AECOM Environment

Prepared for:
Consolidated Edison Company of New York, Inc.

Prepared by:
AECOM
Chestnut Ridge, NY
60281931.810
July, 2013

DRAFT Remedial Investigation Report
Former Rye Gas Works Site
Rye, New York

VCP Index No. D2-0003-02-08

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Prepared By Anna Sullivan

Reviewed By Eleanor Vivaudou, P.E.

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List of Acronyms

AGS Advanced Geological Services

Air Toxics Air Toxics Limited, Inc.

ASP Analytical services protocol

ATV Acoustic televiewer

AWQSGV Ambient Water Quality Standards or Guidance Values

BTEX Benzene, toluene, ethylbenzene, and xylene

C&D Construction and debris

CAMP Community Air Monitoring Plan

cf cubic feet

CNG Compressed natural gas

COC Constituent of concern

ConEdison Consolidated Edison Company of New York, Inc.

CRDL Contract required detection limit

DNAPL Dense nonaqueous phase liquid

DUSRs Data Usability Summary Reports

ECI Environmental Concepts, Inc.

EDR Environmental Data Resource, Inc.

EM Electro-magnetic

FEMA Federal Emergency Management Agency

FOIA Freedom of Information Act

GPR Ground penetrating radar

HASP Health and Safety Plan

HPFM Heat pulse flow meter

HSA Hollow stem auger

ICP Inductively coupled plasma

IDW Investigative Derived Waste

LCSs Laboratory control standards

mg/m^3 Milligrams per cubic meter

MGP Manufactured Gas Plant

MS/MSD Matrix spike/matrix spike duplicate

MTBE Methyl-tert-butyl ether

NAD83 1983 North American Datum

NAPL Nonaqueous phase liquid

NAVD88 1988 North American Vertical Datum

NCP National Contingency Plan

NE Northeast

NGVD29 1929 National Geodetic Vertical Datum

NNE North – northeast

NTU Nephelometric turbidity units

NW Northwest

NYCRR New York Code of Rules and Regulations

NYEG NYEG Drilling

NYSDEC New York State Department of Environmental Conservation

NYTA New York Transit Authority

OLM Oil-like material

OTV Optical Televiewer

PAHs Polycyclic (polynuclear) aromatic hydrocarbon

PCBs Polychlorinated biphenyl

PEC Paragon Environmental Construction

PID	Photo ionization detector
PPE	Personal protective equipment
ppm	Parts per million
PSC	Public Storage Commission
QAPP	Quality Assurance Project Plan
RCP	Reinforced concrete pipe
RCUSCOs	Restricted Commercial Use Soil Cleanup Objectives
RETEC	The RETEC Group
RI	Remedial Investigation
RIWP	Remedial Investigation Work Plan
RPDs	Relative percent differences
RQD	Rock quality design
SC	Site Characterization
SCWP	Site Characterization Work Plan
SE	Southeast
SIR	Supplemental Remedial Investigation
Site	Rye Service Center, 178 Theodore Fremd Avenue, Rye, New York
STARS TCLP	Spill technology and remediation series toxicity characteristic leachate procedure
SVOC	Semi-volatile organic carbons
TAL	Target analyte list
TICs	Tentatively identified compounds
TPH	Total petroleum hydrocarbons
URUSCOs	Unrestricted Use Soil Cleanup Objectives
USEPA	United States Environmental Protection Agency
USGS	United States Geologic Survey

UST	Underground Storage Tank
VOCs	Volatile organic carbons
WNW	West – northwest

Executive Summary

As required under the terms of Voluntary Cleanup Agreement Index No. D2-0003-02-08 by and between the New York State Department of Environmental Conservation (NYSDEC) and Consolidated Edison Company of New York, Inc. (Con Edison), this report presents the results and findings of the site characterization (SC) and remedial investigation (RI) that were performed on Con Edison's behalf by AECOM for the Rye Gas Works former Manufactured Gas Plant (MGP) operations at the Rye Service Center (the site) located at 178 Theodore Fremd Avenue in Rye, New York. Except as otherwise indicated in this report, the SC and RI were conducted in accordance with the NYSDEC-approved SC Work Plan (SCWP) dated August 2008 (AECOM, 2008) and the NYSDEC-approved RI Work Plan (RIWP) dated October 2010 (AECOM, 2010).

The SC field program was initiated at the former Rye Gas Works site in June 2009 and was completed in March 2010. MGP impacts were noted in the overburden, bedrock, and overburden and bedrock groundwater during the SC activities. Therefore, the SC data were compiled and used to develop a scope of work to complete the RI of the site. The RI field program was initiated in December 2011 and completed in April, 2012 with the exception of the investigation locations situated north-northeast of the site where access was not granted by the property owner. This document presents the results of the combined SC and RI activities performed for the Rye Gas Works former MGP. Several investigations were conducted at the site relative to the existing and former underground storage tanks (USTs) and related structures, the former hydraulic lift system within the facility garage building and the current USTs containing gasoline. This RI Report also incorporates the data from these other environmental investigations.

The Con Edison Rye Service Center (former Rye Gas Works) is located in Rye, New York and is utilized by Con Edison for the maintenance and dispatching location for their fleet of service vehicles. The facility occupies approximately 9 acres and includes a mix of office, shop, and utility space surrounded by open parking lots and storage areas, diesel/gasoline refueling pumps, compressed natural gas (CNG) storage/refueling pumps, and grassy, vegetated areas. The site is surrounded by a fence with two locked gate entrances on Theodore Fremd Avenue, one of which is controlled by a security guard during hours of operation. The site is located in a mixed residential and commercial area of Rye.

Prior to the construction of the MGP, a portion of the site was used as a nursery. The MGP site operated from about 1887 until sometime around 1926, a period of approximately 39 years, and produced water gas using the Wilkinson-Kennedy process. Following cessation of MGP operations, the site was used for gas distribution operations and a service center. The site continues to be used as a service center by Con Edison.

Residuals associated with MGP processes include tar (containing volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and phenolics), purifier residuals, ammonia residuals, and clinker. In addition to residuals produced, feedstocks to the process, including gas oil used in the carbureted water gas process, have the potential to remain in the subsurface. Residuals associated with the use of the site as a service center may include petroleum products (oil & grease, gasoline, diesel fuel, fuel oil), automotive products (e.g., coolant, motor oil, batteries, etc.), and solvents used to clean equipment parts. Additionally, creosote may be associated with pole storage and dielectric fluid and polychlorinated biphenyls (PCBs) may be associated with transformer storage on the site.

Environmental investigations have also been performed at 180 Theodore Fremd Ave, south of the site. These investigations indicate that diesel and gasoline impacts were noted in soil and groundwater at the location between 1998 and 2008.

The highest surface elevation on site is at the top of the rock outcrop situated adjacent to the parking area in the eastern portion of the site where the former 3 million cubic feet (cf) gas holder was situated. The top of this outcrop is approximately 85 ft above the North American Vertical Datum of 1988 (NAVD88) and the adjacent parking area is at approximately 70 ft NAVD88. The land surface slopes to the east, north, and west from this area to an elevation of approximately 60 ft NAVD88 along the western site boundary adjacent to the railroad and along the northern site boundary. Individual rock outcrops across the site are occasionally present and at a higher elevation than the surrounding ground surface. A small intermittent drainage swale is situated adjacent to the northeast corner of the site.

The majority of the site is paved or covered with buildings and surface water from precipitation events is collected in onsite storm drains. There is a storm sewer running along the east side of the service center building that drains the parking lot into the sewer.

Three surface water bodies are at or within approximately 1,500 feet of the site. The nearest surface water body is Mead Pond 1,000 feet southwest of the site. The Beaver Swamp Brook is located approximately 1,500 feet west of the site and Blind Brook is located approximately 1,500 feet east of the site.

Public water supply is provided in the City of Rye by Westchester Joint Water Works. Westchester Joint Water Works purchases their water from the New York City water system which derives its supply from surface water reservoirs. The Westchester Joint Water Works does not utilize wells and groundwater for the public water supply. The presence and status of domestic wells in the vicinity of the site was researched as part of the SC. An inquiry to Westchester County regarding drinking water wells in Rye, New York resulted in a response from the county to NYSDEC that the county has no knowledge of any private drinking water wells in Rye. Therefore, additional private water well research was not performed. To further evaluate the potential presence and status of domestic wells in the vicinity of the Rye former Gas Works Site continuous water level monitoring was performed for one week using pressure transducers in two bedrock boreholes to evaluate whether other bedrock wells are active and pumping nearby. The data indicate some evidence of recharge from precipitation and possible tidal effects, but distinct changes caused by nearby pumping wells are not evident.

Three geologic units identified beneath the site include fill, glacial till and bedrock. The overburden beneath the site is comprised of fill and glacial till. The fill is discontinuous across the site and includes sand and silt, gravel, cobble, concrete, brick, glass, and some piping and wire. Fill was found between 0 and approximately 8 ft bgs and is generally thicker within and adjacent to former structures such as the below grade gas holders. The till is generally comprised of silty sand with varying amounts of cobble/gravel and is sometimes dense. The fill is frequently difficult to distinguish from the underlying till unless it contains anthropogenic material.

The overburden ranges in thickness from 0 to approximately 18 feet at the site. The overburden is thickest in the southern corner of the site where it was measured to be 16 feet thick and towards one portion of the northwestern-western edge of the site where it was measured to be 18 feet thick. Based on the site topography, bedrock outcrops, and the overburden thickness northwest of Interstate 95 (I95) it appears that the overburden is continuous from the northwestern edge of the site across I95

to the City of Rye Park. Bedrock outcrops are present north and south of the site on both sides of I95 indicating that the overburden thins and/or is absent in these directions.

Published geologic mapping (Geologic Map of New York, Lower Hudson Sheet; bedrock geology layer in New York State GIS) shows that the site is underlain by the Hartland formation, described as “basal amphibolites overlain by pelitic schist” (Geologic Map of New York). Several bedrock outrcops in the site vicinity were evaluated during site investigations. The bedrock lithology is generally consistent, with a range of variations, for all outcrops observed, and the lithology is consistent with the published description for the Hartland Formation schist (no amphibolite was observed). The bedrock consists of light gray to dark gray mica schist, with varying amounts of muscovite and biotite and occasional quartz veins. Metamorphic foliation generally strikes north-northeast (NNE) to northeast (NE) (10 to 40 degrees east of true north) and is vertical to steeply dipping (either to the northwest [NW] or the southeast [SE]). West-northwest (WNW) to NW-striking fractures that cross-cut foliation are fairly common and generally strike from 40 to 90 degrees west of true north.

Bedrock crops out at several locations across the site and in general the top surface of bedrock dips to the north-northwest across the majority of the site. The top of bedrock in the southern portion of the site dips to the south from the outcrops in the southern site area towards Theodore Fremd Ave. The top of bedrock in the northeastern portion of the site dips to the northeast from the large outcrop near the parking area and former large gas holder towards Theodore Fremd Ave.

Subsurface bedrock investigations were performed at seventeen locations, 11 of which were cored. Core observations are generally consistent with published bedrock descriptions and indicate that the predominant lithology is biotite schist with varying amounts of quartz, some pegmatite and quartz veins. Borehole geophysical surveys were performed in each bedrock borehole and indicate that most bedrock fractures are low angle, dip moderately (50 to 75 degrees) to the northwest, or dip moderately to the southeast. However, almost the full range of dips (0 to 85 degrees) is present. Foliations and veins always dip to the northwest or the southeast (strike NE/SW) and dip moderately to steeply. It should be noted that a vertical borehole provides a data set that is statistically biased in favor of low angle fractures and that steeply undercounts steeply dipping fractures. Because the outcrop observations noted that many NE or NNE striking fractures coincide with foliation, outcrop and bedrock fracture data are generally consistent.

In summary, bedrock beneath the site and northwest of the site consists of biotite schist with varying amounts of quartz and occasional pegmatite. The rock is variably fractured, with the most common fracture orientations NE to NNE (often coinciding with metamorphic foliation) and steeply dipping and NW-trending fractures of varying dip angle. Some of the NE-trending fractures likely intersect more than one NW-trending fracture, based on fracture length and spacing measurements.

Fourteen overburden monitoring wells were installed at the site during previous investigations, the SC and the RI. Groundwater is present in the overburden, where the overburden is present in sufficient thickness, at depths ranging between approximately 2.7 and 10 ft bgs. Groundwater flow in the overburden at the site is to the northwest. A more northerly component to the groundwater flow direction was evident when the groundwater elevation was slightly lower in April 2012 relative to the March 2010 elevation measurements.

An under drain system consisting of 6-inch perforated pipe in a gravel lined trench is located beneath the I95 median strip and below the outer edges of the northbound and southbound travel lanes. The bottom of the under drain is approximately 4 feet below surface grade. The under drains flow into the stormwater conveyance system northwest of the site. During periods of high water table, the under

drains may intercept some groundwater flowing from the site. Since the under drains would only penetrate the very top of the groundwater within the overburden, the majority of the overburden groundwater flow would not be intercepted. The bottom of the 18 inch storm sewer running parallel to the site at the edge of the north bound travel lane is below the water table, therefore, pipe bedding or pipe leaks may also intercept groundwater flowing from the site.

The horizontal hydraulic gradient for the overburden based on the March 2010 groundwater elevation contours was 0.019 ft/ft and based on the April 2012 contours was 0.014 ft/ft to the northwest and 0.04 ft/ft to the north. The average geometric mean hydraulic conductivity value (K) based on slug test data was 2.4 ft/day. An estimated porosity value of 30% which is typical for sandy material was assumed for overburden porosity. Using the above values, the horizontal groundwater seepage velocity within the overburden is calculated to range between approximately 0.112 and 0.333 ft/day

Bedrock groundwater at the site was investigated through the installation of seven bedrock monitoring wells and 17 FLUTe lined boreholes. Groundwater elevations measured in the seven bedrock monitoring wells were not contoured since the connectivity of the fractures is unknown and the elevations do not indicate a consistent flow direction. The bedrock groundwater elevations ranged between 62.13 and 56.88 ft NAVD88 during the March 2010 event and between 58.39 and 53.74 ft NAVD88 during the April 2012 event. The March 2010 bedrock groundwater elevations ranged from 1.04 to 4.16 feet higher than the April 2013 elevations. Five of the bedrock monitoring wells are paired with overburden monitoring wells, including MW-4/4D, MW-5/5D, MW-6/6D, MW-9/9D, and MW-12/12D. The vertical hydraulic gradient between the overburden and bedrock was consistently downward in monitoring well pairs MW-4/4D, MW-5/5D, MW-6/6D, and MW-12/12D and was upward in monitoring well pair MW-9/9D.

Bedrock groundwater flow can be expected to occur from areas of high head to areas of low head within fractured rock, if and only if some of the fractures are permeable and intersect with other permeable fractures. Identification of specific flow paths within fractured rock depends on the morphology and connectivity of individual fractures. Individual fractures can have different heads than other nearby fractures so that boreholes that intersect multiple fractures can have upward flow or downward flow in certain zones in response to these head differences. Based on outcrop measurements and acoustic televiewer results, NNE to NE and WNW to NW appear to be the most likely orientations for potentially conductive bedrock fractures. Based on fracture length and fracture spacing measurements at two outcrops, NE-trending fractures that are open to semi-open and steeply dipping appear to have a sufficient average length to intersect several cross-cutting NW-striking fractures. On the other hand, only certain NW-trending fractures appear to be long enough to intersect more than one NE-trending fracture. These observations may indicate that groundwater flow is more likely toward the NNE-NE (or SSW-SW) than to the NW (SE). The fracture length data do not indicate whether it is reasonable to project key fractures that intersect the boreholes up to the top surface of the bedrock.

Anecdotal information obtained during drilling (observing water level rises or decreases in one bedrock borehole during coring activities in a different bedrock borehole) demonstrates that borehole-to-borehole hydraulic connections, presumably by bedrock fractures, can occur over distances as great as 220 feet and maybe as great as 360 feet at the site. On the other hand, wells that are much closer together may not be connected. Perhaps coincidentally, each of the well pairs known or suspected to be connected is aligned in a NNE or NE direction.

Eight geologic cross sections were developed to compile and illustrate the diverse data sets that contributed to characterizing the bedrock hydrogeology of the site. The diverse data sets include

bedrock core, borehole geophysical logging, Flexible Underground Liner Technology [FLUTe] non-aqueous phase liquid (NAPL) liner observations, and groundwater analytical results from discrete fracture zones via inflatable packer isolation sampling methods. In addition to visualizing the variety of data types compiled together, the cross sections provided an opportunity to identify potential fracture connections between boreholes. The following criteria were considered when identifying potential fracture connections: geometric alignment of a key fracture in one borehole with a fracture in a neighboring borehole, especially if one is known to be an inflowing and one an outflowing fracture. The interpreted connections also are favored if one or both fractures is located at a point in the well that showed visible or FLUTe impacts or a significant concentration of dissolved contaminants, especially naphthalene. Where borehole-to-borehole connections are hypothesized, they are assumed to be straight paths (i.e. single fractures), whereas zig-zag or contorted pathways may be present. Several hypothetical fracture connections between boreholes at the site are speculated based on the compiled data illustrated on the cross sections.

Surface soil, soil vapor, indoor and outdoor ambient air, subsurface soil, overburden groundwater, and bedrock groundwater samples were collected and analyzed as part of the SC and RI activities at the site. To meet the data quality objectives for this project NYSDEC ASP were used and Category B deliverable packages were prepared and validated. The visible and analytical results for the media evaluated at the site are detailed in the body of this report and summarized below.

The concentrations of compounds detected in the surface soil samples are generally consistent with or lower than urban background and/or commercial uses. Compounds detected in surface soil samples at concentrations exceeding the NYSDEC Unrestricted Use Soil Cleanup Objectives (URUSCOs) included benzo(a)pyrene (detected at estimated concentrations of 0.29 to 1.6 mg/kg), arsenic, chromium, copper, lead, mercury, and zinc. Additional surface soil sampling and analysis was not required during the RI.

The overburden beneath the site has been impacted by former UST and MGP operations based on the subsurface soil visible and olfactory impacts and analytical results. The majority of the impacts are present in the central western portion of the site near the former 6,000 and 100,000 cf gas holders, the former UST areas, and near the former oil tank and tar pits beneath the service center building and extend west to the property boundary along the Metro North rail line and north-northeast towards the northern property boundary. The horizontal extent of the visible impacts has been delineated to the south and east and the horizontal extent of the analytical exceedance impacts has generally been delineated to the south and east. In the south-southwestern portion of the site, benzo(a)anthracene, benzo(b)fluouranthene, and chrysene were detected in the sample collected from MW-13D, chromium and nickel were detected in the sample collected from MGP-SB-7, and lead was detected in the sample collected from SB-SA11-NW1-A at concentrations exceeding the URUSCOs, however none of the detected concentrations exceed the Restricted Commercial Use SCOs (RCUSCOs). Along the eastern boundary of the site, lead was detected in the sample collected from MGP-MW-101D at a concentration exceeding the URUSCO but below the RCUSCO. Although visible and analytical impacts extend to the west – northwest site boundary adjacent to the Metro North rail line, they were not observed or detected in soil samples collected on the northwest side of I95. Impacts extend to the northern property boundary at MGP-MW-104S and MGP-MW-103S, however access to the north could not be acquired and delineation has not been accomplished in this direction.

Visible tar, sheen, and olfactory impacts were noted in bedrock core and on FLUTe NAPL liners in 8 out of 17 bedrock boreholes advanced during the SC and RI activities. In addition, NAPL was measured in the base of monitoring well MW-12D screened in shallow bedrock. The visible bedrock

impacts are present in the central and western portions of the site near the former 6,000 cf gas holder and west and north of the former 6,000 and 100,000 cf holders and former oil tank and tar pits beneath the service center building. These visible bedrock impacts extend to the west to MGP-MW-0DD, MGP-MW-9DD, and MGP-MW-108D and to the north to MGP-MW-104D and MGP-MW-103D. Visible bedrock impacts are also present below approximately 70 ft bgs southwest of the former 6,000 cf holder in MGP-MW-105D. The horizontal delineation of the visible bedrock impacts has been delineated to the west-northwest as evidenced by the lack of visible bedrock impacts noted in the bedrock boreholes advanced to 200 ft bgs on the northwest side of I95. Horizontal delineation of visible bedrock impacts has not been delineated to the north-northeast of MGP-MW-104D and MGP-MW-103D or to the west-southwest of MGP-MW-105D. Vertical delineation of visible bedrock impacts has not been completely defined at locations MGP-MW-TP4 and MGP-MW-105D.

The recoverability of dense NAPL (DNAPL) at the site was evaluated as part of the RI by converting three FLUTe-lined bedrock boreholes that contained fractures with tar into recovery wells and gauging the wells to monitor DNAPL accumulation. The three locations that were converted to recovery wells are MGP-MW-TP4, MGP-MW-108D, and MGP-MW-104D. The wells were gauged periodically for the presence of DNAPL between April 2012 and June 2013. The gauging results show that up to 9.6 feet of DNAPL accumulated in MGP-MW-104D and 3.8 feet of DNAPL accumulated in MW-12D, but has not been present in measurable quantity in MGP-MW-TP4 or MGP-MW-108D as of June 2013. A DNAPL sample was collected from the sump of MGP-MW-104D on December 7, 2012 using a bailer and analyzed for interfacial and surface tension, viscosity, density, and specific gravity. A DNAPL sample was collected from the sump of MW-12D on June 13, 2013 and submitted to the laboratory for the same physical parameters.

Overburden groundwater contains benzene, toluene, ethylbenzene, and xylene (BTEX) and naphthalene in the vicinity of the former USTs and downgradient along the northwestern property line. Concentrations in the vicinity of the former USTs have generally decreased since 1996 and 2004. The concentrations in MGP-MW-108S suggest that the tar pits beneath the service center building might provide a separate source of BTEX and naphthalene to overburden groundwater in this area of the site. The overburden groundwater does not appear to be impacted by elevated site-related metal, total cyanide, or PCB concentrations. The overburden groundwater impacts have not been delineated to the north of the site due to access constraints. The degree to which impacted groundwater may be discharging to the I95 drainage system is uncertain but is believed to be minimal based on the relative elevations of the drainage system and water table. The degree to which impacted groundwater may be migrating along permeable bedding material associated with the storm sewer northwest of the site is unknown.

Bedrock groundwater quality at the site has been impacted by site operations and contains VOCs, predominantly BTEX, and naphthalene at concentrations exceeding Ambient Water Quality Standards and Guidance Values (AWQSGVs) in the vicinity of the former 6,000 and 100,000 cf holders and to the west and north of the former oil tank and tar pits beneath the service center building. Toluene was detected at concentrations exceeding the AWQSGV in bedrock groundwater samples collected from the same locations as BTEX and naphthalene as well as across the site and northwest of the site across I95. Although toluene is likely associated with former site operations in the impacted areas of the site, the more widespread distribution of toluene may be an artifact of the sampling methodology employed during the packer isolation and groundwater sampling efforts or associated with other potential sources. Frequently, the greatest BTEX and naphthalene bedrock groundwater concentrations were detected in zones where tar or other visible impacts were noted in the core or on the NAPL liner at that location. Occasionally the greatest BTEX and naphthalene bedrock groundwater concentrations were detected in zones that were not visibly impacted suggesting that the

detected concentrations migrated through fractures. The compilation of the physical and chemical data gathered during the bedrock investigations indicate that some fractures are interconnected at the site. Fracture connectivity is further supported by the detection of similar compounds in bedrock groundwater samples collected from visibly impacted locations near former potential source structures on the site and from non-visibly impacted locations onsite and northwest of I95. The extent of dissolved phase impacts in bedrock has generally been delineated vertically other than limited toluene detections in groundwater in three groundwater samples collected below -85 ft NAVD88 and at locations MGP-MW-105D, MGP-MW-104D, MGP-MW-108D and MGP-MW-TP4 where either samples were not collected due to the presence of tar in the borehole or groundwater samples were not submitted for laboratory analysis due to the presence of oil-like material (OLM) in the purged water. The horizontal extent of dissolved impacts in fractured bedrock is difficult to determine, however the data suggest that delineation has been accomplished along the eastern property boundary, south along the western property boundary at MGP-MW-106D and west-northwest of the site across I95. Delineation of bedrock groundwater impacts has not been completed to the north-northeast of the site due to access constraints.

The soil gas and ambient air results demonstrate that MGP residuals have not significantly impacted soil gas at the site and that the vapor intrusion exposure pathway is not complete. An evaluation of the results from the program using NYSDOH guidance and decision matrices (NYSDOH, 2006) indicates that no further investigation of vapor intrusion, or remedial action is required at the site. However, based on detected concentrations of compounds in soil gas samples collected from MGP-SG-5 and MGP-SG-8 and the visible and/or analytical results for soil, bedrock, and groundwater in the northern portion of the site, as well as the residential property use to the north of the site, two additional soil gas sample locations were proposed in the RI. These samples could not be collected since access to the property north of the site was not granted.

