the site and the Neversink River lies approximately 1000 feet to the east of the site. Enclosed is a copy of a USGS quadrangle map showing the project site and surrounding area.

As the FWIA is time sensitive, it is very much appreciated if the requested information were processed as soon as possible, no later than February 1, 2005. If this date cannot be met or should you require additional details regarding the site or its location please feel free to contact me at (970) 493-3700, extension 140.

Thank you.

Sincerely,

The RETEC Group, Inc.

Kenneth Pinnella
Toxicologist

Enclosure

cc: Bjorn Bjorkman, RETEC