A Qualitative Human Health and Environmental Assessment (QHHEA) of the site was performed using available results from the SC and RI and indicates that the MGP residuals identified do not pose a significant risk for current site use. The site is secured with fencing and guarded access and will be retained by Con Edison as a Service Center facility. The low levels of MGP constituents of interest in surface soil are consistent with urban background values and therefore do not pose a significant risk to site workers. The limited subsurface soil exceedances of applicable commercial criteria (RCUSCOs) are generally located in areas covered by pavement or present beneath the Service Center Building. Subsurface soil exceedances may pose a short-term direct contact risk to future utility construction workers. Area surveys and monitoring demonstrate that groundwater in the vicinity of the site is not used for potable purposes. The water table is relatively shallow in some areas of the site (2.7 ft bgs) and may pose a short-term direct contact risk to future utility/construction workers. Although elevated levels of MGP and non-MGP constituents were detected in soil gas samples, associated concentrations at locations within the principal site buildings, including a crawlspace within the Service Center, were consistent with indoor air background values. Additional investigation is proposed north of the facility to further delineate site impacts, once access can be acquired. This evaluation of potential human health and environmental risks associated with site impacts will be reviewed and updated once the additional investigative activities are completed.

The need to perform a Fish and Wildlife Resources Impact Analysis (FWRIA) was evaluated as part of the RI. The purpose of a FWRIA is to identify actual or potential impacts to fish and wildlife resources from site contaminants of ecological concern. There are no ecological resources on the site. The nearest ecological resource is the Rye Nature Center which is east of the site across Theodore Fremd Avenue. Based on the evaluation, a FWRIA is not necessary for this site since

there are no complete exposure pathways for site-related constituents to impact fish and wildlife resources.

MGP residuals and service center residuals have impacted the subsurface soil, bedrock, overburden and bedrock groundwater quality at the site in the vicinity of the former MGP 6,000 and 100,000 cf gas holder, oil tank, and tar pit structures, and the former service center USTs, likely through spills and leaks. These impacts have migrated to the northwestern and northern property boundaries but have generally been delineated to the south and east, although additional investigation of the extent of tar in bedrock within the site boundary south of MGP-MW-105D is warranted. These impacts have not been observed on the northwest side of I95, indicating that delineation has been achieved in this direction. These impacts have not been delineated to the north due to access constraints. The impacts encountered at the site do not pose a significant risk to current site workers but subsurface soil and overburden groundwater impacts may pose a short-term direct contact risk to future utility/construction workers. The site impacts do not present a risk to fish or wildlife resources.

Based on the SC and RI findings the following activities are recommended to complete the RI of the site.

- Conduct the overburden, bedrock, and soil gas investigations proposed as part of the RI to the north of the site to further delineate the northern extent of site impacts.
- Drill an additional bedrock boring south-southwest of MGP105D to delineate the extent of visible impacts in bedrock to the south-southwest. Drill the additional boring to 200 ft for vertical delineation as well as horizontal delineation of impacts.

Perform DNAPL baildown tests in MGP-MW-104D and MW-12D to further evaluate DNAPL recoverability. Evaluate the results for the DNAPL sample collected from MW-12D and compare with DNAPL results from MGP-MW-104D.

1.0 Introduction

As required under the terms of Voluntary Cleanup Agreement Index No. D2-0003-02-08 by and between the New York State Department of Environmental Conservation (NYSDEC) and Consolidated Edison Company of New York, Inc. (Con Edison), this report presents the results and findings of the site characterization (SC) and remedial investigation (RI) that were performed on Con Edison's behalf by AECOM for the Rye Gas Works former Manufactured Gas Plant (MGP) operations at the Rye Service Center (the site) located at 178 Theodore Fremd Avenue in Rye, New York. Except as otherwise indicated in this report, the SC and RI were conducted in accordance with the NYSDEC-approved SC Work Plan (SCWP) dated August 2008 (AECOM, 2008) and the NYSDEC-approved RI Work Plan (RIWP) dated October 2010 (AECOM, 2010). The SC and RI were also carried out in general accordance with the most recent and applicable guidelines of the NYSDEC, the United States Environmental Protection Agency (USEPA), as well as the National Contingency Plan (NCP).

The SC field program was initiated at the former Rye Gas Works site in June 2009 and was completed in March 2010. MGP impacts were noted in the overburden, bedrock, and overburden and bedrock groundwater during the SC activities. Therefore, the SC data were compiled and used to develop a scope of work to complete the RI of the site. The RI field program was initiated in December 2011 and completed in April, 2012 with the exception of the investigation locations situated north-northeast of the site where access was not granted by the property owner.

This document presents the results of the combined SC and RI activities performed for the Rye Gas Works former MGP. Several investigations were conducted at the site relative to the existing and former underground storage tanks (USTs) and related structures, the former hydraulic lift system within the facility garage building and the current USTs containing gasoline. This RI Report also incorporates the data from these other environmental investigations.

1.1 Purpose of the Site Characterization and Remedial Investigation

The goals of the SC and RI were to:

- Determine if MGP impacts are present at the site and establish a scope of work to delineate these impacts.
- Further evaluate the horizontal extent of overburden MGP-related soil and groundwater impacts.
- Further evaluate the horizontal and vertical extent of MGP-related bedrock fracture and groundwater impacts.
- Evaluate the potential for offsite migration of soil vapor impacts to the north and in the northern portion of the site.
- Evaluate the recoverability of dense non-aqueous phase liquid DNAPL in bedrock fractures at the site.
- Further evaluate potential use of bedrock groundwater in the vicinity of the site.
- Qualitatively evaluate human health and ecological risks posed by the MGP impacts.

- Further develop the data set necessary to allow preparation of an Alternative Analysis Report to evaluate and select possible remedial alternatives for the site.

1.2 Scope of Work

The scope of work for the SC and RI was defined in the SCWP (AECOM, 2008) and the RIWP (AECOM 2010) and included the following tasks:

- Locating underground utilities in the new investigation areas
- Community air monitoring during invasive activities
- Surface soil sampling and analysis
- Excavation of test pits and subsurface soil sampling and analysis
- Collection and analysis of soil vapor samples and ambient indoor/outdoor air samples
- Advancement of soil borings and collection and analysis of subsurface soil samples
- Advancement of bedrock borings and inspection of bedrock cores
- FLUTe NAPL and blank liner eversion and evaluation
- Borehole geophysical logging
- Discrete bedrock fracture groundwater sampling via packer testing and analysis
- Monitoring well installation
- Monitoring well development
- DNAPL recoverability activities
- Groundwater sampling and analysis
- Surveying of new investigation locations
- Investigation residuals management
- Water Well Survey

All activities were performed in accordance with the methods specified in the SCWP and the RIWP, including the site-specific Quality Assurance Project Plan included in Appendix A of the SCWP and the site-specific Health and Safety Plan (HASP) included in Appendix B of the SCWP. The SC and RI activities and preparation of this report were also conducted in accordance with the NYSDEC's DER-10.

1.3 Report Organization

The remainder of this RI report is organized into the sections and appendices listed below.

- Section 2 provides a description of the Rye Gas Works former MGP site and surrounding properties, a summary of information regarding site ownership and operational history, and a summary of previous and adjacent site investigations.
- Section 3 provides a description of field investigation activities and sample analyses performed during the SC and RI.
- Section 4 provides a discussion of the site topography, drainage, geology, and hydrogeology.

- Section 5 provides a discussion of the observations regarding the extent of observed MGP residuals, and a summary of the analytical results for environmental media sampled during the investigation.
- Section 6 presents a qualitative human health evaluation of the risk associated with the MGP constituents of the site.
- Section 7 presents a fish and wildlife resource impact assessment of the site.
- Section 8 presents a conceptual site model and a summary of conclusions for the RI.
- Section 9 presents recommendation for future activities regarding the site.
- Section 10 provides references cited.

Tables and figures are included in the sections immediately following the text of this report. Appendices are provided electronically on CDs at the end of this report and include the following:

- Appendix A – Historical Site Maps and Aerial Photographs
- Appendix B – Boring, Coring, Test Pit, and Well Construction Logs for previous investigations and the SC and RI.
- Appendix C – Site Characterization Data Summary and Investigation Activity Recommendation Memoranda
- Appendix D – FLUTe NAPL Liner Photographs
- Appendix E – Borehole Geophysical Logging Results
- Appendix F – Monitoring Well Development Forms
- Appendix G – Groundwater Sampling Forms
- Appendix H - Hydraulic Conductivity Testing Data and Background Water Level Survey Data
- Appendix I – Indoor Air Survey Forms
- Appendix J – Investigation Derived Waste (IDW) Manifests
- Appendix K – Water Well Survey and Bedrock Groundwater Level Survey Data
- Appendix L – New York Transit Authority (NYTA) drainage diagrams
- Appendix M – Bedrock Outcrop Evaluation
- Appendix N – Bedrock Data Summary Spreadsheets
- Appendix O - Summary Analytical Result Tables
  - Table 1 – Surface Soil Analytical Results
  - Table 2 – Subsurface Soil Analytical Results
  - Table 3 – Groundwater Analytical Results
- Appendix P - Data Usability Summary Reports (DUSRs)
- Appendix Q - Fingerprint Analytical Results
- Appendix R – NAPL Analytical Results

2.0 Site Description and History

2.1 Site Location, Description, and Setting

The Con Edison Rye Service Center (former Rye Gas Works) is located in Rye, New York and is utilized by Con Edison for the maintenance and dispatching location for their fleet of service vehicles. A site location map is provided as Figure 2-1 on a portion of the United States Department of the Interior Geological Survey (USGS) topographic quadrangle map for Mamaroneck, New York. The facility occupies approximately 9 acres and includes a mix of office, shop, and utility space surrounded by open parking lots and storage areas, diesel/gasoline refueling pumps, compressed natural gas (CNG) storage/refueling pumps, and grassy, vegetated areas. The site is surrounded by a fence with two locked gate entrances on Theodore Fremd Avenue, one of which is controlled by a security guard during hours of operation. Figure 2-2 is an aerial view of the site that illustrates the current site configuration including buildings and other surface cover such as paved areas, grass/uncultivated areas, and storage areas.

The former MGP property encompasses the following lots, based on the current Tax Maps and the layout of the site on the 1934 Sanborn Map (RETEC 2001):

- Map 146.10, Block 1, Lots 69 and 70 - 178 Theodore Fremd Avenue.

Con Edison identified these lots and two additional lots in the summary of MGPs prepared for the application to the NYSDEC Voluntary Cleanup Program. Two additional lots (Map 146.10, Block 1, Lots 67 and 68) are contiguous with Lots 69 and 70; however, they were not part of the former MGP site at the time it was operational. Currently, they are part of the property owned and used by Con Edison.

The site is located in a mixed residential and commercial area of Rye and is bounded on the east and southeast by Theodore Fremd Avenue, on the northeast by residential properties, on the north and northwest by railroad tracks and Interstate 95 (I95), on the southwest by commercial properties and on the south by residential properties. A zoning map of the site and surrounding area is provided as Figure 2-3 and shows that the site is zoned as general business (B-6) and surrounding properties are residential (R-2, R-3, RA-1, and RA-2), and as neighborhood business (B-1). Commercial properties, a public park, and residential properties are present north and west of I95. A former gasoline station, replaced by a former landscaping business was situated adjacent to and south of the southern gated entrance to the site. Two gasoline stations are situated farther to the south-southwest of the site.

The Rye Nature Center is situated to the east and southeast across Theodore Fremd Avenue and is surrounded predominantly by residential properties, except along its south and east side where it borders Boston Post Road and residential, athletic, institutional (schools, churches), and commercial properties. The Rye Nature Center is located east of the site at 873 Boston Post Road (See Figure 2-1). The Rye Nature Center is a city-owned facility offering environmental programs through the cooperative efforts of the Friends of Rye Nature Center (a non-profit organization) and the City of Rye. The Center is located on 47 acres of wildlife preserve, and has over two miles of hiking trails, ponds, streams and granite outcroppings. The Nature Center has classroom and museum spaces for visiting classes and special events.

2.2 Site History

The RETEC Group (RETEC) prepared a historical investigation report for Con Edison in December of 2001 (RETEC, 2001). The report was part of a comprehensive program to research and assess the history of sites formerly used by Con Edison and its predecessor companies for the manufacture and/or distribution of gas. The following information was derived from the (RETEC 2001) report. Copies of the historic maps and photographs referenced in the subsections below are available in Appendix A of this RI report. Figure 2-4 illustrates a composite of the historic site features as well as the current site configuration.

2.2.1 Pre-Manufactured Gas Plant

Based on a review of deeds from the Chain-of-Title Search, a portion of the site (Block 1, Lot 69) was used as a nursery prior to its purchase by the Westchester Lighting Company.

2.2.2 Manufactured Gas Plant

2.2.2.1 Site Ownership

The MGP site operated from about 1887 until sometime around 1926, a period of approximately 39 years. The New York Public Service Commission (PSC) reports indicate that the Rye MGP was present in 1926 but gas was not produced that year. Con Edison records indicated that the Rye MGP site was constructed in the late 1880s by the Citizens' Gas Light Company of Westchester County. Brown's Directory indicated that the Citizens' Gas Light Company leased the Rye and Port Chester Gas Light Company. The company became the Standard Gas Company around 1890 [Brown's Directory, 1891], then Consolidated Gas and Electric Company of Westchester County around 1891 [Brown's Directory, 1892]. The Westchester Gas and Electric Company was incorporated in 1897 and this company operated the Rye plant by the late 1890s [Brown's Directory, 1899]. The Westchester Gas and Electric Company was consolidated into the New York Suburban Gas Company in 1899, which merged into the Westchester Lighting Company in 1900 [PSC Records]. In July1904, the Westchester Lighting Company sold the property to the New York and Westchester Lighting Company and that company was merged into the Westchester Lighting Company in October 1904. Beginning as early as 1905, the Consolidated Gas Company (predecessor to Con Edison) secured financial control of the Westchester Lighting Company; however, the company still continued to operate as an affiliate [Brown's Directory, 1905]. In 1936, Consolidated Gas Company became Consolidated Edison Company, and the affiliation with the Westchester Lighting Company continued. In 1951 the Westchester Lighting Company was fully merged into Consolidated Edison as the Westchester Division [Brown's Directory]. Con Edison still maintains ownership of the site and operates a service center at the location.

2.2.2.2 MGP Operations

The exact construction and starting date for gas production at the site could not be determined. The MGP was not present on the 1868 Beers Atlas map, and site use at that time was not indicated on the map. The earliest record of the gas plant is from 1887, for which Sanborn Map coverage is provided and the site is listed in Brown's Directory. According to these sources, the Rye MGP produced gas using the Wilkinson-Kennedy process (water gas) for the cities of Rye, Port Chester, Harrison, and Mamaroneck. Early gas production ranged between 20 and 26 million cubic feet.

The gas plant consisted of a MGP process building located adjacent to the railroad tracks, which included a coal house, gas generators and retorts, exhausters, a purifying room, and machine shop. Other features included a 6,000 cubic foot (cf) gas holder (later the relief holder), a 100,000

cf gas holder, an underground receiving oil tank (north end of building), an iron oil tank, an iron water tank, and a coal pile. Both of the gas holders were below-ground holders given the timeframe of construction and historical photos. The smaller 6,000 cf holder was shown as not in use [Sanborn, 1907 and 1912] and as the relief holder on later Sanborn Maps [Sanborn Map, 1919]. Prior to this time, tar structures were not indicated on the Sanborn Map. A Westchester Lighting Company 1920 drawing provided by Con Edison illustrates two tar wells at the locations illustrated beneath the service center building on Figure 2-4. There were no records of removal of the relief holder. The 100,000 cf holder was indicated on Sanborn Maps as having a roof that was 2-feet above-ground. The open holder pit for this holder was illustrated in a 1928 photograph taken during the dismantling process [Con Edison Records].

The 1912 Sanborn Map indicated that the plant was no longer producing gas on a regular basis and it was used only for storage and as a repair shop. Construction of the 3 million cf gas holder, an above-ground structure, began in 1920 [Con Edison Records]. The 3 million cf holder was an above-ground holder, although the bottom of the holder may have been located a few feet below ground based on historic photographs taken during the 1920 construction. Gas production at the Rye MGP continued at least intermittently into the mid-1920s [PSC Reports]. The 3 million cf holder continued to be used for distribution purposes after the MGP operations ceased.

2.2.3 Post MGP

Following cessation of MGP operations, the site was used for gas distribution operations and a service center operated by Con Edison until 1971 [Con Edison Records]. The current Con Edison service center building was constructed in 1929 [Con Edison Records]. The 3 million cf holder was demolished in 1974 [Con Edison Records]. The original MGP production building and exhauster house remained on the site at least into the late 1990s [Sanborn Map, 1996]. Additional structures were added to the site to support the service center including gasoline/diesel pumps and tanks and CNG tanks and pumps. In addition, the property was and is currently used for equipment/material storage including poles, transformers, and cable, and for vehicle storage and maintenance. The site continues to be used as a service center by Con Edison.

2.2.4 Potential Residuals Based on Site Use

Residuals associated with MGP processes include tar (containing volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and phenolics), purifier residuals, ammonia residuals, and clinker. In addition to residuals produced, feedstocks to the process, including gas oil used in the carbureted water gas process, have the potential to remain in the subsurface. Residuals associated with the use of the site as a service center may include petroleum products (oil & grease, gasoline, diesel fuel, fuel oil), automotive products (e.g., coolant, motor oil, batteries, etc.), and solvents used to clean equipment parts. Additionally, creosote may be associated with pole storage and dielectric fluid and polychlorinated biphenyls (PCBs) may be associated with transformer storage on the site.

2.3 Previous Environmental Investigations

Several investigations have been conducted at the site relative to the existing and former underground storage tanks (USTs) and related structures, the former hydraulic lift system within the facility garage building and the current USTs containing gasoline. These investigations are summarized below. Available boring logs from these investigations are provided in Appendix B of this report.

Currently, there are two 4,000-gallon gasoline USTs and one, 4,000-gallon diesel fuel UST present at the site (Below pump island on Figure 2-4).

2.3.1 Spill Number 0009384: Former USTs Pre-Closure Site Assessment of USTs

In July and August 1996, Environmental Concepts, Inc. (ECI) conducted a UST site assessment at the facility (*Site Assessment for Underground Storage Tank Closure Report, prepared by ECI dated March 1998)*. The subsurface assessment was performed prior to closure of three USTs at the facility, which are described as follows:

- One 550-gallon Kerosene UST;
- One 1,000-gallon Waste Oil UST, and;
- One 600-gallon Lubricating Oil UST.

The 550-gallon and 1,000-gallon USTs were located outside of the southeast corner of the facility maintenance building garage. The 600-gallon lube oil UST was located inside the southern end of the garage, beneath the concrete floor.

In summary, a total of eight soil borings were advanced in the area of the USTs (three borings inside and five outside the building). Two of the eight borings were finished as groundwater monitoring wells. Figure 2-5 illustrates the boring, monitoring well and UST locations. Soil sampling results indicated that volatile organic compound (VOC) and semivolatile organic compound (SVOC) concentrations exceeded the NYSDEC Spill technology and remediation series toxicity characteristic leachate procedure STARS TCLP Alternative Guidance Values for kerosene contaminated soils. Additionally, numerous metals, including arsenic, lead, beryllium, chromium, copper, nickel and zinc were detected at elevated levels, but were considered by ECI to be indicative of site background concentrations.

Groundwater results from the site investigation conducted in 1996 revealed that there were considerable concentrations of VOCs present in groundwater. Groundwater from monitoring well MW-1 located in Investigation Area 9 contained concentrations of ethylbenzene of 2,200 ug/L and xylenes of 7,900 ug/L. Groundwater collected from monitoring well MW-1 located in Investigation Area 10 contained concentrations of benzene of 5,300 ug/L, ethylbenzene of 450 ug/L, toluene of 2,800 ug/L, and xylenes of 3,900 ug/L.

During these investigations two separate monitoring wells were identified as MW-1. For the purposes of this report, MW-1 in area 9 will be referred to as MW-2 for the remainder of the report (as illustrated on Figure 2-5). The soil and groundwater analytical results from these investigations are incorporated with the SC and RI results in this RI report.

2.3.1.1 December 1997 UST Closure Report

In December 1997, Clean Harbors, Inc. was contracted by Con Edison to remove and permanently close the three USTs described above. The USTs were removed and evidence of petroleum impacts to soil was observed at each of the UST excavations. Post-excavation soil samples were collected at the direction of the NYSDEC and analyzed for VOCs, SVOCs, metals and PCBs. Approximately 30 cubic yards of soil was removed and disposed of off Site. According to Clean Harbors, the soil was classified as lead hazardous.

Post-excavation soil sampling was conducted at each of the tank excavation pits. The analytical results indicated that all samples contained TCLP VOC constituents at concentrations above NYSDEC STARS TCLP Guidance Values. An UST Closure Report was submitted to the NYSDEC on September 14, 2000. Based on the results of the UST closure activities, Clean Harbors concluded that there is evidence of possible residual petroleum contamination in the former UST areas.

2.3.1.2 Site Investigation 2004

Con Edison contracted ENSR in October 2004 to further delineate the impacts observed in the vicinity of the former USTs due to Spill Numbers 0009384 and 0405335. Ten soil borings and two monitoring wells were installed during the investigation. The findings of this investigation were presented in the ENSR Site Investigation Report dated February 2005 (ENSR 2005) and indicated that gasoline was the primary constituent of concern (COC) at the Site. The 2004 investigation locations are illustrated on Figure 2-5. The 2004 soil and groundwater analytical results are incorporated with the SC and RI results in this RI report.

2.3.2 UST Remedial Investigation

The most current information regarding environmental conditions at the site relative to the existing and former USTs is provided in the Remedial Investigation (RI) Report prepared by ENSR (ENSR, 2007) and the Supplemental Remedial Investigation Report (SIR) (AECOM 2009). The UST RI activities were conducted between August 2006 and April 2007 and the UST SIR activities were conducted between November and December 2008. This work was conducted in order to address the Spill Numbers 0009384 and 0405335 described above. The results of the investigation are summarized below and incorporated with the SC and RI results in this RI Report.

2.3.2.1 Soil

Seventeen soil borings were attempted at the site during the UST RI. The boring locations are illustrated on Figure 2-5. In general, compounds that were detected in soil at concentrations exceeding criteria included benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene and several SVOCs. These compounds were detected in soil ranging in depth from 2 ft bgs to 11.5 ft bgs.

2.3.2.2 Groundwater

Six overburden and seven bedrock monitoring wells were installed during the UST RI. The majority of the compounds that exceed NYSDEC Ambient Water Quality Standards or Guidance Values (AWQSGVs) in overburden groundwater included BTEX and naphthalene and some SVOCs clustered in the central area of the site, and include wells MW-1, MW-3, MW-4, and MW-9. Minor exceedances for VOCs were also detected in the groundwater sample collected from MW-10.

The primary compounds that were detected at concentrations exceeding AWQSGVs in bedrock were BTEX. The bedrock groundwater impacts are clustered in the central area of the site, and include wells MW-4D, MW-9D, and MW-11D.

2.3.3 Adjacent Site Environmental Investigations

Four NYSDEC spill records were identified from a Freedom of Information Act (FOIA) request for the property situated at 180 Theodore Fremd Avenue, south of the site. Copies of these records are provided in Appendix A and indicate that diesel and gasoline impacts were noted in soil and groundwater at the location between 1998 and 2008. The records indicate that a vacuum truck would be used to remove product from groundwater and that an assessment would be performed.

Environmental reports associated with the property were not provided in response to the FOIA request.

3.0 Remedial Investigation Field Activities

This section provides a description of the methodologies used during the field investigation of the former Rye Gas Works site. The SC field work was initiated in August 2009 and completed in March 2010 and the RI field work was initiated in December 2011 and completed in April 2012. These field activities were conducted in accordance with the methods and procedures specified in the NYSDEC approved SC Work Plan (ENSR, 2008) and the NYSDEC-approved RI Work Plan (AECOM, 2010) for the site.

The location and number of samples collected along with the corresponding analytical parameters are presented in the following subsections. Descriptions of all field activities are included by field task and/or environmental media. The locations of the previous investigations, SC, and RI samples are illustrated on Figure 3-1. Specific tasks during the RI included the following:

- Locating underground utilities in the new investigation areas
- Community air monitoring during invasive activities
- Surface soil sampling
- Advancement of soil borings and collection of subsurface soil samples
- Excavation of test pits and collection of subsurface soil samples
- Collection of soil gas samples and collection of ambient indoor/outdoor air samples
- Advancement of bedrock borings via coring and air rotary drilling
- FLUTe NAPL and blank liner eversion and evaluation
- Borehole geophysical logging
- Discrete bedrock fracture groundwater sampling via packer testing
- Overburden monitoring well installation
- Monitoring well development
- Groundwater gauging and sampling
- DNAPL recoverability activities
- Surveying of new sampling points, wells, and borings
- Investigation residuals management
- Water Well Survey

3.1 Underground Utility Clearance

Prior to the initiation of intrusive fieldwork, the drilling subcontractors, Paragon Environmental Construction, Inc. (PEC) during the SC and NYEG Drilling, Inc. (NYEG) during the RI, contacted Dig Safely New York to arrange for the location and marking of all underground utilities in the vicinity of the proposed test pits, soil gas, soil boring, coring, and monitoring well locations, as required by the New York Code of Rules and Regulations (NYCRR) Part 753. Where possible, AECOM worked

directly with the representatives of each utility company to ensure that all underground lines were properly identified and marked-out.

Utility clearance for both the SC and RI was performed by Advanced Geological Services (AGS) under contract to AECOM. AGS used ground-penetrating radar (GPR) and electro-magnetic (EM) survey methods to scan each proposed investigation location. Copies of available historic city sewer and water maps for the site were provided by Con Edison and reviewed by AECOM prior to intrusive SC activities. AECOM acquired available city sewer and water maps from the Rye Building Department and reviewed prior to intrusive RI activities. Prior to excavating soil borings using a drill rig, each boring location was hand excavated to a minimum depth of 5 ft bgs with 2 ft by 2 ft dimensions. Excavations were performed to locate any utilities that may have been marked incorrectly, are privately owned, have been abandoned, were not known to exist, or were not detectable by surface investigation methods. Hand-clearing was performed by the drilling contractor utilizing shovels, posthole diggers, and other non-mechanical means in accordance with the Con Edison utility clearance policy (Appendix C of the SCWP).

3.2 Community Air Monitoring

Community air monitoring was performed and documented to provide real-time measurements of total VOCs and particulate (airborne dust) concentrations upwind and downwind of each designated work area during intrusive investigation activities performed during the SC and RI. Site personnel monitored any odors produced during these activities. The monitoring was designed to provide protection to the public downwind of the work area from any potential releases of airborne contaminants due to investigation activities and to document air quality during intrusive activities.

Instrumentation used during the Community Air Monitoring Program (CAMP) was located upwind and downwind of the work area on stands located in the breathing zone. The instruments were calibrated daily and recorded on separate field forms. The instrumentation used during the investigation activities included a MiniRae photo-ionization detector (PID) 10.6 eV to measure volatiles in parts per million (ppm) and a TSI DustTrak™ meter to detect the particulate concentrations in milligrams per cubic meter (mg/m^3).

The instruments were programmed to log air quality data once per minute during intrusive work activities. Personnel recorded readings and any observations from these instruments every 15 minutes on a separate CAMP field form. Data from the PID and Dustrak monitors were downloaded to a field laptop computer on a weekly basis. The recorded logs were reviewed for any exceedances.

There were no reportable exceedances of the established standards during the SC or the RI.

3.3 Surface Soil Sampling and Analysis

Five surface soil samples were collected during the 2010 SC to evaluate the surface soil quality unpaved areas of the site. Sample locations can been found on Figure 3-1. No surface soil samples were proposed as part of the RI Work Plan (AECOM, 2011). Table 3-1 summarizes the SC surface soil sample designation, depth, date, collection method, rationale, and laboratory analyses.

At each surface soil sample location, a 2 ft by 2 ft area was scraped with a stainless steel trowel and samples were collected from 0.0 to 1.0 feet depending on the surface cover. Soil samples for VOC analysis were placed directly into the appropriate container and compacted to minimize head space and pore space. The remaining sample volume was placed into a stainless steel bowl, homogenized, and placed in appropriate containers for the remaining analyses. The SC surface soil samples were

analyzed by Chemtech of Mountainside, NJ. Sample jars were labeled, placed in a cooler with ice, and sent under chain-of-custody protocol by courier to the laboratory. Surface soil samples were analyzed for VOCs plus 10 tentatively identified compounds (TICs), semi-volatile organic compounds (SVOCs) plus 20 TICs, target analyte list (TAL) metals, and total cyanide using the methods specific in Subsection 3.12.

3.4 Test Pit Excavation, Soil Sampling, and Analysis

Test pit excavations were completed at eight locations (TP-1 through TP-8) during the SC and two locations (TP-9 and TP-10) during the RI as illustrated on Figure 3-1. A backhoe was used to excavate each location to examine conditions in and around former structures. Soil borings were drilled to augment the test pit information at test pits TP-3, TP-4, and TP-10. Soil from the test pits was screened for the presence of organic vapors with a PID. The SC test pit subsurface soil samples were analyzed for VOCs, SVOCs, TAL metals, and total cyanide. No test pit soil samples were collected for laboratory analysis during the RI. Table 3-2 summarizes the SC test pit sample designations, depth, date, collection method, rationale, and and list the laboratory analyses conducted.

Excavation spoils were temporarily staged on plastic sheeting. Upon completion of each test pit, the spoils were placed back into the excavation in the reverse order of which they were removed. Visibly impacted soils were containerized in drums or roll off containers and managed in accordance with Subsection 3.13. The test pits were backfilled in 12 inch lifts and compacted and filled with sand and/or Item IV stone to within 3 to 6 inches of ground surface in areas of high traffic and then restored to original conditions.

Test pit logs were completed for each excavation and describe the type of soil encountered, the presence of visible evidence of MGP structures and residuals, and the results of PID screening. Test pit logs are included in Appendix B of this report.

3.5 Soil Borings, Soil Sampling, and Analysis

During the SC, 11 soil borings (MGP-SB-1 through MGP-SB-9, MGP-MW-10D, and TP-3boring) and 11 bedrock borings (MGP-MW-TP4, MGP-MW-0DD, MGP-MW-4DD, MGP-MW-9DD, MGP-MW-101D through MGP-MW-106D, and MGP-MW-108D) were advanced through the overburden at the site using hollow stem augers and split spoons or Geoprobe macrocores. Seven soil gas sampling points (MGP-SG-1 through MGP-SG-7) were advanced in the overburden with hand tools during the SC. Thirty-one soil samples were collected at eighteen different boring or soil gas locations during the SC to evaluate the nature and extent of overburden impacts onsite (Table 3-3). Proposed monitoring wells MGP-MW-107S and MGP-MW-107D (see Figure 4-1 of the SCWP) could not be installed during the SC due to access and logistical constraints associated with the Metro North railroad and I95. Proposed monitoring well MGP-MW-105S was not installed during the SC since saturated overburden was not encountered at the proposed location. The proposed MGP-MW-105S location was converted to a FLUTe lined bedrock borehole identified as MGP-MW-0DD. The proposed MGP-MW-105D location in the SCWP was shifted south-southwest of MGP-MW-TP4 to further evaluate the extent of impacts associated with the former 6,000 cf holder. Three soil borings (MGP-SB-10 through MGP-SB12), six bedrock borings (MGP-MW-109D, MGP-MW-110D, MGP-MW-112D, MGP-MW-113D, MGP-MW-114D, and MGP-MW-116D) and one soil gas sampling point (MGP-SG-8) were advanced through the overburden during the RI. Twelve soil samples were collected at seven different boring locations during the RI to further evaluate and delineate the extent of soil impacts (Table 3-3). Two soil gas points (MGP-SG-9 and MGP-SG-10), two bedrock borings (MGP-MW-111D and MGP-MW-115D) and one shallow overburden monitoring well (MGP-MW-111S) were proposed for installation during

the RI to the north of the site on private property. These points were not installed during the RI since access to the locations could not be acquired. The boring locations are illustrated on Figure 3-1.

The initial SC soil borings were drilled between August 2009 and May 2010. These soil borings were performed by PEC under the supervision of an AECOM geologist or engineer. The supplemental RI soil borings were drilled between December 2011 and April, 2012 by NYEG under the supervision of an AECOM geologist or engineer. Soil borings were advanced using hollow stem auger (HSA) drilling rigs or direct-push technology using a geoprobe rig. Continuous soil samples were generally collected from a depth of 5 feet to the base of each borehole. The upper 5 feet of each boring was logged continuously during utility clearance. The soils were logged for composition and presence of visible and olfactory impacts and were field screened with a PID for the presence of VOCs. Boring logs are provided in Appendix B of this RI report.

Soil samples were collected from borings using 2-inch, 2-foot long split-spoon samplers or geoprobe macrocores. Soil samples were collected in advance of the augers by driving the split-spoon sampler through the sample interval with a 140-pound hammer on an anvil attached to the drive head on the sampler (via automatic hammer). Blow counts were recorded for every 6-inch interval. Split-spoon sampler refusal was considered 100 blows per 6 inches. Split spoons were decontaminated with Alconox® and water between each sample. Soil borings advanced by direct-push geoprobe used a 5-foot long steel sampling tube (macro-core sampler) with an acetate liner. New liners were used for each 5-foot sample interval. The downhole drilling equipment was decontaminated by steam cleaning between each boring.

In general, one to three samples were collected from each boring location; one at the depth interval with the greatest observed impacts based on olfactory and visual observations and PID readings, one below the deepest impacts to delineate vertical extent and/or one at the base of the boring to provide vertical delineation information and/or quality at the top of bedrock. If olfactory and visual observations and PID readings did not indicate impacts at a location, a sample was collected at the water table interface (if encountered) and/or the bottom of boring.

Soil for VOC analysis was collected directly from the interval exhibiting the highest PID readings, when detected. Soil collected for the remaining analyses (SVOCs, TAL metals, total cyanide, and PCBs) was sampled across the sample interval. Soil samples were placed in jars, labeled, placed in coolers of ice, and sent under chain-of-custody protocol by courier to Chemtech or Hampton Clarke-Veritech. One fingerprint sample was taken during the SC (Table 3-4) to characterize the odor of petroleum in slag and cinders.

Upon completion, boreholes were completed as monitoring wells, cased for future coring activities, or tremie-grouted from the base of the boring. Boring logs are provided in Appendix B of this report. IDW was managed in accordance with Subsection 3.13 of this RI report.

3.6 Bedrock Investigations

Due to the shallow nature of bedrock at the site, the presence of impacts in the overburden soil, and the detection of groundwater impacts in three previously installed bedrock wells at the site, additional bedrock investigations were performed during the SC and the RI. Bedrock investigations during the SC and the RI included a review of published geologic information for the site vicinity, review of available boring/well/geophysical logs for the site vicinity, and bedrock drilling and coring to allow for visual inspection of the bedrock and fractures, determination of the rock quality, and to determine if impacts are present in any observed fractures. The SC phase of work included bedrock coring,

FLUTe NAPL liner evaluation, borehole geophysical logging, and groundwater sampling of discrete fracture zones using inflatable isolation packers at 11 locations including MGP-MW-101D through 106D, MGP-MW-108D, MGP-MW-TP4, MGP-MW-0DD, MGP-MW-4DD, and MGP-MW-9DD), Proposed location MGP-MW-10D was not completed (although the overburden was drilled and outer casing was installed) because impacts were observed at further downgradient locations MGP-MW-108D and MGP-MW-104D, therefore, MGP-MW-10D drilling observations would not provide delineation data.

The RI work included a combination of bedrock drilling (air rotary, minimal coring at one location to control water, and roller bit techniques), FLUTe NAPL liner evaluation, borehole geophysical logging and groundwater sampling of discrete fracture zones using inflatable isolation packers at six locations including MGP-MW-109D, MGP-MW-110D, MGP-MW-112D, MGP-MW-113D, MGP-MW-114D, and MGP-MW-116D). Two bedrock borings (MGP-MW-111D and MGP-MW-115D) were proposed for installation during the RI to the north of the site on private property. These points were not installed during the RI since access to the locations could not be acquired. The bedrock boring locations are illustrated on Figure 3-1. The bedrock investigations were performed in a phased approach as detailed below.

3.6.1 Outcrop Fracture Analysis

Published information was researched to evaluate regional bedrock structure and geologic properties such as, fracture depth, density, and orientation, and hydrogeologic properties such as groundwater flow direction, velocities, fracture connectivity, and permeability. Bedrock outcrops are present at several locations across the site; these outcrops were examined for structural trend information. The bedrock outcrop evaluation methods and results are summarized in Section 4 of this report.

3.6.2 Bedrock Coring and Drilling

The first phase of the bedrock drilling activities included coring bedrock to a depth of 100 ft bgs, using packers to isolate and allow collection of groundwater samples at discrete depth intervals during drilling for VOC analysis, lining the borehole with FLUTe™ NAPL liners to evaluate the presence of tar-bearing fractures, borehole geophysical logging, and preventing potential vertical migration by everting blank FLUTe liners. These activities were performed at two locations, MGP-MW-4DD and MGP-MW-9DD, adjacent to locations where shallow bedrock groundwater impacts were previously identified in MW-4D and MW-9D, respectively. Based on the overburden SC field observations and the bedrock investigation results at MGP-MW-4DD and MGP-MW-9DD, additional coring, FLUTe NAPL liner, and geophysical activities were proposed to depths of 150 ft bgs in MGP-MW-4DD and MGP-MW-9DD and also at a third location (MGP-MW-0DD) as summarized in a memorandum to Con Edison dated September 11, 2009 (AECOM 2009a see Appendix C). The results of these activities were summarized in a memorandum to NYSDEC dated November 3, 2009 along with recommendations for subsequent bedrock investigations (AECOM 2009b see Appendix C). The subsequent investigations resulted in advancing the additional SC and RI bedrock borings noted in Section 3.6 above and illustrated on Figure 3-1. In addition, MGPMW-4DD was advanced to 200 ft bgs to provide additional vertical delineation.

The bedrock drilling and coring was completed using a standard drilling rig and rock coring equipment. Continuous rock coring was performed at each SC location. The bedrock borings were advanced through overburden soils and continuously sampled to the top of bedrock using HSA and split-spoon samplers as described above. The top of bedrock was determined by sampler refusal and contents of the sampler. Following sampler refusal, the augers were advanced at least 1 foot into the top of bedrock to act as a temporary isolation casing and the top 5 feet of bedrock was cored at each SC

location using an HQ (3 $^{7}/_{8}$-inch diameter) wireline rock core barrel or drilled by air rotary or roller bit at each RI location. The borehole was over drilled into the top 5 feet of bedrock and a Schedule 40, 4-inch diameter steel casing was grouted into the top of bedrock. After the grout had cured for a minimum of 24 hours, the SC boreholes were advanced through bedrock using a HQ rock core barrel equipped with a diamond cutting bit and the RI boreholes were advanced by air rotary or roller bit techniques.

The core barrel was advanced by drill rod in intervals or 'runs' of up to 5 feet in length. After each 5-foot run was complete, the core was extracted from the borehole and placed into a wooden core storage box. The field geologist photographed the core and logged the core for:

- Length of rock recovered
- Percent of the run recovered
- Rock quality designation (RQD)
- Natural or mechanical fracture identification
- Rock type
- Evidence of weathering and the presence and orientation of fractures and voids
- Any visible or olfactory evidence of MGP residuals

All fractures in the core were examined to determine if they were mechanical fractures, caused by coring activities, or naturally occurring. Naturally occurring fractures were identified by the presence of weathering, iron and mineral staining, and gaps in the core.

During the RI an air rotary setup on a HSA rig was used to drill six locations to 200 ft bgs. When the air rotary setup produced excess water a roller bit was used to advance to depth. All drill water was stored in appropriately labeled closed top drums. During air rotary and roller bit drilling, rock fragments were collected with a fine mesh sieve and described. Fragments were logged for color, mineral content, fragment size, mineral staining (if present) and presence of visible or olfactory impacts. Drops in drilling rods were noted as they indicated the potential presence of natural fractures.

During the coring and drilling process it was necessary to continuously circulate water to cool the diamond bit and to clear the drill cuttings from the borehole. Potable water for this task was provided from a fire hydrant and transported to the drilling location by hose or support truck. Circulation water was either lost to the formation or brought back to the ground surface via pumping and contained in a tub.

At the conclusion of coring and drilling, water retained in the tub was containerized in drums for proper off-site disposal. All SC cores were kept in labeled pine core boxes and stored at an offsite location. Cores and cuttings from the RI were disposed of in drums. All bedrock core locations were developed until approximately three well volumes were removed with a submersible pump to remove drilling fluids and sediment from the fractures and borehole. The development water was containerized in 55-gallon closed top drums. All IDW was managed in accordance with subsection 3.13.

Boring logs for the bedrock borings were developed and are provided in Appendix B. Samples of rock core and cuttings were not collected for laboratory analysis.

3.6.3 FLUTe Activities

After completion of the drilling/coring to the total depth of the boring and developing the borehole, FLUTe™ blank and NAPL liners were everted in the borehole according to the manufacture's specifications. The FLUTe™ liners were left in the borehole for a minimum of 12 hours, after which the liners were removed. Upon removal, the inner NAPL and outer blank liners were separated and the inner NAPL liner was evaluated for the presence of tar. The inner liner was photographed and notes were made regarding NAPL presence. Appendix D provides a photographic log of the FLUTe NAPL liner for each borehole. The NAPL liners were wrapped in plastic and stored in an airtight plastic bin at an offsite storage location. Borehole geophysical logging was performed as described below and then the outer blank liner was everted in the borehole to prevent potential vertical migration.

3.6.4 Borehole Geophysical Logging

Borehole geophysical logging for both the SC and the RI was performed by Hager Richter, Inc. Following FLUTe lining activities, borehole geophysical surveys were performed by Hager Richter within each borehole and included, caliper, fluid temperature, fluid resistivity, acoustic televiewer, optical televiewer, and/or heat pulse flow meter. The full suite of geophysical tools could not be used in boreholes containing significant amounts of tar. Therefore, the geophysical records for some of the boreholes do not include heat pulse flow meter data or optical televiewer data, and the acoustic televiewer data were occasionally obtained through the FLUTe blank liner. The geophysical results are provided in Appendix E.

3.6.5 Discrete Fracture Groundwater Sampling Using Isolation Packers

During the advancement of MGP-MW-4DD, MGP-MW-9DD, and MGP-MW-0DD to 150 ft bgs, discrete fracture zones were isolated with a single packer set above each significant fracture zone as it was encountered during drilling and groundwater samples were collected for quick turnaround VOC analysis to help determine the total depth of the bedrock borings. Once it was decided that each of the subsequent SC locations would be cored to 150 ft bgs (see memoranda in Appendix C), coring and drilling data, NAPL liner observations, and geophysical results were used to select bedrock fracture zones to be sampled for groundwater quality. Groundwater was collected from specific fracture zones within each bedrock borehole that did not contain significant tar, using a dual inflatable packer and pump system. Groundwater samples were not collected from MGP-MW-TP4 and MGP-MW-108D due to the presence of tar in the water column. Three volumes of water were purged from each zone before a sample was collected. The duration of pumping and pump speed were noted in a field book along with any noticeable impacts. After purging each zone a groundwater sample was collected and submitted for VOC laboratory analysis (see Table 3-5 for sample rationale and analysis). This sampling process was repeated for each water bearing fracture zone. The zones sampled and purge/sample volume and rate are summarized on the well logs provided in Appendix B. The purge water was containerized in 55-gallon closed-top drums and managed in accordance with Subsection 3.13.

3.7 Overburden Monitoring Well Installation and Development

Three overburden monitoring wells (MGP-MW-103S, MGP-MW-104S, and MGP-MW-108S) were installed during the SC and one overburden monitoring well (MGP-MW-113S) was installed during the RI at the locations illustrated on Figure 3-1. Additional overburden monitoring wells were proposed for installation at locations coincident with bedrock borings however the overburden at these locations was either too thin or unsaturated to install overburden monitoring wells. These locations include

MGP-MW-101S, MGP-MW-102S, MGP-MW-105S, MGP-MW-106S, MGP-MW-109S, MGP-MW-110S, and MGP-MW-116S. Additionally, one shallow overburden monitoring well (MGP-MW-111S) was proposed for installation during the RI to the north of the site on private property. This well was not installed during the RI since access to the location could not be acquired.

Overburden monitoring wells were installed using HSA techniques in accordance with monitoring well installation and development procedures in the SCWP. The monitoring wells were constructed of 2" PVC with 5 to 10' well screens with a 2' sump at the base of the well to collect any Dense Non Aqueous Phase Liquid (DNAPL) that may be present, depending on the overburden thickness at each location. A sand pack extends from the base of each well screen to at least 1-foot above the top of the screened interval. The sand pack is overlain by a 2-foot bentonite seal and the remaining annular space is filled with grout to within approximately 1-foot of ground surface. Flush-mounted limited access road boxes were used to complete the wells and the surface surrounding the well was restored to pre-drilling conditions. Monitoring well construction diagrams are illustrated on the boring logs in Appendix B.

The overburden monitoring wells were developed a minimum of 24 hours after well installation (following NYSDEC protocol) to remove fine sediments from within the well, well screen, sand pack, and aquifer to promote good hydraulic connection between the well and the formation. Various techniques were used for well development, including surging using a plunger, a one stage downhole centrifugal pump, and a peristaltic pump. The plunger was a handmade design that consisted of PVC pipe with a gasket and valve on one end and tubing on the other end that directed development water into a drum.

All of the wells installed were developed until approximately 10 well volumes of water were removed or until turbidity was low (less than 50 Nephelometric Turbidity Units [NTU]) and groundwater pH, temperature, and conductivity parameters stabilized. Water quality data monitored during well development are summarized on the well development forms provided in Appendix F. All of the development water was containerized in 55-gallon closed-top drums and managed in accordance with Subsection 3.13.

3.8 Groundwater Elevation and NAPL Thickness Measurements

Depth to water and NAPL presence/thickness measurements were collected from the majority of the overburden and bedrock monitoring wells on March 8, 2010 during the SC and on April 13, 2012 during the RI. These depths were measured using an electronic water level meter and/or oil-water interface probes to the nearest 0.01 ft. The meters and probes were decontaminated between each well in accordance with procedures specified in the SCWP.

Groundwater sampling was performed in all twenty overburden and bedrock monitoring wells onsite between March 8 and 11, 2010 during SC activities A groundwater sample was collected from the only overburden monitoring well installed during the RI, MGP-MW-113S, on March 16, 2012. A summary of the groundwater sampling performed during the 2010 SC and 2012 RI is provided in Table 3-6.

Monitoring wells were purged and groundwater samples were collected using a peristaltic pump and low-flow sampling methodologies. Prior to purging and sampling the depth to water and presence/thickness of NAPL were measured to the nearest 0.01 of a foot in each monitoring well. Tubing was placed at the approximate midpoint of the screened interval. Groundwater purge rates were set below the maximum sustainable flow rate to ensure that the water table remained within 0.3

feet of the initial depth to water reading in the well. During purging activities, groundwater was passed through a Horiba U-52 flow-through cell which contained probes to measure the water temperature, pH, conductivity, and oxidation-reduction potential. Samples of water discharging from the cell were collected at 5-minute intervals and analyzed for turbidity using a LaMotte® 2020 turbidity meter. After passing through the cell, the water was discharged and temporarily contained in 5 gallon buckets. The purged water was later transferred to 55-gallon closed-top drums and managed in accordance with Subsection 3.13.

Groundwater samples were collected in appropriate glassware once the water quality parameters had stabilized. Sample jars were labeled, wrapped in plastic, placed in coolers with ice, and sent by courier to Chemtech or Hampton Clarke-Veritech under chain-of-custody protocol. Groundwater sampling forms for the March 2010 and March 2012 groundwater sampling events are compiled and presented in Appendix G.

3.9 Hydraulic Conductivity Testing

Hydraulic conductivity tests (slug tests) were performed in four overburden monitoring wells at the site to obtain information on the hydraulic properties of the overburden. The wells tested include MW-4, MW-5, MW-6, and MW-9. A background continuous water level survey (at least 24 hours) was performed at these wells to evaluate potential railroad or other influences on water levels.

The slug tests were performed by adding or removing a known volume to each overburden well and timing the equilibration to the static water level. During slug tests at each well pair location, water levels were also monitored in the adjacent bedrock well to evaluate any changes in groundwater elevations related to the test well slug test. The general steps that were performed during slug testing are as follows:

- Static water level was measured to the nearest 0.01 foot
- A pressure transducer, attached to a data logger, was placed into the well and the water level was allowed to equilibrate to static conditions
- A weighted slug was inserted into the well, below the water table while simultaneously measuring and recording water levels with the pressure transducer and data logger until the water level equilibrated (“slug-in test”)
- The slug was withdrawn from the well and the water level was measured and recorded (“slug out test”)

The data from these tests (slug in and slug out) were analyzed according to the Bouwer and Rice method (1989) to calculate average hydraulic conductivity values for the overburden. The background water level survey and slug test data are included in Appendix H.

3.10 NAPL Well Construction, Gauging, and Sampling

NYSDEC requested that the recoverability of DNAPL at the site be evaluated as part of the RI and requested in the September 1, 2010 comment letter that sumps be installed in selected existing and/or newly installed boreholes to allow DNAPL collection. Of the eleven deep bedrock borings installed at the site during the SC, three borings, MGP-MW-TP4, MGP-MW-104D, and MGP-MW-108D, encountered what appear to be relatively productive tar-bearing fractures based on the FLUTe NAPL liners, coring/drilling observations, and groundwater samples. While many other borings encountered tar-bearing fractures, these three locations encountered the greatest quantities of DNAPL. Therefore,

well strings with sumps were constructed in these three boreholes to preliminarily evaluate the recoverability of DNAPL at the site. The well construction details are summarized in the table below and included on the boring logs in Appendix B.

	MGP-TP-4	**MGP-MW-104D**	**MGP-MW-108D**
Screened interval(s) (ft bgs)	12 - 17	12 - 28 48 - 51 69 – 73	22 – 44
Sump interval (ft bgs)	17 - 27	73 – 83	44 – 54

Following removal of the blank FLUTe liner, each borehole was backfilled with cement-bentonite grout to the depth coinciding with the base of the sump and allowed to cure overnight. The FLUTe blank liner was everted into the borehole to a depth just above the grout to prevent potential vertical migration. Prior to installing the well string the depth to the top of grout was measured and bentonite chips were used to fill the borehole to the desired depth of the bottom of the sump as needed. A well string consisting of 2-inch diameter stainless steel blank casing and slotted wire-wrapped stainless steel screen with a 10-foot sump at the base was inserted into each borehole. The screened interval consists of 0.100-slot (100-slot) stainless steel, wire-wrapped well screen with #4 well gravel to fill the annular space between the screen and borehole wall. The annular space between the sump and blank casing sections and bedrock (or the outer casing at the top of the well) was filled with bentonite chips. A one foot # 1 sand choke was placed between the gravel pack around the well screen and the bentonite chips around the casing or sump sections. The wells were completed with locking caps. The well string was designed to allow DNAPL to flow by gravity from the apparent highest-yielding tar fractures into the well and accumulate in the sump, but does not allow evaluation of DNAPL yield from individual fracture zones (unless only one zone is screened). Evaluation of DNAPL recoverability in this existing well also was performed as discussed below.

The DNAPL level within each newly constructed well was monitored using a weighted string and/or oil-water interface probe the day after installation. After the first DNAPL measurement in which no DNAPL was present, the wells were developed to remove fines from the sumps. DNAPL levels were gauged every few days for the first two weeks. The gauging period was extended to weekly and then biweekly for 2 months and then to every 6 months due to the limited volume of DNAPL recovered in each well. The only well in which a significant quantity of DNAPL was measured was MGP-MW-104D. A DNAPL sample was collected from the sump of MGP-MW-104D on December 7, 2012 using a bailer and analyzed for physical property evaluation as summarized on Table 3-4. This sample was analyzed by PTS Laboratories of Santa Fe, California for the following properties using the methods listed below.

- Interfacial and surface tension by the DuNuoy Method – American Society of Testing Method (ASTM) D971
- Viscosity by ASTM D445
- Density by ASTM D1481
- Specific Gravity by API RP40

Investigation derived waste generated during these activities was managed in accordance with subsection 3.13.

3.11 Soil Gas Sampling and Analysis

Six soil gas samples, one crawlspace sample (MGP-SG-3), and two indoor air samples were collected and analyzed during the SC and one soil gas sample and one ambient air sample were collected and analyzed during the RI as illustrated on Figure 3-1 and summarized in Table 3-7. Although an outside ambient air sample was proposed during the SC, rain prevented the collection of the outdoor ambient air during the indoor air/soil gas sampling efforts. Soil gas samples were collected following utility clearance processes. Two indoor air samples were collected within site buildings during soil gas sampling. Survey forms of conditions within the buildings during the time of sampling and a photographic log of sampling locations is provided in Appendix I. Following apparatus set-up and purging procedures using a helium shroud, soil gas samples were collected over an eight-hour period at each location using 6L Summa canisters. The soil gas and ambient air samples were shipped via 2 day express courier service under chain-of-custody protocol to Air Toxics Limited, Inc. (Air Toxics) of Folsom, California. The samples were analyzed for VOCs and other parameters by United States Environmental Protection Agency (USEPA) Method TO-15. Table 3-7 provides a summary of the SC and RI soil gas and ambient air sample designation, date, depth, collection method, rationale, and analyses.

3.12 Analytical Program

3.12.1 2010 Site Characterization Chemical Analyses

The majority of the soil and groundwater samples collected during the 2010 SC were analyzed for:

- VOCs + 10 TICs by USEPA SW-846 Method 8260B
- SVOCs + 20 TICs by USEPA SW-846 Method 8270C
- TAL Metals by USEPA SW-846 6000/7000 Series
- Total cyanide by USEPA SW-846 Method 9012A
- PCBs by USEPA Method 8080 for select locations

These analyses were performed by Chemtech in accordance with NYSDEC Analytical Services Protocol (ASP).

The soil gas and ambient air samples collected during the SCI were analyzed for VOCs plus naphthalene, 2-methylpentane, isopentane, 2,3-dimethylpentane, isooctane, indene, indan, thiophene, and helium using USEPA Method TO-15. These analyses were performed by Air Toxics.

3.12.2 2012 Remedial Investigation Chemical Analyses

Based on the results of the 2010 SC, the majority of the soil and groundwater samples collected during the 2012 RI were analyzed for:

- VOCs by USEPA SW-846 Method 8260B
- PAHs by USEPA SW-846 Method 8270C

These analyses were performed by Hampton Clarke-Veritech in Fairfield, NJ in accordance with NYSDEC ASP.

The soil gas and ambient air samples collected during the RI were analyzed for VOCs plus naphthalene, 2-methylpentane, isopentane, 2,3-dimethylpentane, isooctane, indene, indan, thiophene, and helium using USEPA Method TO-15. These analyses were performed by Air Toxics.

This NAPL sample collected from MGP-MW-108D was analyzed by PTS Laboratories of Santa Fe, California for the following properties using the methods listed below.

- Interfacial and surface tension by the DuNuoy Method – American Society of Testing Method (ASTM) D971
- Viscosity by ASTM D445
- Density by ASTM D1481
- Specific Gravity by API RP40

3.13 Management of Investigation-derived Waste

The management of IDW was performed by AECOM field personnel during the SC and RI activities at the site. Waste generated during the site activities included soil and bedrock cuttings, decontamination fluids, groundwater purge and development water, and construction and debris material (C&D), including personal protection equipment (PPE). All of the waste was containerized in either closed-top (liquid) or open-top (soil and C&D) 55-gallon drums or rolloffs. The drums were collected at the end of each day and transported to the equipment storage area onsite. Drums were labeled and composite samples were collected for waste characterization analysis by Chemtech. Samples submitted to the laboratory for analysis were requested for a 5-day turnaround time to expedite disposal. Clean Earth of North Jersey, Inc. provided transport and disposal of the drums.

A field log was developed and maintained to keep track of the number of drums, waste type, and designation. Table 3-8 provides a summary of the date, manifest number, and the total number and type of drums included on the manifest for the waste that was generated and disposed during the 2010 SC and 2012 RI field activities. The waste generated during the investigation was separated as per waste profiling with the transport/disposal facility (Clean Earth of North Jersey, Inc.). The manifests for the 2010 and 2012 IDW generated are located in Appendix J.

3.14 Survey of Investigation Sampling Locations and Base Map Development

The base map of the site was generated from Con Edison survey drawing No. A-39-1438 and Figures 3-1 and 5-1 from the Historical Investigation Report (RETEC, 2001). These drawings are included in Appendix A. Because many of the RI field activities were performed offsite for delineation purposes, the base map was extended west-northwest across I-95 by using information from the City of Rye website (www.ryeny.gov). The 2010 SC and 2012 RI sample locations were surveyed by CT Male, a surveyor licensed in the State of New York. These locations were surveyed in the 1983 North American Datum (NAD 83) East Zone of the New York State Plane Coordinate System and were referenced to the 1988 North American Vertical Datum (NAVD88). Elevations were surveyed to the nearest 0.01 foot. These locations were added to the base map.

3.15 Water Well Research

Due to the presence of MGP-related impacts in bedrock and bedrock groundwater, additional activities were performed during the SC and RI to further evaluate the potential presence and status of domestic wells in the vicinity of the Rye former Gas Works Site. These activities include the following:

- Reviewing the Groundwater Resources of Westchester County, New York 1955 (USGS 1955) and the October 21, 2009 EDR Report (on file in the Chestnut Ridge, NY AECOM office) to identify wells within 1 mile of the site.
- Conducting field reconnaissance of identified well locations.
- Conducting on-line research of the NY State GIS Clearinghouse, NY State Department of Health, Westchester County Health Department, City of Rye, NYSDEC water well information search, NYSDEC Water Well Drilling Program, and the USGS National Water Information system mapper.
- Performing continuous water level monitoring for one week using pressure transducers in MGP-MW-101D and MGP-MW-109D to evaluate whether other bedrock wells are active and pumping nearby. Water levels were recorded continuously every 15 minutes for one week at each of these locations.

The results of the water well research and the water level data are provided in Appendix K and presented in Section 4.

4.0 Site Topography and Drainage, Geology and Hydrogeology

This section presents a summary of historic and local information as well as field measurements and observations made during the SC and RI activities. Included is a discussion of the topography and drainage, geology, and hydrogeology of the site.

4.1 Topography and Drainage

The site topography is illustrated on Figure 4-1 and generally ranges between approximately 60 and 85 feet NAVD88. The topographic contours illustrated on Figure 4-1 are based on topographic contours provided by the City of Rye website (www.ryeny.gov) and are relative to NAVD88. A detailed site topographic map is provided as Con Edison drawing A251756-0 in Appendix A and is dated 1991. The topography illustrated on the ConEdison drawing is referenced as being generated by photogrammetric mapping in 1987. The topographic contours on the Con Edison drawing are more detailed and appear to be relative to the national geodetic vertical datum of 1929 (NGVD1929) which is approximately 1 foot higher than NAVD88 in Rye, New York, but are in general agreement with topographic contours provided on the City of Rye website for the site and adjacent areas.

The highest elevation on site is at the top of the rock outcrop situated adjacent to the parking area in the eastern portion of the site where the former 3 million cf gas holder was situated. The top of this outcrop is approximately 85 ft NAVD88 and the adjacent parking area is at approximately 70 ft NAVD88. The land surface slopes to the east, north, and west from this area to an elevation of approximately 60 ft NAVD88 along the western site boundary adjacent to the railroad and along the northern site boundary. Individual rock outcrops across the site are occasionally present and at a higher elevation than the surrounding ground surface. A small intermittent drainage swale is situated adjacent to the northeast corner of the site.

The majority of the site is paved or covered with buildings and surface water from precipitation events is collected in onsite storm drains. There is a storm sewer running along the east side of the service center building that drains the parking lot into the sewer.

AECOM obtained drawings from the New York State Thruway Authority that show the grades, configuration, and drainage system details for the portions of I95 that run to the northeast and southwest of the site. AECOM evaluated these drawings to determine if the I95 drainage system could act as a sink for groundwater flowing from the site to the west-northwest. The relevant drawings (plan view sheets P-20FRI, P-21RI and P-22RI, profile sheets PR-20F, PR-21, and PR-22RI and typical section sheet TS-1RI) are included in Appendix L.

The drawings show the I95 surface at elevation 58 ft above the national geodetic vertical datum of 1929 (NGVD1929) to the south of the site (Station 482+50). Moving north along I95 the surface slopes upward to a high point at elevation 60.46 NGVD29 directly northwest of the site (Station 487+75). In the site vicinity, NGVD 1929 is approximately 1.1 ft higher than NAVD88, therefore 1.1 ft should be subtracted from the drainage system elevations to directly compare with the site elevations. Continuing north along I95, the surface slopes back downward to elevation 58 NGVD29 north of the site (Station 493+00). Stormwater runoff flows northeast and southwest from the highpoint. This

runoff is intercepted by catch basins along the edge of the travel lanes and conveyed through 18 inch reinforced concrete pipe (RCP) to larger stormwater conveyance systems flowing away from the highway.

An under drain system consisting of 6-inch perforated pipe in a gravel lined trench is located beneath the median strip and below the outer edges of the northbound and southbound travel lanes. The bottom of the under drain is approximately 3 to 4 feet below surface grade (elevation 54 to 56 NAVD88). The under drains flow into the stormwater conveyance system described above.

As reported in the historic report (RETEC 2001), three surface water bodies are in the vicinity of the site:

- The nearest surface water body is Mead Pond 1,000 feet to the southwest of the site.
- The Beaver Swamp Brook is located approximately 1,500 feet west of the site. The Beaver Swamp Brook surface water classification is C – waters best usage is fishing. The water shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.
- Blind Brook is approximately 1,500 feet to the east of the site. The Blind Brook surface water classification is SC – waters best usage is fishing. These waters shall be for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

The locations of the surface water bodies and wetlands near the site are illustrated on an overview map and a detail map in Appendix A of this RI report and were excerpted from the 2009 EDR report. According to the database search completed by Environmental Data Resources, Inc. (EDR), the site is not located within a mapped Federal Emergency Management Agency (FEMA) flood zone. The nearest flood zone is the area around the creek bed of Blind Brook to the east of the site. The site itself is not mapped as a designated wetland area. The closest mapped wetland areas are two small, discrete areas approximately 350 feet to the east and south of the site.

4.2 Site Geology

Information concerning site stratigraphy and bedrock geology was obtained from published geologic mapping, bedrock outcrop evaluation, and observations made during the installation of borings and monitoring wells and the excavation of test pits at the site during previous investigations and the SC and RI. Geologic details are provided on the boring, coring, test pit, and well logs provided in Appendix B. Eight geologic cross sections of the site were developed. Cross section locations are illustrated on Figure 4-2 and the sections are provided as Figures 4-3 through 4-6. Three geologic units identified beneath the site include fill, glacial till and bedrock.

4.2.1 Overburden

The overburden beneath the site is comprised of fill and glacial till. The fill is discontinuous across the site and includes sand and silt, gravel, cobble, concrete, brick, glass, and some piping and wire. Fill was found between 0 and approximately 8 ft bgs and is generally thicker within and adjacent to former structures such as the below grade gas holders. The till is generally comprised of silty sand with varying amounts of cobble/gravel and is sometimes dense. The fill is frequently difficult to distinguish from the underlying till unless it contains anthropogenic material. The overburden, comprised of fill and till, ranges in thickness from 0 to approximately 18 feet at the site as illustrated in the overburden

thickness isopach map presented as Figure 4-7. The overburden is thickest in the southern corner of the site at MGP-MW-112D where it was measured to be 16 feet thick and towards the one portion of the northwestern-western edge of the site where it was measured to be 18 feet thick. Based on the site topography, bedrock outcrops, and the overburden thickness northwest of I95 it appears that the overburden is continuous from the northwestern edge of the site across I95 to the City of Rye Park at locations MGP-MW-113D and MGP-MW-116D. Bedrock outcrops are present north and south of the site on both sides of I95 at the general locations (not surveyed) illustrated on Figure 4-7, indicating that the overburden thins and/or is absent in these directions.

4.2.2 Bedrock

Published geologic mapping (Geologic Map of New York, Lower Hudson Sheet; bedrock geology layer in New York State GIS) shows that the site is underlain by the Hartland formation, described as "basal amphibolites overlain by pelitic schist" (Geologic Map of New York). The southeastern edge of the map area of the Hartland formation occurs south of Theodore Fremd Avenue, within the Rye Nature Center; south of the contact the bedrock is mapped as the Harrison Gneiss, a "biotite-hornblende-quartz-plagioclase gneiss with accessory garnet and sphene" ; the "plagioclase commonly occurs as augen" (Geologic Map of New York, Lower Hudson Sheet), lenticular or eye-shaped mineral masses within the gneiss.

Eight bedrock outcrops at the site, two outcrops offsite and southeast of I95, and two outcrops offsite and northwest of I95 were evaluated during the site investigations. Appendix M contains details regarding the bedrock outcrop evaluation and Figure 4-8 illustrates the outcrop locations. These locations include additional outcrops that were located but not evaluated. The bedrock lithology is generally consistent, with a range of variations, for all outcrops observed, and the lithology is consistent with the published description for the Hartland Formation schist (no amphibolite was observed). The bedrock consists of light gray to dark gray mica schist, with varying amounts of muscovite and biotite and occasional quartz veins. The rock is cut by irregular pegmatite dikes, observed in most of the larger outcrops. Most of the onsite outcrops occur as polished, pavement type outcrops, with one outcrop (#4) showing glacial grooves. Some of the onsite and offsite outcrops have vertical faces formed by blasting. A few natural, ridge-type outcrops were observed offsite.

Metamorphic foliation generally strikes north-northeast (NNE) to northeast (NE) (10 to 40 degrees east of true north) and is vertical to steeply dipping (either to the northwest [NW] or the southeast [SE]). Some folding and crinkling of foliation was observed, but this was uncommon. Some of the metamorphic foliations have coincident fractures, with weathered zones less commonly observed. West-northwest (WNW) to NW-striking fractures that cross-cut foliation are fairly common and generally strike from 40 to 90 degrees west of true north. Most of the fractures observed in outcrops were steeply dipping , with fewer moderately dipping and very few low angle or horizontal fractures observed (see rose diagram and stereo plot in Appendix M). In summary, the most common fracture trends are NNE to NE and WNW to NW. It should be noted that pavement outcrops favor the observation of vertical and steeply dipping fractures, while horizontal or low-angle fractures are difficult to observe or will not intersect a pavement type outcrop.

Bedrock crops out at several locations across the site and in general the top surface of bedrock dips to the north-northwest across the majority of the site as illustrated on Figure 4-8. The top of bedrock in the southern portion of the site dips to the south from the outcrops in the southern site area towards MGP-MW-112D. The top of bedrock in the northeastern portion of the site dips to the northeast from the large outcrop near the parking area and former large gas holder towards MGP-MW-114D. Bedrock outcrops are present west and north of the site along the railway and I95 as generally

illustrated on Figure 4-8. These outcrop locations were approximated based on field observations and are not surveyed locations or sizes; however, they help illustrate the undulating surface of the bedrock at the site and in the site vicinity. On the northwest side of I95, the top of bedrock dips to the south from Clinton Avenue where outcrops are visible along I95 towards the City of Rye Park and locations MGP-MW-116D and MGP-MW-113D.

The data generated during the subsurface bedrock investigations performed during the SC and RI at the site were compiled on spreadsheets and include drilling and coring observations, geophysical logging results, FLUTe NAPL liner evaluations, and discrete (packer) fracture sampling and analytical results. The bedrock data summary spreadsheets for each bedrock borehole installed as part of the SC and RI are provided in Appendix N and were used to generate the cross sections illustrated on Figures 4-3 through 4-6.

Bedrock observations during coring for the SC boreholes are generally consistent with published bedrock descriptions and the outcrop observations made during the SC but provide more detailed information on the bedrock beneath the site and north of the site. With the exception of a portion of MGP-MW-113D, which was cored, the RI boreholes (MGP-MW-109D, 110D, 112D, 113D, 114D, and 116D) were installed using air rotary or roller cone drilling; drill cuttings were described but provided less detailed lithologic descriptions than the cores collected and described during the SC (see drilling logs in Appendix B and Bedrock Data Summary Spreadsheets in Appendix N). For all the bedrock boreholes, AECOM described the predominant lithology as biotite schist with varying amounts of quartz. Other lithologies noted include pegmatite and quartz veins. In one borehole (MGP-MW-106D, in the western portion of the site), quartzite was noted. The biotite schist varies from almost black to light gray. The variations appear to be due to grain size and the percentage of quartz in the rock. Occasionally, brown schist was noted, with the brown appearance probably due to the presence of iron oxide and/or tan feldspar. In addition to biotite and quartz, other minerals noted in the schist include varying amounts of muscovite, orange-pink ("salmon-colored") feldspar, iron oxide (rust), white feldspar (plagioclase identified in MGP-101D near southeast edge of the site), and occasionally chlorite (especially in weathered zones in MGP-MW-101D, 108D, and 9DD). Usually, when present, feldspar is part of the schistose rock mass; feldspar also occurs with quartz in the pegmatites and rarely in zones that are exclusively or primarily feldspar. The following minerals are only occasionally or rarely present: garnet, pyrite, rose quartz, and milky quartz. Clay was also rarely noted but may be more common than observed because it may not be recovered during coring. The clay may be derived from weathered rock or fault gouge.

The bedrock cores commonly show metamorphic foliation, with dips varying from vertical to horizontal relative to the core axis; swirling or contorted foliations were also observed. Quartz or pegmatite veins sometimes coincide with or parallel foliation and sometimes cross cut foliation. Weathered zones, rubble zones, and missing core were also noted. For the five-foot core runs, recovery varied from 3.5 feet to full recovery, with full recovery occurring most of the time. Rock quality designation (RQD) varied from 52% to 100% and was usually greater than 80%.

AECOM also measured and described fractures observed in the recovered cores (see Coring Logs in Appendix B and spreadsheets in Appendix N). AECOM used professional judgment to interpret each observed fracture as natural or coring-induced (shown on some logs as "mechanical" or "artificial"). The presence of such natural features as mineralization, rust or other evidence of weathering, or slickensides (polished and striated surfaces that result from friction along a fault plane) was taken as clear evidence of a natural fracture. Breaks that were very fresh and/or irregular were interpreted as coring-induced or mechanical. In other cases, the evidence was less clear and professional judgment was used. These decisions and the core lithologic and fracture descriptions were made and/or

checked in the field by a geologist experienced with drilling and coring in crystalline bedrock. For each natural fracture, the dip angle from the horizontal (assuming the core axis is vertical) was measured and recorded. It should be noted that a vertical borehole or core preferentially samples horizontal and low-angle fractures, while vertical or steeply-dipping fractures can easily be missed by a vertical borehole.

Borehole geophysical survey (Section 3.6.4) results (Appendix E) provide additional information on bedrock geology beneath the site and north of the site. Where the optical televiewer (OTV) was run and the water in the borehole was sufficiently clear, the OTV provided information on lithology (dark rock versus light rock), foliations and veins, and fractures. This information typically confirms lithologic observations of the cores and can provide information on the rock type in areas of poor core recovery. The acoustic televiewer (ATV) was used primarily to locate, rank, and determine the orientation of subsurface fractures that intersect the boreholes. AECOM's subcontractor, Hager-Richter, interpreted fractures that appear as sinusoidal traces on the ATV logs, as described in Appendix E. Hager-Richter ranked each fracture on a scale of R1 to R4 during the SC and R1 to R3 during the RI, with R3 and R4 interpreted as most open and capable of transmitting groundwater or NAPL and R1 least open (fracture ranking system described in Appendix E). Because of the loss of resolution in the non-cored RI boreholes for the ATV data, it is difficult to break the fracture ranks down to four categories. The ranking system used for the RI work in 2012 uses a Rank 1-3 system. The Rank 1 fracture category (minor fractures) from the Rank 1-4 system is the same as the Rank 1 fracture category (minor fractures) from the Rank 1-3 system. In the Rank 1-4 system, both Ranks 2 and 3 are intermediate fractures, with Rank 2 fractures having no aperture and Rank 3 fractures having little aperture. In the Rank 1-3 system, both types of intermediate fractures are consolidated into the Rank 2 category. Some boreholes have no R4 fractures, so that R3 fractures are the most open fractures observed in these cases. R1 and R2 fractures have little or no apparent aperture where they intersect the borehole.

For each fracture, Hager-Richter determined the depth, dip azimuth (relative to magnetic north), dip angle (from horizontal), and fracture rank and provided the data on a spreadsheet. AECOM converted the orientation data so it is relative to true north and determined the strike and dip in right-hand rule format. The fracture data was then summarized on the Bedrock Data Summary Spreadsheets (Appendix N) and was also used in selecting key fracture zones for packer sampling and for illustration on the cross sections (Figures 4-3 through 4-6). For each well, Hager-Richter (Appendix E) provided summary stereonet plots of poles to fractures, rose diagrams of dip azimuths, and dip histograms showing the relative distributions of dip angles from the horizontal; the two former plots are relative to true north. Hager-Richter also provided tabular form and three corresponding plots for an additional category "foliations and veins". Generally, the ATV fracture results show that most fractures are low angle, dip moderately (50 – 75 degrees) to the northwest, or dip moderately to the southeast. However, almost the full range of dips (0 to 85 degrees) is present. Foliations and veins always dip to the northwest or the southeast (strike NE/SW) and dip moderately to steeply. It should be remembered that a vertical borehole provides a data set that is statistically biased in favor of low angle fractures and that undercounts steeply dipping fractures. Because the outcrop observations noted that many NE or NNE striking fractures coincide with foliation, the outcrop and borehole fracture data are generally consistent.

Caliper logs measure borehole diameter and provide a characterization of borehole morphology, roughness versus smoothness, and borehole breakouts. Borehole enlargements commonly occur where fractures (especially of higher rank) or fracture zones intersect a borehole. Borehole enlargements also occur at weathered zones. AECOM considered caliper enlargements along with other factors in identifying active flow and transport zones within the subsurface. Portions of

boreholes that appear smooth on the OTV, ATV, and caliper were sought when selecting zones in which to place packers (see below).

In summary, bedrock beneath the site and north of the site consists of biotite schist with varying amounts of quartz and occasional pegmatite. The rock is variably fractured, with the most common fracture orientations NE to NNE (often coinciding with metamorphic foliation) and steeply dipping and NW-trending fractures of varying dip angle. Some of the NE-trending fractures likely intersect more than one NW-trending fracture, based on fracture length and spacing measurements.

4.3 Site Hydrogeology

Fourteen overburden monitoring wells, seven bedrock monitoring wells, and 17 FLUTe lined bedrock boreholes were installed at the site during previous investigations, the SC and the RI. Table 4-1 provides a summary of the overburden and bedrock monitoring wells including the well designations, total depth, elevation, screened interval, and groundwater elevation measurements. The monitoring well locations are illustrated on Figure 3-1.

4.3.1 Overburden Groundwater

Groundwater is present in the overburden, where the overburden is present in sufficient thickness, at depths ranging between approximately 2.7 and 10 ft bgs. Figures 4-9 and 4-10 Illustrate overburden groundwater elevation contours for the site based on measurements collected on March 8, 2010 and April 13, 2012. Groundwater flow in the overburden at the site is to the northwest. A more northerly component to the groundwater flow direction is evident on Figure 4-10 when the groundwater elevation was slightly lower in April 2012 relative to the March 2010 elevation measurements. The overburden groundwater hydraulic gradient appears relatively consistent across the site in March 2010, averaging approximately 0.019 ft/ft. The overburden groundwater hydraulic gradient in April 2012 appears somewhat flatter in the western portion of the site and is steeper in northern portion of the site between MW-10 and MGP-MW-103S and MGP-MW-104S. The hydraulic gradient ranges from approximately 0.014 ft/ft in the western portion of the site to approximately 0.04 ft/ft in the northern portion of the site based on the contours presented on Figure 4-10.

As discussed above, an under drain system consisting of 6-inch perforated pipe in a gravel lined trench is located beneath the I95 median strip and below the outer edges of the northbound and southbound travel lanes. The bottom of the under drain is approximately 4 feet below surface grade (elevation of approximately 54 to 56 ft (when converted to NADV88). The under drains flow into the stormwater conveyance system northwest of the site. Drawings illustrating the drainage system along I95 northwest of the site are provided in Appendix L.

The observed overburden groundwater elevation along the western portion of the site ranges from approximately 54 to 56 ft NAVD88 and was measured at 53.6 ft bgs in the overburden on the west side of I95 indicating that the water table beneath the travel lanes is at or slightly below the under drain system. During periods of high water table, the under drains may intercept some groundwater flowing from the site. Since the under drains would only penetrate the very top of the groundwater within the overburden, the majority of the overburden groundwater flow would not be intercepted. The bottom of the 18 inch storm sewer running parallel to the site at the edge of the north bound travel lane (from Station 489+50 to 494+00) is at an elevation of approximately 52 ft (when converted to NAVD88). Therefore, pipe bedding or pipe leaks may also intercept groundwater flowing from the site.

Single well slug tests were performed in 5 monitoring well clusters at the site to evaluate the hydraulic conductivity of the overburden. Prior to hydraulic conductivity testing at the site, groundwater levels in 10 monitoring wells were monitored and recorded for 24 hours to determine whether background conditions at and near the site would significantly influence groundwater levels (i.e., trains passing by the site). The background survey was performed from 10:00 a.m. on March 1, 2010 through 10:00 a.m. on March 2, 2010 and included the following monitoring wells: MW-4, MW-4D, MW-4DD, MW-5, MW-5D, MW-6D, MW-9, MW-9D, MW-9DD, and MW-103S. The background survey data are compiled and graphed in Appendix H. The majority of wells surveyed (6 of the 10) showed changes in water level of less than 0.10 feet during the course of the survey. These wells include: MW-4, MW-4D, MW-4DD, MW-5D, MW-6D, and MW-9. The maximum change in MW-5 was approximately 0.25 ft. Monitoring well MW-9D showed a water level change of less than 0.10 feet during the course of the survey following a rapid change of approximately 1.9 feet recorded at 10:44 a.m. on March 1, 2010. Monitoring well MW-103S also showed a water level change of less than 0.10 feet during the course of the survey following a rapid change of approximately 1.6 feet recorded at 10:14 a.m. on March 1, 2010. It appears the transducers may have slipped inside the well casing at these locations. The maximum change in MGP-MW-9DD appears to be approximately 1 ft with a sharp increase of approximately 0.8 ft in the first half of the survey. It is unknown why this change occurred however, MGP-MW-9DD was lined with a FLUTe during the background survey and hydraulic conductivity testing which may have affected the readings. Overall the background survey results indicated that background water level changes would not affect the hydraulic conductivity test results.

Weather data were acquired from Weather Underground (www.wunderground.com) for both days of the background survey. There was no precipitation during the background survey. The average temperature during the background survey was 39.1 degrees Fahrenheit; average humidity was 61.36%; average pressure (in Hg) was 29.80; and the average wind speed was 14.30 mph.

Single well slug tests were performed at five monitoring well cluster locations: MW-4/MW-4D, MW-5/MW-5D, MW-6/MW-6D, MW-9/MW-9D, and MW-103S/MW-103D. Slug tests were only conducted on wells screened in the overburden. The data were evaluated using the Bouwer and Rice Method (1976) to estimate the hydraulic conductivity of the overburden material. Table 4-2 provides a summary of the wells tested, the type of material within the screened intervals, the test and solution methods, and the estimated range of hydraulic conductivity values. The slug test data, recovery curves, and hydraulic conductivity calculations are provided in Appendix H.

The estimated hydraulic conductivity values for these wells screened in the overburden were relatively consistent between all wells tested except for MW-103S. The shallow well screened intervals consisted of fill materials of sand, silt, and some gravel. Depth to water ranged from 0.64 to 2.01 ft bgs at MW-103S during slug testing field activities. Due to the shallow water table, only rising head slug tests were performed at this location in an attempt to limit the loss of water over the top of the well. Water was lost, however, during slug testing at MW-103S and it is possible that data from those tests does not accurately describe the hydraulic conductivity in that area of the site.

Water levels were monitored in the adjacent wells making up the well clusters during each single well slug test. There were no measured effects on water levels in adjacent wells screened below the test well during the testing events.

Groundwater seepage velocities were calculated using measured horizontal hydraulic gradients and estimated hydraulic conductivity values using a modification of Darcy's Law:

$$V = Ki/n$$

Where:
V = Groundwater seepage velocity (ft/day)
i = Horizontal hydraulic gradient (ft/ft)
K = Hydraulic conductivity (ft/day)
n = Porosity of aquifer sediments

Calculations to determine mean hydraulic conductivity and seepage velocity in the overburden do not take the data from MW-103S into account due to problems encountered during slug testing field activities. The horizontal hydraulic gradient (i) for the overburden based on the March 2010 groundwater elevation contours was 0.019 ft/ft and based on the April 2012 contours was 0.014 ft/ft to the northwest and 0.04 ft/ft to the north. The average geometric mean hydraulic conductivity value (K) was 2.4 ft/day . An estimated porosity value of 30% was used for each calculation, which is typical for sandy material. Using the above equation, horizontal groundwater seepage velocity within the overburden is calculated to range between approximately 0.112 and 0.333 ft/day.

4.3.2 Bedrock

Bedrock groundwater at the site was investigated through the installation of seven bedrock monitoring wells and 17 FLUTe lined boreholes. Table 4-1 summarizes the construction details for the seven bedrock monitoring wells. Details regarding the 17 FLUTe lined boreholes are provided on well logs in Appendix B and bedrock summary spreadsheets in Appendix N. The seven bedrock monitoring wells were installed as part of the UST investigations at the site and were constructed so that the screened interval bracketed the shallowest water bearing fractures at each location. The screened intervals range between 15 and 57 ft bgs and screen lengths range between 8 and 20 ft. Water levels were recorded in March 2010 and April 2012 in the seven bedrock monitoring wells. These bedrock well construction details and water levels are summarized in Table 4-1.

Groundwater elevations measured in the seven bedrock monitoring wells were not contoured since the connectivity of the fractures is unknown and the elevations do not indicate a consistent flow direction. The bedrock groundwater elevations ranged between 62.13 and 56.88 ft NAVD88 during the March 2010 event and between 58.39 and 53.74 ft NAVD88 during the April 2012 event. The March 2010 bedrock groundwater elevations ranged from 1.04 to 3.74 feet higher than the April 2013 elevations. The highest bedrock groundwater elevation was measured at MW-6D and the lowest bedrock groundwater elevation was measured at MW-5D during each sampling event. Four of the bedrock monitoring wells are paired with overburden monitoring wells, including MW-4/4D, MW-5/5D, MW-6/6D, and MW-9/9D. The vertical hydraulic gradient between the overburden and bedrock was consistently downward in monitoring well pairs MW-4/4D, MW-5/5D, and MW-6/6D and was upward in monitoring well pair MW-9/9D. The vertical hydraulic gradient was greatest in well pairs MW-4/4D (3.94 ft in March 2010 and 3.74 ft in April 2013) and MW-5/5D (4.51 ft in March 2010 and 4.69 in April 2012) and least in well pairs MW-6/6D (0.44 ft in March 2010 and 0.48 ft in April 2013) and MW-9/9D (0.51 ft in March 2010 and 0.12 ft in April 2012).

Groundwater flow can be expected to occur from areas of high head to areas of low head within fractured rock, if and only if some of the fractures are permeable and intersect with other permeable fractures. Identification of specific flow paths within fractured rock depends on the morphology and connectivity of individual fractures. Individual fractures can have different heads than other nearby fractures so that boreholes that intersect multiple fractures can have upward flow or downward flow in certain zones in response to these head differences. A DNAPL such as tar can be expected to move in response to gravity, for example down dip in an open bedrock fracture. DNAPL transport in response to head differences is not the key factor governing DNAPL movement. The FLUTe liners within each bedrock borehole prevent vertical migration of water and DNAPL within the borehole.

Based on outcrop measurements and ATV results, NNE to NE and WNW to NW appear to be the most likely orientations for potentially conductive bedrock fractures. Based on fracture length and fracture spacing measurements at two outcrops (Appendix M), NE-striking fractures (often coincident with foliation) that are open to semi-open and steeply dipping appear to have a sufficient average length to intersect several cross-cutting NW-striking fractures. On the other hand, only certain NW-trending fractures appear to be long enough to intersect more than one NE-trending fracture. These observations may indicate that groundwater flow is more likely toward the NNE-NE (or SSW-SW) than to the NW (SE). The fracture length data do not indicate whether it is reasonable to project key fractures that intersect the boreholes up to the top surface of the bedrock (Appendix M).

Some of the borehole geophysical surveys performed at the site (Appendix E) provide information as to flow into, out of, and within the boreholes. These surveys include fluid temperature, fluid conductivity, and heat pulse flowmeter surveys. The temperature and conductivity logs show inflections or changes in slope at locations within a borehole at which water of slightly different conductivity or temperature exits or enters the borehole. These locations are generally fracture zones. The heat pulse flowmeter is not a continuous logging tool but takes velocity measurements at discrete locations within the borehole. Changes of velocity from one reading to the next or a change from upward flow to downward flow indicate that between the two readings, water is entering or leaving the borehole. Temperature, conductivity, caliper, ATV, and/or OTV can be used to determine the most likely fracture or fractures at which water is entering or leaving the borehole between two different heat pulse flowmeter readings. As described in Section 3.6.4, it was not possible to perform heat pulse flowmeter surveys in some of the boreholes because observed tar posed a threat to the instrument. In these boreholes, selection of fractures likely to provide inflow or outflow for that borehole was less definite. For boreholes in which heat pulse flowmeter surveys were done, from two to eight fracture zones per borehole were identified as inflow or outflow zones to the borehole (see Appendix E or the cross sections, Figures 4-3 through 4-6). AECOM notes that the heat pulse flowmeter may not detect all fractures capable of transmitting groundwater or NAPL. If two adjacent fractures have the same head, there will be no upflow or downflow in the borehole under ambient conditions, even if one or both of the fractures is highly transmissive.

As described above, several types of investigation produced multiple data sets to characterize the geology and hydrogeology of the bedrock beneath the site and northwest of the site. In order to produce the optimal characterization of potential pathways for groundwater flow and contaminant transport (both dissolved phase and DNAPL), it was necessary to synthesize the information from the various investigations. This synthesis allowed the careful selection of zones within each borehole for packer sampling in addition to the overall characterization of the fractured bedrock hydrogeology. In order to synthesize geologic descriptions of core; core fracture measurements; ATV fracture measurements; geophysical anomalies (temperature inflections, conductivity inflections, and caliper enlargements); flowmeter results; NAPL FLUTe liner observations; and packer sample results, a Bedrock Data Summary Spreadsheet (Appendix N) was constructed for each bedrock borehole. The spreadsheets allowed a foot-by-foot comparison of results and observations for each of the investigations listed above.

As described in Section 3.6.5, after the first three bedrock boreholes were drilled and simultaneously sampled with a single inflatable packer system during the SC (MGP-MW-4DD, MGP-MW-9DD and MGP-MW-0DD), dual packers were used to sample fracture zones selected for each borehole after it was completed. The borehole geophysical information, FLUTe liner observations of potential tar-bearing fractures, and core descriptions were used to select potentially flowing fractures for packer sampling. The caliper logs and ATV and OTV output displays were used to select apparently smooth and competent borehole sections above and below each selected fracture zone for packer placement,

to improve the chances that the inflatable packers would form good seals against the formation. The packer zones and results for key analytes are shown on the spreadsheets in Appendix N. From the standpoint of minimizing unsuccessful packer sample collection attempts, the approach described above, synthesizing geophysical and other information, was very effective in selecting zones for packer sampling. For most of the boreholes, there were no "dry" samples and one or zero packer zones that were not sampled for any reason. For the boreholes sampled prior to geophysical surveys, 10 of 15 packer zones in which sampling was attempted were dry in MGP-MW 0DD; for MGP-MW-4DD, 2 of 13 zones attempted were dry; for MGP-MW-9DD 3 of 11 zones attempted were dry. Typically, the packers were set with a 5-foot spacing, and from 0 to 12 gallons were pumped from each zone during sample collection; the typical amount pumped was 3 gallons. Pumping rates during sample collection varied from 0 to 1.5 gallons per minute, with pumping rates of a few tenths of a gallon per minute typical. While the packer sample collections do not represent controlled yield tests for the various fracture zones, these do provide very relative comparisons of the yield of particular fracture zones beneath the site (see logs in Appendix B for packer test yield data).

During drilling for the SC phase, AECOM observed the following anecdotal evidences of well-to-well hydraulic connections or lack thereof:

- *MGP-MW-4DD (during drilling from 100 to 150 feet) is hydraulically connected to MGP-MW-9DD (when 100 feet deep):* On at least one occasion between September 17 and 22, 2009, while MGP-MW-4DD was being deepened from 100 feet to 150 feet, MGP-MW-9DD experienced a water level rise to an overflowing condition. At this time, MGP- MW-9DD was 100 feet deep, so there is a hydraulic connection from shallower than 150 feet (and probably deeper than 100 feet) in MGP-MW-4DD to some depth in the upper 100 feet of MGP-MW-9DD. The overflow in MGP-MW-9DD was probably due to the injection of water into the formation during the drilling of MGP-MW-4DD. The exact flow path(s) between the two boreholes cannot be identified for sure, but one of two outflowing zones in MGP-MW-4DD (73 - 74 feet below ground surface (bgs) or 82.5 – 83.5 feet bgs) is likely part of this connection. In MGP- MW-9DD, significant fractures and associated visible and FLUTe impacts between 43 and 50 feet (Section 5, Appendix D, Appendix N) may be the entry point(s) for groundwater flowing from the MGP-MW-4DD area. Because heat pulse flowmeter surveys were not performed in MGP-MW-9DD, inflow and outflow locations for this borehole are not known. The distance between these two wells is about 160 feet.

- *MGP-MW-4DD (during drilling from 150 to 200 feet) is hydraulically connected to MGP-MW-9DD (when 150 feet deep):* On December 8 or December 9, 2009, while MGP-MW-4DD was being deepened from 150 to 200 feet, MGP-MW-9DD began overflowing. As of these dates, MGP-MW-9DD had already been deepened to 150 feet. Both wells had packer samples with high levels of naphthalene just below 100 feet bgs (102 – 110 feet bgs in 4DD and 100 – 105 feet bgs in 9DD). FLUTe impacts at 106 – 107 feet bgs in 4DD (Section 5, Appendix D, Appendix N) may indicate that impacted groundwater flowed from MGP-MW-4DD at this depth and entered MGP-MW-9DD at between 100 and 105 feet bgs. Flow between the boreholes at the shallower depths discussed in the previous bullet may also be responsible for the overflowing condition in MGP-MW-9DD.

- *MGP-MW-4DD (during drilling from 150 to 200 feet) is hydraulically connected to MGP-MW-108D:* On December 8 or December 9, 2009, while MGP-MW-4DD was being deepened from 150 to 200 feet, MGP-MW-108D began overflowing. The overflow in MGP-MW-108D

was probably due to water injection during MGP-MW-4DD drilling. Because of heavy visible and FLUTe impacts in MW-108D (Section 5, Appendix D, Appendix N), neither heat pulse flowmeter nor packer sampling was performed for this well. Therefore the entry or exit points in MGP-MW-108D for a hydraulic connection(s) with MGP-MW-4DD are not known. The distance between these two wells is about 220 feet.

The following potential hydraulic connection exists, based on evidence during drilling:

- *MGP-MW-4DD (during drilling from 150 to 200 feet) may be hydraulically connected to MGP-MW-104D:* During MGP-MW-104D drilling, drillers and AECOM field personnel noted that significant quantities of water were lost to the formation during drilling. While deepening MGP-MW-4DD from 150 to 200 feet on December 8 or December 9, 2009, FLUTe installation occurred in MGP-MW-104D, and this installation was difficult, presumably due to pressure or inflow of formation water in the borehole. These observations, in combination, may indicate a hydraulic connection between MGP-MW-4DD and MGP-MW-104D, with water injected into the former during drilling and flowing to the latter. Several open, low-angle fractures intersect MGP-MW-104D, with significant FLUTe impacts and naphthalene concentrations in packer samples noted from several depths (Section 5, Appendix D, and Appendix N). These lines of evidence suggest the possibility of a hydraulic connection between the two wells; although MGP-MW-4DD and MGP-MW-104D are farther apart than any other well pairs known to be hydraulically connected. However, it is also possible that the observed phenomena are coincidental. The distance between these two wells is approximately 360 feet.

The following example of no hydraulic connection was observed:

- *MGP-MW-0DD (after coring to 20 feet) was not connected to MW-4D or MW-9D:* During the early coring for MGP-MW-0DD, as the borehole was pumped for sample collection, water levels in MW-4D and MW-9D were measured with an electronic water level probe both before and after pumping in MGP-MW-0DD and did not change significantly. The distances between MGP-MW-0DD and MW-4D and MW-9D, respectively, are about 110 and 120 feet. It is possible that a hydraulic connection may have been created between MGP-MW-0DD and either of these wells (or the DD wells at these locations; MW-4D is only 30 feet deep, and MW-9D is only 45 feet deep) as MGP-MW-0DD was drilled deeper, but observations to confirm or deny these possibilities were not obtained.

In summary, the relatively limited anecdotal information described above demonstrates that well-to-well hydraulic connections (presumably by bedrock fractures) can occur over distances as great as 220 feet and maybe as great as 360 feet. On the other hand, wells that are much closer together may not be connected. Fracture connections between wells or between site locations depend on depth as well as map distance; these connections depend on particular fractures, their morphology, and their connectivity. Perhaps coincidentally, each of the well pairs known or suspected to be connected is aligned in a NNE or NE direction.

Cross sections (Figures 4-3 through 4-6) are another method used to compile and illustrate the diverse data sets that contribute to characterizing the bedrock hydrogeology of the site. The cross sections are constructed with no vertical exaggeration (horizontal and vertical scales equal) in order to depict the geometry of key fractures or fracture zones in the various boreholes. The sections show the various overburden and bedrock wells, test pits, soil borings, and cultural features along each section. The cross sections are straight (Figure 4-2); wells or other features that do not lie on the cross sections are projected to the sections and are so indicated on the section. The sections show overburden and bedrock, but do not attempt to show quartz veins, pegmatites, or lithologic gradations

within the schist bedrock. Key fractures that intersect boreholes are shown on the cross sections with the apparent dip for each particular fracture or fracture zone in the plane of that particular cross section. The method for determining the depth, attitude, and length of each fracture shown on the sections is described in Appendix M. The fractures shown on the sections represent a small subset of the fractures described from the ATV. The sections also show visible impacts (tar or MGP-related) observed during drilling and coring, visible impacts from the FLUTe NAPL liners (see Section 5), and potential flow (blue arrows) into or out of the boreholes along key fractures. The key fractures were selected as described in Appendix M, and inflow versus outflow was determined from heat pulse flowmeter results.

Selected packer sample results are also shown on the cross sections. For each packer zone, the result for the highest-concentration constituent in that particular zone is posted and is assumed to be naphthalene unless otherwise indicated. The results are color coded based on concentration. For laboratory analytical sample results and discussion, see Section 5.

The cross sections not only served to visualize a variety of data types compiled together, but also provided an opportunity to identify potential fracture connections between wells (green dashed lines on Figures 4-3 through 4-6). It should be noted that the hypothetical connections are speculative and not proven. The following criteria were considered in making these interpretations: geometric alignment of a key fracture in one well with a fracture in a neighboring well, especially if one is known to be an inflowing and one an outflowing fracture. The interpretations also are favored if one or both fractures is located at a point in the well that showed visible or FLUTe impacts or a significant concentration of dissolved contaminants, especially naphthalene. Where well-to-well connections are hypothesized, these are assumed to be straight paths (I.e. single fractures), whereas zig-zag or contorted path ways may be present. For example, a hydraulic connection is known to exist between MGP-MW-4DD and 9DD, as shown on cross section E-E' (Figure 4-5). Cross section E-E' shows two potential path ways that may represent this connection; the deeper path way was selected because it connects horizontal or subhorizontal fractures that intersect each borehole at depths with high naphthalene concentrations in both wells and FLUTe impacts in MGP- MW-4DD. The shallower hypothetical path way connects an outflowing fracture at MGP-MW-4DD with a zone with visible core impacts in MGP-MW-9DD; similar naphthalene concentrations were obtained from packer samples in both wells.

Other examples of potential fracture connections include:

- A possible connection from the shallow portion of MGP-MW-9DD to mid-depth on MGP-MW-0DD (Cross Section A-A' Figure 4-3) based on alignment of fractures, FLUTe impacts in both wells, and relatively high naphthalene concentrations in both wells.

- Several potential connections between MGP-MW-108D and MGP-MW-104D (Cross Section A-A' Figure 4-3) based on high naphthalene concentrations in packer samples in the latter well and visible impacts in MGP-MW-108D. FLUTe impacts were observed in both wells, but were especially heavy in MGP-MW-104D. For this reason, ATV was not conducted in this well, so fracture orientations are not known. Because of the extensive visible impacts in MGP-MW-104D, packer sampling was not conducted in this well; heat pulse flowmeter was not run in either well. These factors contribute uncertainty in identifying potential fracture connections (flow paths) between two wells at the site.

- Several potential connections between MGP-MW-4DD and MGP-MW-0DD (Cross Section D-D' Figure 4-5) based on fracture geometry, inflowing and outflowing fractures, packer sample results, and visible impacts in MGP-MW-0DD. (Note that this is not precluded by the lack of connection between MGP-MW-0DD and MW-4D, described above, because MGP-MW-0DD had not yet been drilled to depth when the lack of connection was noted.)

Because of the distance and the relative lack of impacts in the RI wells drilled northwest of the site, only two potential fracture connections were identified on the cross sections. One connection extends from an east-dipping fracture at 130 feet bgs in MGP-MW-116D to a deep fracture in MGP-MW-0DD (Cross Section G-G' Figure 4-4). The former extends from a zone with a low naphthalene detection in MGP-MW-116D (one of the few detections northwest of the site) to an outflowing fracture near a visible impact near the bottom of MGP- MW-0DD. Although these wells are nearly 400 feet apart, the fractures in question are deep, and a potential connection between wells 360 feet apart exists on the site. The other potential connection is illustrated on Cross Section F-F' (Figure 4-6) between MGP-MW-109D and MGP-MW-104D where subhorizontal fractures are present.

4.3.3 Water Use and Water Well Survey

Public water supply is provided in the City of Rye by Westchester Joint Water works. Westchester Joint Water Works purchases their water from the New York City water system which derives its supply from surface water reservoirs. The Westchester Joint Water Works does not utilize wells and groundwater for the public water supply. The presence and status of domestic wells in the vicinity of the site was researched as part of the SC. A summary of the research and results is provided in Appendix K. An inquiry to Westchester County regarding drinking water wells in Rye, New York resulted in a response from the county to NYSDEC that the county has no knowledge of any private drinking water wells in Rye. Therefore, additional private water well research was not performed.

To further evaluate the potential presence and status of domestic wells in the vicinity of the Rye former Gas Works Site continuous water level monitoring was performed for one week using pressure transducers in MGP-MW-101D and MGP-MW-109D to evaluate whether other bedrock wells are active and pumping nearby. Water levels were recorded continuously every 15 minutes for one week at each of these locations. Graphs illustrating the groundwater levels within these wells during the survey are provided in Appendix K. The maximum water level change measured in MGP-MW-109D over the one week period was approximately 0.13 ft and in MGP-MW-101D was approximately 0.30 ft. There appears to be some evidence of recharge from precipitation and possible tidal effects, but distinct changes caused by nearby pumping wells are not evident.

5.0 Visible/Olfactory Observations and Analytical Results

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. Summary result pages from the full Category B data deliverable packages (Form 1s), including data validation qualifiers for the samples collected as part of the 2009 SC and 2012 RI, are compiled on a compact disk included in Appendix O.

Comprehensive data packages were submitted by Chemtech and Hampton Clarke-Veritech for the soil and groundwater samples and by Air Toxics for soil vapor and air samples for validation by a qualified chemist. Data Usability Summary Reports (DUSRs) were prepared by AECOM for the soil samples and the groundwater samples. The DUSRs for this project are included in Appendix P. Data was validated according to method specifications and the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review*, EPA540/R-99/008, October 1999 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, EPA540-R-04-004, October 2004, as they apply to the analytical methods employed.

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, compound identification, and compound quantitation.

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, Inductively Coupled Plasma (ICP) interference check sample results, ICP serial dilution results, laboratory blanks, and field duplicates.

As part of the data validation process, the laboratory report sheets and the analytical result tables were revised to include the data validation qualifiers to indicate the limits of data usability. A glossary of USEPA-defined organic and inorganic data qualifiers and their definitions are provided as notes on the analytical result tables. Overall, the data are considered to be usable and any noted data qualifications will not affect site decisions.

5.1 Surface Soil Analytical Results

The majority of the surface of the Rye former gas works site is covered by buildings and paved surfaces with some rock outcrops and grassy areas with trees. The site is surrounded by a fence with two locked gate entrances, one of which is controlled by a security guard during hours of operation. Surface soil samples were collected from five grass/nonpaved locations around the site perimeter from depths of 0 to 0.2 ft bgs to evaluate surface soil quality at the site as summarized in Table 3-1.

Analytical results for VOCs, SVOCs, metals, and total cyanide in surface soil are provided in Table 5-1. Table 5-1 includes only analytes that were detected in at least one surface soil sample. A table summarizing the surface soil results of every analyte is provided as Table 1 in Appendix O. Table 5-1 provides a summary of the surface soil sample analytical results compared to the NYSDEC Part 375

Unrestricted Use Soil Cleanup Objectives (URUSCOs). Figure 5-1 illustrates the surface soil analytical results.

5.1.1 Volatile Organic Compounds

No VOCs were detected at concentrations exceeding URUSCOs in the surface soil samples collected during the SC.

5.1.2 Semivolatile Organic Compounds

SVOCs, mostly PAHs, were detected in the surface soil samples. Only PAHs were detected at concentrations exceeding URUSCOs as summarized in Table 5-1 and illustrated on Figure 5-1. Total PAH concentrations ranged between 2.65 and 22.59 milligrams per kilogram (mg/Kg). All of the surface soil sample PAH results are below the Restricted Commercial Use Soil Cleanup Objectives (RCUSCOs) except for benzo(a)pyrene where both the URUSCO and RCUSCO is 1 mg/Kg. Estimated concentrations of benzo(a)pyrene were detected in all of the surface soil samples at concentrations ranging between 0.29 and 1.6 mg/Kg.

5.1.3 Metals

A few metals were detected in surface soil samples at concentrations exceeding URUSCOs including arsenic, chromium, copper, lead, mercury, and zinc as illustrated on Figure 5-1. Only arsenic and lead were detected at concentrations exceeding the RCUSCOs of 16 and 1000 mg/Kg, respectively.

5.1.4 Total Cyanide

Total cyanide was detected in two surface soil samples at concentrations of 2.37 and 2.51 mg/Kg, below the URUSCO of 27 mg/Kg.

5.1.5 Surface Soil Analytical Summary

The concentrations of compounds detected in the surface soil samples are generally consistent with or lower than urban background and/or commercial uses. Additional surface soil sampling and analysis was not required during the RI.

5.2 Subsurface Soil Visible Impacts and Analytical Results

Subsurface or overburden soil beneath the site consists of fill and glacial till. Visible and olfactory impacts and analytical results indicate that the overburden has been impacted by former MGP and UST operations. Table 5-2 summarizes visible and olfactory impacts observed in overburden soil beneath the site during previous investigation, SC, and RI activities. These impacts are divided into categories which are color coded and are summarized by depth and elevation at each location. The areal distribution of the visible and olfactory impacts encountered in the overburden is illustrated on Figure 5-2. The vertical distribution of visible and olfactory overburden impacts is illustrated on cross sections A through H on Figures 4-3 through 4-6.

As illustrated on Figure 5-2, the majority of the overburden visible and olfactory impacts were observed in the central western portion of the site near the former 6,000 and 100,000 cf gas holders, the former UST areas, and near the former oil tank and tar pits beneath the service center building and extend west to MGP-MW-9DD and MGP-MW-108S and north to MGP-MW-104S and MGP-MW-103S. Tar coating and/or saturation, illustrated by pink and red color coding, respectively, were noted in the overburden within or adjacent to the former 6,000 and 100,000 cf holders, the former oil tank

and tar pits beneath the service center building, and west of the building in MGP-MW-9DD. Tar was observed at or near the top of bedrock at location MGP-MW-TP4 in the 6,000 cf holder, location MGP-SB-10 near a former tar pit beneath the service center building and possibly at MGP-SB-5 and MGP-SB-9 beneath the service center building near a former oil tank and former tar pit, respectively). Tar blebs, globules, or sheen illustrated in orange color, were noted in these areas as well as in the former UST area and to the north and west of the service center building. Some petroleum-type odors and staining were noted generally in the former UST and hydraulic lift areas as illustrated by the light blue color on Figure 5-2. Visible and olfactory impacts were not noted in overburden in the eastern and southern areas of the site or northwest of I95 as illustrated by the green color coding on Figure 5-2.

As is typical at former MGP sites, the analytical results for the site correlate well with the observed visible impacts. The overburden subsurface soil analytical results are summarized in Table 5-3. Table 5-3 includes only analytes that were detected in at least one subsurface soil sample. A table summarizing the subsurface soil results of every analyte is provided as Table 2 in Appendix O. Table 5-3 provides a summary of the subsurface soil sample analytical results compared to the NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (URUSCOs). Figure 5-2 illustrates the surface soil analytical results.

In general higher VOC and PAH concentrations were detected at locations where stain, sheen, tar and odors were noted. One exception is location MGP-SB-5 where tar-like and oil-like material were noted between 10 and 13 ft bgs yet the VOC and PAH concentrations, while exceeding URUSCOs, are relatively low. In general, the samples collected during previous UST area and hydraulic lift area investigations generally contained greater concentrations of VOCs than PAHs, however, the earliest previous investigation samples were not analyzed for PAHs.

5.2.1 Volatile Organic Compounds

Benzene, toluene, ethylbenzene, and xylene (BTEX) were the most common VOCs detected in the site overburden soils. Detected total BTEX concentrations ranged between 0.0033 and 3,910 mg/Kg. The greatest BTEX concentration detected in overburden soil was detected in the sample collected from MGP-SB-3 which was collected from 1.5 and 2 ft bgs in the former 6,000 cf holder and exhibited a strong naphthalene odor and sheen. Several other VOCs were detected in overburden/subsurface soil samples, however only six were detected at concentrations exceeding URUSCOs and include 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, acetone, n-propylbenzene, n-butylbenzene, and tetrachloroethene. Tetrachlorethene was the only chlorinated VOC detected above the URUSCOs at two locations (SB-HL-5-A [1.45 mg/Kg] in the hydraulic lift area and MGP-SB-5(11-13)[1.5 mg/Kg] near the former oil tank, both beneath the service center building).

5.2.2 Semivolatile Organic Compounds

Polycyclic aromatic hydrocarbons (PAHs) were the most commonly detected SVOCs in the site overburden soils. Detected total PAH concentrations ranged from 0.038 to 13,074 mg/Kg. Similar to VOCs, the greatest total PAH concentration was detected in the soil sample collected from MGP-SB-3 located in the former 6,000 cf holder. Several other SVOCs were detected in the subsurface soil samples as summarized in Table 5-3, however only one, dibenzofuran, was detected at concentrations exceeding the URUSCOs in four samples. The four samples in which dibenzofuran was detected at concentrations exceeding URUSCOs also contained PAHs at concentrations exceeding the URUSCOs.

5.2.3 Metals

Eight metals including arsenic, chromium, copper, lead, mercury, nickel, selenium and zinc were detected in subsurface soil samples at concentrations exceeding URUSCOs. Lead (19 of 83 samples) and zinc (11 of 55 samples) were the most commonly detected metals at concentrations exceeding the URUSCOs. Of the 20 locations where metals were detected at concentrations exceeding URUSCOs, seven locations did not contain VOCs or PAHs that exceeded URUSCOs and 13 locations did contain concentrations of VOCs and/or PAHs that exceeded URUSCOs.

5.2.4 Total Cyanide

Total cyanide was analyzed in 48 subsurface soil samples and was detected in 10 samples. None of the detected cyanide concentrations exceed the URUSCO of 27 mg/Kg. Detected total cyanide concentrations ranged from 0.706 to 20 mg/Kg.

5.2.5 Polychlorinated Biphenyls

Twenty-four subsurface soil samples were analyzed for PCBs. Aroclor 1260 was the only PCB detected at concentrations below the total PCB URUSCO. Aroclor 1260 was detected two samples,(MGP-MW-105S from 1.5 to 2 ft bgs and from 2 to 4 ft bgs, at concentrations of 0.054 and 0.065 mg/Kg, respectively.

5.2.6 Fingerprint Analysis

One soil sample was collected for fingerprint analysis during the SC. The sample was collected to characterize the source of petroleum odor in slag and cinders encountered between 1 and 2 ft bgs in MGP-SG-5. The fingerprint analysis was performed by Chemtech and can identify gasoline, #2, #4, #5, and #6 fuel oil, jet fuel, kerosene, coal tar, paint thinner, 30W, 40W, and 50W lubricating oil and mineral spirits. The material in MGP-SG-5 did not match any of the calibrated fuel types. The fingerprint analytical results are provided in Appendix Q.

5.2.7 Subsurface Soil Summary

Based on the subsurface soil visible and olfactory impacts and analytical results, the overburden beneath the site has been impacted by former UST and MGP operations. The majority of the impacts are present in the central western portion of the site near the former 6,000 and 100,000 cf gas holders, the former UST areas, and near the former oil tank and tar pits beneath the service center building and extend west to MGP-MW-9DD and MGP-MW-108S and north to MGP-MW-104S and MGP-MW-103S. The horizontal extent of the visible impacts has been delineated to the south and east and the horizontal extent of the analytical exceedance impacts has generally been delineated to the south and east. In the south-southwestern portion of the site, benzo(a)anthracene, benzo(b)fluouranthene, and chrysene were detected in the sample collected from MW-13D, chromium and nickel were detected in the sample collected from MGP-SB-7, and lead was detected in the sample collected from SB-SA11-NW1-A at concentrations exceeding the URUSCOs, however none of the detected concentrations exceed the RCUSCOs. Along the eastern boundary of the site, lead was detected in the sample collected from MGP-MW-101 at a concentration exceeding the URUSCO but below the RCUSCO. Although visible and analytical impacts extend to the west – northwest site boundary adjacent to the Metro North rail line, they were not observed or detected in soil samples collected on the northwest side of I95. Impacts extend to the northern property boundary at MGP-MW-104S and MGP-MW-103S, however access to the north could not be acquired and delineation has not been accomplished in this direction.

5.3 Bedrock Quality

Bedrock quality was evaluated through the observation of bedrock core, FLUTe NAPL liners, geophysical data, and discrete fracture groundwater sampling results. Bedrock summary spreadsheets summarizing these data by depth were developed for each of the 17 FLUTe lined boreholes advanced during the SC and RI field programs and are provided in Appendix N. In addition, 7 bedrock monitoring wells were installed during previous UST investigations. Samples of bedrock were not collected for laboratory analysis. A summary of visible and olfactory impacts encountered during drilling, coring, and FLUTe NAPL liner bedrock activities is provided in Table 5-2. The visible and olfactory impacts and FLUTe liner observations summarized in Table 5-2 are illustrated on Figure 5-3 by elevation range. Bedrock monitoring wells and FLUTe lined boreholes are shown in individual panels only if they extend into the elevation range being illustrated. Therefore, none of the bedrock monitoring wells which are screened in the first significant water-bearing zones are included in the lower elevation ranges since they were not drilled to deep enough depths.

As illustrated on Figure 5-3, the visible and olfactory impacts observed in bedrock are centered in the central western portion of the site and extend to the west to MGP-MW-0DD, MGP-MW-9DD, MGP-MW-108D and to the north to MGP-MW-104D and MGP-MW-103D, similar to observations in the overburden. Tar coating and/or tar saturation were noted during coring activities at locations MGP-MW-TP4, MGP-MW-9DD, MGP-MW-108D, and MGP-MW-103D. Tar impacts were observed on FLUTe NAPL liners at locations MGP-MW-TP4, MGP-MW-105D, MGP-MW-0DD, MGP-MW-9DD, MGP-MW-108D, and MGP-MW-104D. Tar was noted in the base of monitoring well MW-12D during the April 2012 sampling event. MGP-MW-TP4 is situated in, MW-12D is adjacent to, and MGP-MW-105D is situated south of the former 6,000 cf holder. The remaining locations where tar impacts were observed are situated west and north of the former 6,000 and 100,000 cf holders and the former oil tank and tar pits beneath the service center building where tar impacts were observed in the overburden. Visible impacts were not observed in bedrock during coring activities or on FLUTe NAPL liners at locations MGP-MW-112D, MGP-MW-101D, MGP-MW-114D and MGP-MW-102D in the eastern and southeastern portions of the site, at locations MGP-MW-106D and MW-13D in the southwestern portion of the site and to the northwest of the site across I95 at locations MGP-MW-113D, MGP-MW-116D, MGP-MW-109D, and MGP-MW-110D as illustrated by the green color coding on Figure 5-3.

The majority of the tar impacts noted in bedrock were observed in the 65 to 15 and 15 to -35 ft NAVD elevation range as illustrated in the top two panels of Figure 5-3. The distribution of bedrock impacts is nearly identical in the top two panels although impacts were encountered in the deeper 15 to -35 ft NAVD88 zone in MGP-MW-105D that were not evident in the shallower 65 to 15 ft NAVD88 zone. Additionally, heavier FLUTe NAPL liner impacts are evident in MGP-MW-0DD in the deeper 15 to -35 ft NAVD88 zone than the shallower 65 to 15 ft NAVD88 zone.

Bedrock impacts between -35 ft and -85 ft NAVD88 appear less widespread than the shallower depth/higher elevation zones and are limited to FLUTe NAPL liner observations everywhere except MGP-MW-0DD where oil-like material (OLM) was observed in a fracture in the core at 119.8 ft bgs as well as on the FLUTe NAPL liner. The general distribution of visible bedrock impacts between -35 and -85 ft NAVD88 is similar to those observed between 65 ft and -35 ft NAVD88.

The vertical extent of the visible bedrock impacts illustrated at location MGP-MW- 9DD, MGP-MW-108D, and MGP-MW-104D were delineated as illustrated by the green color coding in the bottom right panel of Figure 5-3. Six of the FLUTe lined bedrock holes (MGP-MW-106D, MGP-MW-0DD, MGP-MW-105D, MGP-MW-TP4, MGP-MW-102D, and MGP-MW-101D) do not extend below -85 ft

NAVD88 and are not illustrated in the bottom right panel of Figure 5-3. Visible impacts were not noted during coring activities or on the FLUTe NAPL liners at three of these locations including MGP-MW-106D, MGP-MW-102D, and MGP-MW-101D. Visible impacts were noted in bedrock between -35 and -85 ft NAVD 88 (bottom left panel of Figure 5-3) in the remaining three locations that do not extend below -85 ft NAVD88, MGP-MW-105D, MGP-TP-4, and MGP-MW-0DD, suggesting that vertical delineation of the visible bedrock impacts has not been achieved at these locations. Visible impacts are illustrated below -85 ft NAVD88 in MGP-MW-4DD (bottom right panel of Figure 5-3) also suggesting vertical delineation of visible bedrock impacts has not been achieved at this location. However, details summarized on the bedrock spreadsheets provided in Appendix N indicate that visible impacts in bedrock decrease with depth at locations MGP-MW-0DD and MGP-MW-4DD as summarized below.

MGP-MW-0DD

- MGP-MW-0DD extends to 150 ft bgs.
- Visible core impacts were not observed deeper than the OLM noted in a core fracture at 119.8 ft bgs. Several fractures including rank 3 fractures were encountered deeper than 119.8 ft bgs that did not contain visible impacts.
- Tar impacts were noted on the FLUTe NAPL liner between 119.3 and 119.9 ft bgs. Impacts were not noted on the FLUTe NAPL liner below 119.9 ft bgs, other than two instances of migration along the pump tubing.
- The deepest fracture zones in this borehole were dry during packer sampling attempts at 103 to 105, 110 to 115, 119.5 to 125, and 133.5 to 135 ft bgs.

MGP-MW-4DD

- MGP-MW-4DD extends to 200 ft bgs
- Visible impacts were not observed during coring activities although sheen and odor were present in the overburden.
- Tar impacts were only noted on the FLUTe NAPL liner at 107 ft bgs
- Fracture aperture decreases with depth (no fractures greater than rank 2 fractures are noted below 120 ft bgs).
- The deepest fracture zones in this borehole were dry during packer sampling attempts at 165 to 170 and 185 to 190 ft bgs.

Details summarized on bedrock spreadsheets provided in Appendix N for locations MGP-MW-TP-4 and MGP-MW-105D suggest that vertical delineation of visible impacts in bedrock has not been achieved at these locations as noted below.

MGP-MW-TP4

- MGP-MW-TP4 extends to 150 ft bgs
- The deepest visible core impact was noted as tar in a fracture at 32.6 ft bgs.
- FLUTe NAPL liner impacts were noted between 12 and 148.5 ft bgs. The majority of the tar on the NAPL liner appears to be related to migration along the pump tubing however there are horizontal bands of tar at depths as deep as 131.7 and 147 ft bgs that coincide with

fractures based on ATV data and core observations that indicate deeper tar bearing fractures at this location.

- No optical televiewer (OTV) or heat pulse flow meter (HPFM) data were acquired and packer sampling was not performed in this borehole due to heavy tar impacts

MGP-MW-105D

- MGP-MW-105D extends to 150 ft bgs.
- The deepest visible core impact consisted of sheen at a depth of 83.25 to 83.75 ft bgs.
- Tar impacts were noted beginning at 68.7 ft bgs to the bottom of the FLUTe liner but it was uncertain where the point of entry for the deepest tar impact was along the borehole since the optical televiewer and heat pulse flow meters could not be used and the acoustic televiewer operated from within the FLUTe blank liner due to tar impacts in the borehole.
- The purge water from the deepest packer zone that extended from 144 to 149 ft bgs in MGP-MW-105D contained OLM.

5.3.1 NAPL Gauging and Recoverability

The recoverability of DNAPL at the site was evaluated as part of the RI by converting three FLUTe-lined bedrock boreholes that contained fractures with tar into recovery wells and gauging the wells to monitor DNAPL accumulation. The three locations that were converted to recovery wells are MGP-MW-TP4, MGP-MW-108D, and MGP-MW-104D. The construction details of these recovery wells are illustrated on the well logs in Appendix B. The wells were gauged periodically for the presence of DNAPL between April 2012 and June 2013. The gauging results are summarized in Table 5-4 and show that up to 9.6 feet of DNAPL accumulated in MGP-MW-104D and 3.8 feet in MW-12D but has not been present in measurable quantity in MGP-MW-TP4 or MGP-MW-108D as of June 2013.

A DNAPL sample was collected from the sump of MGP-MW-104D on December 7, 2012 using a bailer and analyzed for interfacial and surface tension, viscosity, density, and specific gravity. The specific gravity, density, and viscosity for the DNAPL collected from MGP-MW-104D were reported for temperatures of 70, 100, and 130 degrees Fahrenheit and are summarized in the table below.

MGP-MW-104D DNAPL				
Temperature	Specific	Density	Viscosity	
F	Gravity	g/cc	centistokes	centipoise
70	1.069	1.067	57.0	60.8
100	1.064	1.057	22.8	24.1
130	1.055	1.04	11.8	12.3
F = degrees Fahrenheit g/cc = grams per cubic centimeter				

Interfacial tension between the DNAPL and air was measured to be 34.14 dynes per centimeter (dynes/cm) and the surface tension between the DNAPL and water was measured to be 18.9 dynes/cm. The interfacial tension between water and air was 72.91 dynes/cm. The DNAPL sample results are provided in Appendix R.

A DNAPL sample was collected from the sump of MW-12D on June 13, 2013 using a bailer. This sample will be analyzed for the same parameters as the DNAPL sample collected from MGP-MW-104D. The laboratory results will be provided in future site documentation.

5.3.2 Bedrock Quality Summary

Visible tar, sheen, and olfactory impacts were noted in bedrock core and on FLUTe NAPL liners in 8 out of 17 bedrock boreholes advanced during the SC and RI activities. In addition, NAPL was measured in the base of monitoring well MW-12D screened in shallow bedrock. The visible bedrock impacts are present in the central and western portions of the site near the former 6,000 cf gas holder and west and north of the former 6,000 and 100,000 cf holders and former oil tank and tar pits beneath the service center building. These visible bedrock impacts extend to the west to MGP-MW-0DD, MGP-MW-9DD, and MGP-MW-108D and to the north to MGP-MW-104D and MGP-MW-103D. Visible bedrock impacts are also present below approximately 70 ft bgs southwest of the former 6,000 cf holder in MGP-MW-105D. The horizontal delineation of the visible bedrock impacts has been delineated to the west-northwest as evidenced by the lack of visible bedrock impacts noted in the bedrock boreholes advanced to 200 ft bgs on the northwest side of I95. Horizontal delineation of visible bedrock impacts has not been delineated to the north-northeast of MGP-MW-104D and MGP-MW-103D or to the west-southwest of MGP-MW-105D. Vertical delineation of visible bedrock impacts has not been completely defined at locations MGP-MW-TP4 and MGP-MW-105D.

5.4 Overburden Groundwater Analytical Results

During the SC and RI, overburden groundwater quality was assessed through the collection and laboratory analysis of groundwater samples from 14 overburden monitoring wells. The overburden monitoring wells include wells installed during previous UST investigations (MW-1 through MW-7, MW-9, and MW-12), wells installed during the SC (MGP-MW-103S, MGP-MW-104S, and MGP-MW-108S) and one well installed during the RI (MGP-MW-113S). Table 5-5 provides a summary of the compounds detected in at least one overburden groundwater sample during the SC and RI, broken down by BTEX, VOCs, PAHs, SVOCs, metals, total cyanide, PCB, and oil and grease categories. Table 5-5 only includes analytes that were detected in at least one overburden groundwater sample and compares the results to the NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGVs). Complete groundwater analytical results for all parameters analyzed in overburden and bedrock groundwater are provided in Table 3 in Appendix O. A summary of selected groundwater exceedances in overburden and in bedrock by elevation range is provided in Figure 5-4. Figure 5-5 illustrates the compounds that were detected in overburden and bedrock groundwater samples at concentrations exceeding AWQSGVs.

5.4.1 Volatile and Semi-volatile Organic Compounds

VOCs, predominantly BTEX, and naphthalene (a PAH) were the compounds detected in groundwater at concentrations exceeding AWQSGVs most frequently and are commonly associated with former MGP sites and gasoline/petroleum USTs. MTBE (a gasoline additive) and tetrachloroethene (common solvent) were infrequently detected at concentrations exceeding the AWQSGVs but may be site related due to current use of the site as a service center or related to offsite releases at nearby gasoline stations. The distribution of benzene, toluene, MTBE, tetrachloroethene, naphthalene, and NAPL in overburden groundwater is illustrated in the top left panel on Figure 5-4.

As shown in the top left panel of Figure 5-4, benzene and naphthalene were detected in seven groundwater samples and toluene was detected in four groundwater samples collected from 14 overburden monitoring wells. These compounds are present in groundwater in the former UST area

in monitoring wells MW-1 through MW-4 as well as along the downgradient, north-northwestern site boundary in monitoring wells MW-9, MGP-MW-108S and MGP-MW-103S. Xylene was detected at a concentration exceeding AWQSGVs in groundwater collected from MGP-MW-104S. VOCs and SVOCs were not detected at concentrations exceeding the AWQSGVs in groundwater samples collected from overburden monitoring wells situated upgradient of the former UST area (MW-5, MW-6, MW-7, and MW-12), from monitoring well MGP-MW-113S situated generally side-downgradient on the northwest side of I95, or from downgradient monitoring well MW-10. The distribution of overburden groundwater impacts is similar to the distribution of visibly impacted overburden soils and overburden soils containing concentrations of VOCs and SVOCs exceeding URUSCOs. The BTEX concentrations in monitoring wells MW-1, MW-2 and MW-4 have generally decreased since 1996 or 2004 depending on when the well was installed (Table 5-5 and Figure 5-5). The BTEX concentrations in monitoring well MW-3 have remained relatively constant between 2004 and 2010 (Table 5-5 and Figure 5-5). The BTEX concentrations in groundwater samples collected from downgradient monitoring well MW-9 are one to two orders of magnitude less than the BTEX concentrations in the groundwater samples collected from monitoring wells MW-1 through 4. The BTEX concentrations in the groundwater sample collected from MGP-MW-108S along the northwestern property boundary are similar to or higher than those detected in the groundwater samples collected from MW-1 through 4 suggesting that the visible and analytical soil impacts near the former tar pits beneath the service center building may be the source of groundwater impacts in this area of the site. MTBE was detected in one groundwater sample (MW-9) at a concentration below the AWQSGV. Tetrachloroethene was not detected in any of the overburden groundwater samples.

Other VOCs (primarily benzene compounds) and SVOCs were detected at concentrations exceeding the AWQSGVs in overburden groundwater samples less frequently than BTEX and naphthalene as summarized in Table 5-5 and Figure 5-5. Chloroethane was detected in four overburden groundwater samples but the concentration only exceeded the AWQSGV in one sample (MW-3 at 11 ug/L). The SVOCs that were infrequently detected at concentrations exceeding AWQSGVs in overburden groundwater samples include 1,1'-byphenyl (MGP-MW-108S at 13 ug/L), bis(2-ethylhexyl)phthalate (MW-1 at 10.6 ug/L), pentachlorophenol (MW-3 at 8.9 ug/L), and phenol (three samples collected from MW-1 at concentrations ranging 5.2 ug/L in 2010 to 14.8 ug/L in 2004).

5.4.2 Metals

Several metals including barium, beryllium, cadmium, chromium, copper, iron, lead, magnesium, manganese, nickel, selenium, and sodium were detected at concentrations exceeding AWQSGVs in at least one overburden groundwater sample as summarized in Table 5-5. Beryllium, chromium, copper, and nickel were each only detected in one overburden groundwater sample (MW-2 in 1996) at concentrations exceeding the AWQSGVs. Every overburden groundwater sample contained manganese at concentrations exceeding the AWQSGV of 300 ug/L. Thirteen of 14 overburden groundwater samples contained iron at concentrations exceeding the AWQSGV of 300 ug/L and ranged in concentration from 421 to 90,000 ug/L. Fifty percent of the overburden groundwater samples contained magnesium at concentrations exceeding the AWQSGV of 35,000 ug/L. Barium and cadmium were each detected in five overburden groundwater samples and selenium was detected in four overburden groundwater samples at concentrations exceeding the respective AWQSGVs. Lead was only detected in two overburden groundwater samples at concentrations exceeding the 25 ug/L AWQSGV. Sodium was detected at concentrations 2 to 3 orders of magnitude higher than the AWQSGV in every overburden groundwater sample collected. The distribution of the sodium, iron, manganese, and magnesium concentrations in overburden groundwater suggest these metals are naturally occurring. The distribution of the remaining metals detected in one or more

groundwater sample at concentrations exceeding AWQSGVs does not indicate a specific source of metal overburden groundwater impacts at the site.

5.4.3 Total Cyanide

Total cyanide was detected in every overburden groundwater sample in which it was analyzed except for two (MGP-MW-113S and duplicate). Total cyanide was detected at concentrations exceeding the AWQSGV of 200 ug/L in two overburden groundwater samples (MW-9 at 311 ug/L and MW-3 at 324 ug/L).

5.4.4 PCBs

Only two groundwater samples were analyzed for PCBs. These samples were collected from monitoring wells MW-1 and MW-2 in 1996. PCBs were not detected in either of the groundwater samples.

5.4.5 Total Petroleum Hydrocarbon and Oil and Grease Analyses

The 1996 groundwater samples collected from monitoring wells MW-1 and MW-2 were also analyzed for total petroleum hydrocarbons (TPH) and oil and grease. The results indicate TPH of 4,820 and 59,800 ug/L and oil and grease of 10,500 and 65,000 ug/L for the samples collected from MW-1 and MW-2, respectively.

5.4.6 Overburden Groundwater Quality Summary

Overburden groundwater contains BTEX and naphthalene in the vicinity of the former USTs and downgradient along the northwestern property line. Concentrations in the vicinity of the former USTs have generally decreased since 1996 and 2004. The concentrations in MGP-MW-108S suggest that the tar pits beneath the service center building might provide a separate source of BTEX and naphthalene to overburden groundwater in this area of the site. The overburden groundwater does not appear to be impacted by elevated site-related metal, total cyanide, or PCB concentrations. The overburden groundwater impacts have not been delineated to the north of the site due to access constraints. The degree to which impacted groundwater may be discharging to the I95 drainage system is uncertain but is believed to be minimal based on the relative elevations of the drainage system and water table. The degree to which impacted groundwater may be migrating along permeable bedding material associated with the storm sewer northwest of the site is unknown.

5.5 Bedrock Groundwater Quality

During the SC and RI, bedrock groundwater quality was assessed through the collection and laboratory analysis of groundwater samples from discrete fracture zones in 15 bedrock boreholes and from 7 previously installed bedrock monitoring wells. Groundwater samples were not collected from 2 of the 17 bedrock boreholes, MGP-MW-TP4 and MGP-MW-108D, due to the abundance of tar at these locations. The groundwater samples collected from discrete fracture zones using isolation packers were only analyzed for VOCs and naphthalene. The bedrock monitoring wells were installed during previous UST investigations and include MW-4D, MW-5D, MW-6D, MW-9D, MW-11D, MW-12D, and MW-13D. The groundwater samples collected from the bedrock monitoring wells were analyzed for VOCs, SVOCs, metals, and total cyanide. Table 5-6 provides a summary of the compounds detected in at least one bedrock groundwater sample during the SC and RI, broken down by BTEX, VOCs, PAHs, SVOCs, metals, and total cyanide categories. Table 5-6 only includes analytes that were detected in at least one bedrock groundwater sample and compares the results to the AWQSGVs. Complete groundwater analytical results for all parameters analyzed are provided in

Table 3 in Appendix O. A summary of selected groundwater exceedances in overburden and in bedrock by elevation range is provided in Figure 5-4. Figure 5-5 illustrates the compounds that were detected in overburden and bedrock groundwater samples at concentrations exceeding AWQSGVs. The blue lines on Figure 5-5 lead to results for bedrock groundwater samples and the green lines lead to results for overburden groundwater samples.

5.5.1 VOC and SVOCs

Similar to the overburden groundwater quality, VOCs, predominantly BTEX, and naphthalene (a PAH) were the compounds detected in bedrock groundwater at concentrations exceeding AWQSGVs most frequently, although the majority of bedrock groundwater samples were not analyzed for SVOCs (other than naphthalene), metals, or cyanide. BTEX and naphthalene are commonly associated with former MGP sites and gasoline/petroleum USTs. MTBE (a gasoline additive) and tetrachloroethene (common solvent) were infrequently detected at concentrations exceeding the AWQSGVs but may be site related due to current use of the site as a service center or related to offsite releases at nearby gasoline stations. The distribution of benzene, toluene, MTBE, tetrachloroethene, naphthalene, and NAPL in bedrock groundwater is illustrated by elevation in the top right and bottom panels on Figure 5-4.

Groundwater quality in fractured bedrock between 65 and 15 ft NAVD88 is illustrated in the top right panel of Figure 5-4. NAPL was present in bedrock in this elevation range in MGP-MW-104D, MGP-MW-TP4, MW-12D, and MGP-MW-108D. Benzene and toluene were the BTEX compounds that were detected at concentrations exceeding AWQSGVs most frequently however ethylbenzene and xylene were detected at concentrations exceeding AWQSGVs in approximately 25% of the bedrock groundwater samples. Benzene and naphthalene were detected at concentrations exceeding AWQSGVs in groundwater samples collected from boreholes near the former 6,000 and 100,000 cf holders, in the vicinity of the hydraulic lift area, and northwest towards the western property boundary extending from MW-13D (benzene only) to MGP-MW-104D. Benzene and naphthalene were not detected at concentrations exceeding AWQSGVs in bedrock groundwater samples collected along the southernmost portion of the western property boundary from MGP-MW-106D, along the eastern property boundary from MGP-MW-112D, MGP-MW-101D, and MGP-MW-114D, or from the four bedrock boring locations northwest of I-95. Benzene was not detected at any of these locations except for an estimated concentration of 0.082 ug/L from the 143 to 148 ft bgs sample collected from MGP-MW-106D. Naphthalene was detected in bedrock groundwater samples collected from several of these locations at concentrations below AWQSGVs but was not detected in any of the bedrock groundwater samples collected from MGP-MW-109D and MGP-MW-110D northwest of I95 or MGP-MW-112D and MGP-MW-114D along the eastern site boundary. The distribution of toluene concentrations exceeding AWQSGVs in the bedrock groundwater between 65 and 15 ft NAVD88 is similar to the benzene distribution near the former structures but is more widespread to the southwest and north at the site and was noted in three locations across I95 (MGP-MW-113D, MGP-MW-109D, and MGP-MW-110D).

Tetrachloroethene was detected at a concentration exceeding AWQSGV in bedrock groundwater collected from MGP-MW-4DD and MTBE was detected at concentrations exceeding the AWQSGV in bedrock groundwater collected from MW-9D and MGP-MW-9DD. Tetrachloroethene was not detected in the bedrock groundwater samples collected from any of the other locations at the site or from the boreholes northwest of I95. MTBE was detected at concentrations below AWQSGVs in bedrock groundwater samples collected from other site wells/boreholes (MGP-MW-0DD, MW-13D, and MGPMW-105D) and from one bedrock borehole northwest of I95 (MGP-MW-109D). Chloroform was detected at concentrations exceeding the AQWSGV in bedrock groundwater samples collected

from 4 locations on site (MGP-MW-0DD, MGP-MW-4DD, MGP-MW-9DD, and MGP-MW-105D). Chloroform was detected in bedrock groundwater samples collected from three of the four locations northwest of I95 (MGP-MW-109D, MGP-MW-110D, and MGP-MW-116D) but only exceeded the AWQSGV in two samples collected from MGP-MW-116D. Chloroform was detected at concentrations below AWQSGV in bedrock groundwater samples collected from MGP-MW-101D, MGP-MW-103D, MGP-MW-102D, MGP-MW-106D, MGP-MW-112D, and MGP-MW-114D).

Other than toluene, VOCs were not detected at concentrations exceeding the AWQSGVs in bedrock groundwater collected from monitoring wells/bedrock boreholes along the eastern portion of the site (MW-5D, MGP-MW-112D, MGP-MW-101D, and MGP-MW-114D) in the southwestern area of the site (MGP-MW-106D) or across I95 (MGP-MW-113D, MGP-MW-109D, and MGP-MW-110D). Toluene was frequently detected at concentrations exceeding AWQSGVs in the bedrock groundwater samples collected via packer testing in boreholes. Toluene was only detected at concentrations exceeding AWQSGVs in groundwater collected from two bedrock monitoring wells (MW-4D and MW-9D) where benzene and/or MTBE were also detected at concentrations exceeding AWQSGVs. Due to the distribution and the widespread nature of the toluene concentrations exceeding AWQSGVs and the absence of other VOCs at concentrations exceeding AWQSGVs in bedrock groundwater samples collected from boreholes via isolation packer system sampling along the eastern property boundary (MGP-MW-112D, MGP-MW-114D), in the southwest portion of the site (MGP-MW-106D) and west-northwest of the site across I95(MGP-MW-113D, MGP-MW-116D, MGP-MW-109D, and MGP-MW-110D), explanations for this distribution of toluene were researched. Toluene may be present in bedrock groundwater in the site vicinity due to site impacts and documented releases from other potential sources such as the gasoline station to the south. Another source of the toluene may be related to the packer sampling system methodology employed during the SC and RI. Electric tape was used to bundle the tubing and electric lines to the rods used to raise and lower the system within the borehole. The adhesive used in electric tape contains toluene that may have leached into the groundwater during sampling. Future sampling activities will utilize zipties rather than electric tape to bundle the lines to the rods.

SVOCs were analyzed in the groundwater samples collected from the 7 bedrock monitoring wells at the site. The bedrock monitoring wells only extend into the 65 to 15 ft NAVD zone. A few PAHs and 1,1-biphenyl (MW-9D only) were the only SVOCs, other than naphthalene, detected at concentrations exceeding the AWQSGVs in groundwater collected from the bedrock monitoring wells. A few PAHs were detected at concentrations below the AWQSGVs in monitoring wells MW-11D, MW-12D, and MW-13D. PAHs/SVOCs were not detected in groundwater collected from bedrock monitoring wells MW-5D and MW-6D. Naphthalene was detected at a concentration exceeding the AWQSGV (10 ug/L) in the groundwater sample collected from MW-4D (120 ug/L near the UST area and former 6,000 cf and 100,00 cf holder areas). Acenaphthene, fluorene, naphthalene, phenanthrene, and 1,1-biphenyl were detected at concentrations exceeding the AWQSGVs in the groundwater sample collected from MW-9D situated west of the former oil tank and tar pits beneath the service center building.

Groundwater quality in deeper water bearing fractures between 15 and -35 ft NAVD88 is illustrated in the bottom left panel of Figure 5-4. Benzene and naphthalene were detected at concentrations exceeding the AWQSGVs in the bedrock boreholes in the central portion of the site, similar to the shallower 65 to 15 ft NAVD88 interval, except it was detected a little further northeast at MGP-MW-103D. Toluene concentrations exceeding AWQSGVs are widespread in this interval, extending to the property boundaries and the northwest side of I95. Tetrachloroethene was not detected at exceeding concentrations in bedrock groundwater in this interval and MTBE was only detected at an exceeding concentration in groundwater collected from MGP-MW-4DD.

Groundwater quality in the deepest water bearing fractures sampled at the site below -35 ft NAVD88 is illustrated in the bottom right panel of Figure 5-4. The distribution of benzene, toluene, and naphthalene concentrations exceeding AWQSGVs is similar to the shallower 15 to -35 ft NAVD88. As illustrated by an asterisk in the bottom right panel of Figure 5-4, groundwater samples were collected from the six RI bedrock boreholes at elevations below -85 ft NAVD88 (all of the RI bedrock boreholes extended to 200 ft bgs, whereas all of the SC bedrock boreholes were drilled to 150 ft bgs [except MGP-MW-4DD which extends 200 ft bgs]). Although MGP-MW-4DD extends to 200 ft bgs, the deepest fracture zones where groundwater sampling was attempted were dry. Toluene was the only compound detected at a concentration exceeding the AWQSGVs in the groundwater samples collected below -85 ft NAVD88. Toluene was detected at exceeding concentrations below -85 ft NAVD88 in groundwater collected from MGP-MW-112D and MGP-MW-114D along the eastern property boundary and from MGP-MW-109D northwest of the site.

BTEX and naphthalene concentration trends in bedrock groundwater are not consistent with depth across the site as illustrated by the analytical results for the bedrock boreholes on Figure 5-5. BTEX and naphthalene concentrations in bedrock groundwater increased with depth at locations MGP-MW-105D, MGP-MW-4DD, and MGP-MW-103D. BTEX and naphthalene concentrations in groundwater remained relatively consistent with depth at locations MGP-MW-102D and MGP-MW-104D. At locations MGP-MW-0DD and MGP-MW-9DD, the BTEX and naphthalene concentrations vary with depth but do not illustrate a concentration trend with depth. Frequently, the greatest BTEX and naphthalene bedrock groundwater concentrations were detected in zones where tar or other visible impacts were noted in the core or on the NAPL liner at that location. Occasionally the greatest BTEX and naphthalene bedrock groundwater concentrations were detected in zones that were not visibly impacted suggesting that the concentrations detected migrated through fractures. As illustrated on cross sections in Figures 4-3 through 4-6 and discussed in section 4.3.2, anecdotal information, fracture orientation, NAPL observations, and bedrock groundwater quality data, bedrock fractures appear connected to some degree. This premise is further supported by the detection of similar compounds in bedrock groundwater samples collected from visibly impacted locations near former potential source structures on the site and from non-visibly impacted locations onsite and northwest of I95. Specifically, benzene, naphthalene, MTBE, toluene, and chloroform were detected at concentrations exceeding AWQSGVs in groundwater samples collected from wells/bedrock borings near the former 6,000 cf and 100,000 cf holders and west-northwest of the former oil tank and tar pits beneath the service center building. These compounds, except benzene, were detected in bedrock groundwater samples collected from at least one or more of the bedrock boreholes northwest of I95 at concentrations below AWQSGVs (except chloroform exceeded its AWQSGV in two samples collected from MGP-MW-116D). This distribution suggests connection of fractures at the site and west-northwest of the site and delineation of dissolved impacts originating at the site and/or a contribution of compounds from a separate source in the areas northwest of the site across I95.

5.5.2 Metals

Groundwater samples collected from bedrock monitoring wells were analyzed for metals during the SC. The groundwater sample collected from MW-12D was only analyzed for lead in 2008. Monitoring well MW-12D was not sampled during the SC due to the presence of NAPL in the well. Groundwater samples collected from the packer tested zones within bedrock boreholes were not analyzed for metals. The bedrock groundwater monitoring well analytical results summarized in Table 5-6 and illustrated on Figure 5-5 indicate that iron, magnesium, manganese, selenium, and sodium were present at concentrations exceeding AWQSGVs in two or more of the bedrock groundwater monitoring well samples. Iron, sodium, and manganese were the most frequently detected metals at concentrations exceeding the AWQSGVs.

5.5.3 Total Cyanide

Total cyanide was detected in all of the groundwater samples collected and analyzed for total cyanide from the bedrock monitoring wells (the 2008 sample from MW-12D was not analyzed for total cyanide). None of the total cyanide concentrations exceeded the AWQSGV of 200 ug/L. The detected total cyanide concentrations ranged from 24 ug/L in the sample collected from MW-13D to 145 ug/L in the sample collected from MW-6D.

5.5.4 Bedrock Quality Summary

Bedrock groundwater quality at the site has been impacted by site operations and contains VOCs, predominantly BTEX, and naphthalene at concentrations exceeding AWQSGVs in the vicinity of the former 6,000 and 100,000 cf holders and to the west and north of the former oil tank and tar pits beneath the service center building. Toluene was detected at concentrations exceeding the AWQSGV in bedrock groundwater samples collected from the same locations as BTEX and naphthalene as well as across the site and northwest of the site across I95. Although toluene is likely associated with former site operations in the impacted areas of the site, the more widespread distribution of toluene may be an artifact of the sampling methodology employed during the packer isolation and groundwater sampling efforts or associated with other potential sources. Frequently, the greatest BTEX and naphthalene bedrock groundwater concentrations were detected in zones where tar or other visible impacts were noted in the core or on the NAPL liner at that location. Occasionally the greatest BTEX and naphthalene bedrock groundwater concentrations were detected in zones that were not visibly impacted suggesting that the concentrations detected migrated through fractures. The compilation of the physical and chemical data gathered during the bedrock investigations indicate that some fractures are interconnected at the site. Fracture connectivity is further supported by the detection of similar compounds in bedrock groundwater samples collected from visibly impacted locations near former potential source structures on the site and from non-visibly impacted locations onsite and northwest of I95. The extent of dissolved phase impacts in bedrock has generally been delineated vertically other than limited toluene detections in groundwater in three groundwater samples collected below -85 ft NAVD88 and at locations MGP-MW-105D, MGP-MW-104D, MGP-MW-108D and MGP-MW-TP4 where either samples were not collected due to the presence of tar in the borehole or groundwater samples were not submitted for laboratory analysis due to the presence of OLM in the purged water. The horizontal extent of dissolved impacts in bedrock is difficult to determine, however the data suggest that delineation has been accomplished along the eastern property boundary, south along the western property boundary at MGP-MW-106D and west-northwest of the site across I95. Delineation of bedrock groundwater impacts has not been completed to the north-northeast of the site due to access constraints.

5.6 Soil Vapor Intrusion

Six soil gas samples, one crawlspace sample (MGP-SG-3), and two indoor air samples were collected and analyzed during the SC. One soil gas sample and one ambient outdoor air sample were collected during the RI. The soil gas and indoor air results are summarized in Table 5-7 and are compared to a database of typical background indoor air concentrations from fuel oil heated homes in New York State that was compiled by the NYSDOH in 2003, and revised in 2005. The background values are expressed as statistical values. The “75th percentile” value indicates that 75% of the background indoor air concentrations were below that value. Similarly, the “90th percentile” value indicates that 90% of the background indoor air concentrations were below that value. In the table, sample concentrations that are greater than the 75th and 90th percentile values are identified with yellow and green highlighting, respectively.

The soil gas data indicate the presence of chlorinated organic compounds, alkanes, and several aromatic hydrocarbons. The results suggest that subsurface impacts are associated with cleaning/degreasing solvents (chlorinated compounds), petroleum (aromatic compounds, alkanes) and potential MGP residuals (aromatic compounds). Associated indoor air samples demonstrated that elevated constituent levels, i.e. concentrations greater than established background levels (90th percentile) are limited to a single chlorinated compound (1,4-dichlorobenzene) that is not associated with MGP residuals. The outdoor ambient air sample did not contain detectable concentrations of compounds other than acetone, trichlorofluoromethane (Freon11), and dichlorodifluoromethane (Freon 12) at concentrations below the background indoor air values. Additionally, several compounds likely to be specific to MGP residuals (indane, indene and thiophene) were not detected in the either the soil gas or indoor air samples. The outdoor ambient air sample did not contain detectable concentrations of compounds other than acetone, trichlorofluoromethane (Freon11), and dichlorodifluoromethane (Freon 12) at concentrations below the background indoor air values.

The results demonstrate that MGP residuals have not significantly impacted soil gas at the site and that the vapor intrusion exposure pathway is not complete. An evaluation of the results from the program using NYSDOH guidance and decision matrices (NYSDOH, 2006) indicates that no further investigation of vapor intrusion, or remedial action is required at the site. However, based on detected concentrations of compounds in soil gas samples collected from MGP-SG-5 and MGP-SG-8 and the visible and/or analytical results for soil, bedrock, and groundwater in the northern portion of the site, as well as the residential property use to the north of the site, two additional soil gas sample locations were proposed in the RI. These samples could not be collected since access to the property north of the site was not granted.

6.0 Qualitative Human Health and Environmental Assessment

This section integrates the data and information gathered during the SC and RI and provides a qualitative assessment of the potential for exposure to MGP-related contaminants that are associated with the environmental conditions encountered at the site. This assessment was performed by identifying potential sources, migration routes for the constituents of concern (COC) discussed in Section 5, potential receptors, and potential exposure pathways at and in the vicinity of the site. The assessment follows guidelines specified in the *NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation* (NYSDEC, 2010).

6.1 Site Setting

A description of the site is presented in Section 2.1. The site is utilized by Con Edison for the maintenance and dispatching location for their fleet of service vehicles. The facility occupies approximately 9 acres and includes a mix of office, shop, and utility space surrounded by open parking lots and storage areas, diesel/gasoline refueling pumps, compressed natural gas (CNG) storage/refueling pumps, and grassy, vegetated areas. The site is surrounded by a fence with two locked gate entrances on Theodore Fremd Avenue, one of which is controlled by a security guard during hours of operation. This area encompasses the historic boundary of the former Rye Gas Works and the former MGP's gas production, purification, and storage facilities and structures.

6.2 Exposure Assessment

Exposure is the process by which humans come into contact with COC in their environment. Humans can be exposed to COC in a variety of environmental media including surface soil, subsurface soil, surface water, sediment, 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 COC. The assessment includes the following:

1) Developmen t of a conceptual site model
2) Discussion of potential sources
3) Discussion of potential release mechanisms
4) Identification of potential human receptors and receptor-specific exposure pathways

The potential for exposure to COCs via drinking impacted site groundwater is not considered in the analysis presented below. The City of Rye obtains drinking water from sources located in upstate areas. Other than an evaluation of potential incidental ingestion of impacted groundwater during subsurface repair or construction activities, this pathway is not further discussed in this exposure assessment. The NYSDEC groundwater classification for the site area is GA (aesthetic-fresh waters). The management of groundwater impacted by site-related residuals will be addressed in the alternatives analysis report.

6.3 Conceptual Site Model

Figure 6-1 presents the conceptual model for the OU1 RI investigation area. Included on the figure is information regarding the known or potential sources of COC, 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 on-going or documented exposure.

Information regarding the potential receptors identified in each area of interest is presented in Table 6-1.

6.4 Potential Sources of Residuals

The sources of environmental impact for the site are residual materials associated with the former MGP structures and process areas and petroleum USTs. Exposure to surface soil could be a potential exposure pathway; however, the concentrations of COC in the surface soil samples collected at the site are generally within typical background concentrations with total PAH concentrations less than 22 ppm. Hydrocarbon materials, including NAPL, and soils containing constituents at concentrations exceeding the URUSCOs have been observed in subsurface soil and bedrock beneath the site. Volatile and semi-volatile compounds in these materials have leached to groundwater which is not used for potable purposes. In the MGP-impacted areas, the lower molecular weight hydrocarbons could also volatilize and migrate into ambient and/or indoor air.

6.5 Potential Release Mechanisms

As shown on Table 6-1, 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:

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

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

3) **Leaching.** Constituents in surface, subsurface soil, or bedrock 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:

1) **Adsorption.** Constituents in groundwater may be sorbed onto subsurface soils.

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

3) **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 Table 6-1.

6.6 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. An exposure pathway analysis for receptors at the former Rye Gas Works site is summarized 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 future remedial actions in the alternatives analysis report. Each of the site receptor groups, and the potential exposure pathways, are identified in Table 6-1. Potential receptor groups and potential exposure pathways that may exist for the site are discussed below.

6.6.1 Facility Building Worker

The main service center facility building is present within the footprint of the former MGP process area. Employees/workers within the building could potentially be exposed to MGP-related COC by the inhalation of impacted indoor air. The results of the SVI evaluation demonstrate that MGP residuals have not significantly impacted soil gas at the site and that the vapor intrusion exposure pathway is not complete. Therefore, the potential for an employee/worker to be exposed to air impacted with MGP-related COC is considered to be low under standard conditions. However, future potential sub-slab construction within the building may provide a potential pathway for subsurface vapors into the building. Therefore, the inhalation of VOCs by employees/workers pathway is considered to be potentially complete and will be addressed in the alternatives analysis report.

As indicated above, sampling and analysis of surface soils has indicated that the concentrations of VOCs and SVOCs are low and similar to background concentrations. Surface soils at the site are grass-covered or landscaped and the potential for employees/workers to come into contact with surface soils is low. For these reasons, the potential for a site employee/worker to be exposed to COCs in surface soil is considered to be low. Site employee/workers will not be exposed to subsurface soils as part of their work activities, for this reason the potential for exposure to COCs in subsurface soil is considered to be low.

6.6.2 Maintenance Worker – Indoor/Outdoor

A maintenance worker at the site could be involved in indoor and/or outdoor maintenance or construction activities. Based on the results of the SVI sampling performed in each of the site buildings, MGP residuals have not significantly impacted soil gas at the site and the vapor intrusion exposure pathway is not complete. However, sub-slab construction within the main service center building may provide a potential pathway for subsurface vapors into the building. Therefore, the inhalation of VOCs by indoor maintenance workers pathway is considered to be potentially complete and will be addressed in the alternatives analysis report.

Another potential exposure pathway for outdoor maintenance workers is via direct contact with impacted soils (i.e., incidental ingestion, dermal contact, and inhalation of volatiles or particulates) while performing light maintenance activities such as lawn care or landscaping. However, the concentrations of MGP-related COC in surface soils are low, and the soil is covered with grass or landscaping materials. The period of time that a worker would be in contact with subsurface soils is anticipated to be minimal. For these reasons, the potential for an outdoor maintenance worker to be exposed to MGP-related COC in surface and subsurface soils is considered to be low.

6.6.3 Subsurface Outdoor Maintenance or Utility Workers

Outdoor maintenance workers and subsurface utility workers could potentially be exposed to soil containing NAPL and other COC 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 features such as gas, water or sewer lines, or other utilities or structures at the site. NAPL-impacted subsurface soil was observed in the central portions of the site near the former 6,000 cf and 100,000 cf gas holders at depths less than 10 ft bgs. Impacted groundwater is present in portions of the site at depths ranging from approximately 2.5 to more than 100 ft bgs (in bedrock). Only properly trained personnel should complete subsurface work at the site using methods specified in a site-specific HASP, until the area has been cleared of impacted materials.

6.6.4 Site Visitors or Trespasser

Site visitors and trespassers could potentially contact surface soil in the landscaped areas of the site, or inhale impacted indoor air while visiting site buildings or surrounding areas. As indicated above, the potential for exposure for each of these media is considered to be low under standard conditions. However, a site visitor could potentially be exposed to impacts to indoor air if sub-slab construction occurs in the building that they visit. Therefore, the inhalation of VOCs by site visitors pathway is considered to be potentially complete and will be addressed in the alternatives analysis report.

6.6.5 Adjacent Metro North Rail Line and Interstate I95 Area

Subsurface utility workers who perform subsurface utility repair or installation work along the Metro North rail line and possibly along I95 could potentially be exposed to constituents in soil, bedrock 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 performing subsurface work in this area should be properly trained and should perform this work using procedures specified in a HASP.

6.7 Conclusion

Based on this assessment, MPG impacts do not pose a significant risk to facility building workers/employees, an indoor/outdoor maintenance worker, or site visitor/trespasser, however, subsurface soil and overburden groundwater impacts may pose a direct contact risk to future utility/construction workers.

As noted previously in this report, additional investigation is proposed north of the facility to further delineate site impacts, once access can be acquired. This evaluation of potential human health risks associated with site impacts will be reviewed and updated once the additional investigative activities are completed.

7.0 Fish and Wildlife Resource Impact Analysis

The purpose of the Fish and Wildlife Resources Impact Analysis (FWRIA) is to identify actual or potential impacts to fish and wildlife resources from site contaminants of ecological concern. The site is fully developed with degraded habitat and wildlife resources limited to common urban species. There is not permanent surface water habitat on site. The nearest potential ecological resource is the Rye Nature Center which is situated east of the site across Theodore Fremd Avenue. The Center is located on 47 acres of wildlife preserve, and has over two miles of hiking trails, ponds, streams and granite outcroppings. Red Maple Swamp, a perennial swamp within the Rye Nature Center, is situated along Theodore Fremd Avenue east of the Rye former gas works site.

The majority of the site is paved or covered with buildings. Based on the SC and RI results, MGP impacts are not present on the site surface. The location of MGP subsurface impacts is summarized on Figures 5-2 and 5-3. Surface water from precipitation events is collected in onsite storm drains. There is a storm sewer running along the east side of the service center building that drains the parking lots into the local sewer system. Although the site surface slopes to the north and east of the large bedrock outcrop adjacent to the upper, circular paved parking are at the site, the surface between the parking area and Theodore Fremd Avenue is grassy and any runoff will infiltrate rather than flow offsite. The paved vehicle parking area situated further northeast at the site drains northeast towards an onsite drainage swale t the property boundary. A portion of this parking area drains east down the driveway to catch basins along Theodore Fremd Avenue. It is surmised that these catch basins drain to Red Maple Swamp, although the discharge point could not be confirmed by field observations or the City of Rye engineering department. Although some surface runoff from the northeastern parking area at the site may reach Red Maple Swamp, MGP impacts are not present at the site surface and will not migrate from the site via surface runoff. Therefore, a complete exposure path from the MGP site to Red Maple Swamp does not exist.

A Con Edison historic drawing (Drawing A251756-0 in Appendix A) illustrates a culvert beneath Theodore Fremd Avenue which appears to connect Red Maple Swamp to the drainage swale. No evidence of this culvert was found during field reconnaissance and the City of Rye Engineering Department has no records regarding the culvert. Even if the culvert is present and open to flow, a potential exposure pathway for MGP impacts to reach the swale and Red Maple Swamp is not complete since surficial MGP impacts are not present and will not migrate via runoff.

Overburden and bedrock groundwater at the site contain site-related constituents (predominantly VOCs consisting of BTEX and naphthalene) at concentrations exceeding the AWQSGVs. Groundwater flow in the overburden is to the west-northwest away from the drainage swale and the Rye Nature Center. In addition, saturated overburden conditions were not encountered along the eastern side of the site due to thin overburden and bedrock outcrops. Based on the elevation of the underdrains beneath I95 and the water table, it is likely that the surface of the overburden groundwater leaving the site intersects these underdrains. The underdrains discharge to the storm sewer via catch basins along I95. In areas where overburden is absent, bedrock groundwater may intersect the drainage features along I95. If site-related groundwater VOC impacts enter the storm

water drainage system they are likely volatilized as the water moves through the system. Therefore, site-related VOCs that may enter the system would not reach the discharge point and the potential exposure pathway would not be complete. Groundwater flow in the bedrock is dependent on fracture interconnection, however groundwater analytical results illustrate that site-related bedrock groundwater impacts are not present along the eastern site property boundary adjacent to Theodore Fremd Avenue and therefore would not extend beneath the Rye Nature Center.

Based on this assessment a full FWRIA is not required for this site since there are no complete exposure pathways for MGP-related constituents to impact fish and wildlife resources.

8.0 Summary and Conclusions and Site Conceptual Model

The Rye former gas works site is a former MGP and current service center located at 178 Theodore Fremd Avenue in Rye, New York. The site occupies approximately 9 acres that are completely fenced with two gated entrances. The majority of the site is paved and covered with buildings although there are some grassy areas with trees. Surface water from precipitation events is collected in onsite storm drains or absorbed in the grassy areas. Limited surface water from precipitation events flows into a small swale at the northeast corner of the site. Public water is supplied to the City of Rye by the Westchester Joint Water Works which purchases water from the New York City water system which drives its supply from surface water reservoirs.

The material beneath the site includes fill and till which together comprise the overburden and bedrock. The overburden is discontinuous across the site and ranges in thickness from 0 to 18 feet thick. Based on the site topography, bedrock outcrops, and the overburden thickness northwest of I95 it appears that the overburden is continuous from the northwestern edge of the site across I95 to the City of Rye Park. Bedrock outcrops are present north and south of the site on both sides of I95 indicating that the overburden thins and/or is absent in these directions. Bedrock beneath the site and northwest of the site consists of biotite schist with varying amounts of quartz and occasional pegmatite. The rock is variably fractured, with the most common fracture orientations northeast to north-northeast (often coinciding with metamorphic foliation) and steeply dipping northwest-trending fractures of varying dip angle. Some of the northeast-trending fractures likely intersect more than on northwest-trending fracture, based on fracture length and spacing measurements.

Groundwater is present in the overburden, where the overburden is present in sufficient thickness, at depths ranging between 2.7 and 10 ft bgs. Groundwater flow in the overburden is to the northwest. The surface of the overburden groundwater leaving the site is likely intercepted by the underdrain system associated with I95 during periods of high water table. The underdrain system ties into an 18 inch storm sewer running along the north bound travel lane through catch basins. The bottom elevation of the storm sewer is below the water table and therefore pipe bedding or pipe leaks may also intercept groundwater flowing from the site.

Groundwater is present in bedrock, however the elevations measured in bedrock monitoring wells do not indicate a consistent flow direction. Bedrock groundwater flow can be expected to occur from areas of high head to areas of low head within the fractured rock, if and only if some of the fractures are permeable and intersect with other permeable fractures. Based on outcrop measurements and borehole geophysical results, north-northeast to northeast and west-northwest to northwest appear to be the most likely orientations for potentially conductive bedrock fractures. Observations during bedrock drilling activities demonstrate that borehole to borehole hydraulic connections, presumably by bedrock fractures, can occur over distances as great as 220 feet and possibly as great as 360 feet at the site.

Site characterization and remedial investigation field activities have detected site-related residuals including tar, BTEX, PAHs, MTBE, and chlorinated compounds related to the site uses. The concentrations of compounds detected in surface soil samples are generally consistent with or lower than urban background and/or commercial uses. The majority of the subsurface soil and bedrock impacts are present in the central western portion of the site near the former 6,000 and 100,000 cf gas holders, the former UST areas, and near the former oil tank and tar pits beneath the service center building and extend west to the property boundary along the Metro North rail line and north-northeast

towards the northern property boundary. The horizontal extent of visible impacts and analytical exceedances in the subsurface soil has been delineated to the south and east. Although subsurface soil visible and analytical impacts extend to the west-northwest site boundary adjacent to the Metro North rail line, they were not observed or detected in soil samples collected on the northwest side of I95. Subsurface soil impacts extend to the northern property boundary, however access to the north could not be acquired and delineation has not been accomplished in this direction. The horizontal delineation of the visible bedrock impacts has been delineated to the west-northwest as evidenced by the lack of visible bedrock impacts noted in the bedrock boreholes advanced to 200 ft bgs on the northwest side of I95 and to the east as evidenced by the lack of visible bedrock impacts noted in the bedrock boreholes advanced to 200 ft bgs along the eastern site property boundary. Horizontal delineation of visible bedrock impacts has not been achieved to the north-northeast where access to the adjacent northern property was not acquired. Horizontal delineation of the bedrock impacts noted in the vicinity of 6,000 cf holder has not been completed to the west-southwest. Vertical delineation of visible bedrock impacts has not been completely defined near the 6,000 cf holder (locations MGP-MW-TP4 and MGP-MW-105D).

DNAPL recoverability at the site was evaluated as part of the RI by converting three FLUTe-lined bedrock boreholes that contained fractures with tar into recovery wells and gauging the wells to monitor DNAPL accumulation. The gauging results show that up to 9.6 feet of DNAPL accumulated in MGP-MW-104D and 3.8 feet of DNAPL accumulated in MW-12D, but has not been present in measurable quantity in MGP-MW-TP4 or MGP-MW-108D as of June 2013. A DNAPL sample was collected from the sump of MGP-MW-104D on December 7, 2012 using a bailer and analyzed for interfacial and surface tension, viscosity, density, and specific gravity. A DNAPL sample was collected from the sump of MW-12D on June 13, 2013, and analyzed for the same physical parameters as the sample collected from MGP-MW-104D. The results of the analyses will be provide in future site documentation.

Overburden groundwater contains BTEX and naphthalene in the vicinity of the former USTs and downgradient along the northwestern property line. Concentrations in the vicinity of the former USTs have generally decreased since 1996 and 2004. The concentrations in MGP-MW-108S suggest that the tar pits beneath the service center building might provide a separate source of BTEX and naphthalene to overburden groundwater in this area of the site. The overburden groundwater impacts have not been delineated to the north of the site due to access constraints. The degree to which impacted groundwater may be discharging to the I95 drainage system is uncertain but is believed to be minimal based on the relative elevations of the drainage system and water table. The degree to which impacted groundwater may be migrating along permeable bedding material associated with the storm sewer northwest of the site is unknown.

Bedrock groundwater quality at the site has been impacted by site operations and contains VOCs at concentrations exceeding Ambient Water Quality Standards and Guidance Values (AWQSGVs) in the vicinity of the former 6,000 and 100,000 cf holders and to the west and north of the former oil tank and tar pits beneath the service center building. The compilation of the physical and chemical data gathered during the bedrock investigations indicate that some fractures are interconnected at the site. Fracture connectivity is further supported by the detection of similar compounds in bedrock groundwater samples collected from visibly impacted locations near former potential source structures on the site and from non-visibly impacted locations onsite and northwest of I95. The extent of dissolved phase impacts in bedrock has generally been delineated vertically other than limited toluene detections in groundwater in three groundwater samples collected below -85 ft NAVD88 and at locations MGP-MW-105D, MGP-MW-104D, MGP-MW-108D and MGP-MW-TP4 where either samples were not collected due to the presence of tar in the borehole or groundwater samples were not submitted for laboratory analysis due to the presence of OLM in the purged water. The horizontal

extent of dissolved impacts in bedrock is difficult to determine, however the data suggest that delineation has been accomplished along the eastern property boundary, south along the western property boundary and west-northwest of the site across I95. Delineation of bedrock groundwater impacts has not been completed to the north-northeast of the site due to access constraints.

The soil gas and ambient air results demonstrate that MGP residuals have not significantly impacted soil gas at the site and that the vapor intrusion exposure pathway is not complete. However, based on detected concentrations of compounds in soil gas samples collected from MGP-SG-5 and MGP-SG-8 and the visible and/or analytical results for soil, bedrock, and groundwater in the northern portion of the site, as well as the residential property use to the north of the site, two additional soil gas sample locations were proposed in the RI. These samples were not collected since access to the property north of the site was not granted.

The qualitative human health and environmental assessment indicates that MPG impacts do not pose a significant risk to current site workers, however, subsurface soil and overburden groundwater impacts may pose a short-term direct contact risk to future utility/construction workers.

Based on an evaluation of the site conditions and surrounding ecological resources, a full FWRIA is not required for this site since there are no complete exposure pathways for site-related constituents to impact fish and wildlife resources.

8.1 Site Conceptual Model

Based on the above summary it is apparent that the MGP residuals and service center residuals have impacted the subsurface soil, bedrock, overburden and bedrock groundwater quality at the site in the vicinity of the former MGP 6,000 and 100,000 cf gas holder, oil tank, and tar pit structures, and the former service center USTs, likely through spills and leaks. These impacts have migrated to the northwestern and northern property boundaries but have generally been delineated to the south and east, although additional investigation of the extent of tar in bedrock south of MGP-MW-105D is warranted. These impacts have not been observed on the northwest side of I95, indicating that delineation has been achieved in this direction. These impacts have not been delineated to the north due to access constraints. The impacts encountered at the site do not pose a significant risk to current site workers but subsurface soil and overburden groundwater impacts may pose a short-term direct contact risk to future utility/construction workers. The site impacts do not present a risk to fish or wildlife resources.

9.0 Recommendations

The following recommendations are made based on the SC and RI findings.

- Complete the overburden, bedrock, and soil gas investigations proposed as part of the RI to the north of the site to further delineate the northern extent of site impacts.
- Drill an additional bedrock boring south-southwest of MGP105D to delineate the extent of visible impacts in bedrock to the south-southwest. Drill the additional boring to 200 ft for vertical delineation as well as horizontal delineation of impacts.
- Perform DNAPL baildown tests in MGP-MW-104D and MW-12D to further evaluate DNAPL recoverability. Evaluate the results for the DNAPL sample collected from MW-12D and compare with the DNAPL results from MGP-MW-104D.

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USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999

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All Appendices Provided on 2 Separate CDs

Appendix A

Historical Site Maps and Aerial Photographs, EDR Maps, and Spills Records

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Boring, Coring, Test Pit, and Well Construction Logs for Previous Investigations and the SC and RI

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Table 3-1
Summary of Surface Soil Samples
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID	Depth Interval (ft bgs)	Date Collected	Sample Collection Method	Sample Rationale	Laboratory Analysis
SS-1(0-0.2)	0 - 0.2	8/10/2009	Stainless steel trowel	Characterize surface soil quality in the western portion of the site	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
SS-2(0-0.2)	0 - 0.2	8/10/2009	Stainless steel trowel	Characterize surface soil on the northwestern edge of the site (sample collected north of the black rock and west of the dumpster within the grassy area along the rail line).	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
SS-3(0-0.2)	0 - 0.2	8/10/2009	Stainless steel trowel	Characterize surface soil on the eastern edge of the site in the upland portion of the site away from the wetland area.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
SS-4(0-0.2)	0 - 0.2	8/10/2009	Stainless steel trowel	Characterize surface soil on the southeastern edge of the site	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
SS-5(0-0.2)	0 - 0.2	8/10/2009	Stainless steel trowel	Characterize surface soil on the eastern edge of the site, north and east of the former large holder foundation.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total

Notes:
ft bgs = feet below ground surface
VOCs + 10 TICs - TCL volatile organic compounds plus 10 tentatively identified compounds using USEPA Method 8260B
SVOCs +20 TICs - TCL semivolatile organic compounds plus 20 tentatively identified compounds using USEPA Method 8270C
TCL - Target Compound List
Cn - Cyanide, total using USEPA Method 9012 A.
TAL Metals - Target Analyte List Metals using USEPA Methods 6010 and 7471.

Table 3-2
Summary of Test Pit Soil Samples
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID	Depth Interval (ft bgs)	Date Collected	Method	Sample Rationale	Laboratory Analysis
TP1 (5-5.5)	5-5.5	8/11/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate the soil quality at the test pit completion depth. Holder bottom was encountered during test pitting activities.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP2 (1-1.3)	1-1.3	8/12/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate the soil quality at the bedrock interface. Concrete holder bottom was encountered during test pitting activities on the southwest portion of the excavation. The holder bottom was not penetrated.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP3 (2-2.5)	2-2.5	8/25/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate soil quality at top of wall of SE structure. Three brick structures (possible foundation walls) were encountered.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP3 (5-5.5)	5-5.5	8/25/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate soil quality above NAPL seep.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP3 (6-6.5)	6-6.5	8/25/2009	Stainless steel trowel/ excavator bucket	Evaluate the soil quality at the base of the NW structure below NAPL seep. Three brick structures (possible foundation walls) were encountered.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP3 (8.5-9)	8.5-9	8/25/2009	Stainless steel trowel/ excavator bucket	Evaluate soil quality at the bottom of the excavation outside the three structures.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP4 (3-3.5)	3-3.5	8/27/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate soil with elevated PID readings.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total, PCBs
TP4 (5.5)	5.5	8/27/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate soil at base of excavation with lower PID readings.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total, PCBs
TP5 (0.5-1)	0.5-1	8/24/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate soil quality on top of concrete foundation.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP5 (8-10)	8-10	8/24/2009	Stainless steel trowel/ excavator bucket	Evaluate soil quality in the vadose zone in the southern portion of the site.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP5 (10-10.5)	10-10.5	8/24/2009	Stainless steel trowel/ excavator bucket	Evaluate soil quality at the base of the test pit.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total

Table 3-2
Summary of Test Pit Soil Samples
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID	Depth Interval (ft bgs)	Date Collected	Method	Sample Rationale	Laboratory Analysis
TP-5 082109 con	7	8/24/2009	Stainless steel trowel/ hand auger/posthole digger	Confirm that there was no TPH after hydraulic leak.	TPH
TP6 (2-2.5)	2-2.5	8/14/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate soil quality on top of the concrete pad.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP6 (5-5.8)	5-5.8	8/14/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate soil quality at the base of the test pit.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP7 (5.5-6)	5.5-6	8/20/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate soil quality at the overburden-bedrock interface south of the former MGP purifier area.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP8 (3.5-4)	3.5-4	8/20/2009	Stainless steel trowel/ excavator bucket	Evaluate soil quality on top of possible boiler foundation.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total
TP8 (6.5-7)	6.5-7	8/20/2009	Stainless steel trowel/ excavator bucket	Evaluate soil quality at overburden-bedrock interface along the southwestern portion of the site.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn total

Notes:
ft bgs = feet below ground surface
VOCs 10 TICs - TCL volatile organic compounds plus 10 tentatively identified compounds using USEPA Method 8260B
SVOCs 20 TICs - TCL semivolatile organic compounds plus 20 tentatively identified compounds using USEPA Method 8270C
TCL - Target Compound List
Cn - Cyanide, Total using USEPA Method 9012 A
TAL Metals - Target Analyte List Metals using USEPA Methods 6010 and 7471.

Table 3-3
Summary of Subsurface Soil Samples
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Sample ID	Depth Interval (ft bgs)	Date Collected	Sample Collection Method	Sample Rationale	Laboratory Analysis
Site Characterization Samples					
MGP-SG-5 (1-2.2)	1-2.2	7/28/2009	Stainless steel trowel/ hand auger/posthole digger	Characterize slag/cinder material with petroleum odor.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total), PCBs
MGP-SB-2 (5-6)	5-6	8/13/2009	Split spoon	Evaluate soil quality at the base of the former 100,000 cf holder.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-SB-3 (1.5-2.0)	1.5-2	8/5/2009	Stainless steel trowel/ hand auger/posthole digger	Characterize soil with sheen and elevated PID readings within 6000 CFof gas holder.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-SB-4 (6-8)	6-8	8/13/2009	Split spoon	Evaluate soil quality at refusal depth on concrete - possibly associated with former 10,000 gallon fuel oil tank.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-SB-5 (10-11)	10-11	8/16/2009	Split spoon	Evaluate soil in former oil tank area in the vadose zone	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-SB-5 (11-13)	11-13	8/16/2009	Split spoon	Characterize soil with TLM and elevated PID readings.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-SB-5 (16-17)	16-17	8/16/2009	Split spoon	Vertically delineate shallower visible impacts.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-SB-6 (7-8)	7-8	8/12/2009	Split spoon	Evaluate soil quality at overburden-bedrock interface.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-SB-7 (6-7.3)	6-7.3	8/13/2009	Split spoon	Evaluate soil quality at overburden-bedrock interface.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-SB-8 (9"-12")	9"-12"	8/10/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate potential presence of PCBs in soil downgradient of former transformer house.	PCBs
MGP-SB-8 (1-2)	1-2	8/10/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate potential presence of PCBs in soil downgradient of former transformer house.	PCBs
MGP-SB 8 (10-12)	10-12	8/13/2009	Split spoon	Evaluate soil quality at overburden-bedrock interface.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-SB-9 (8-10)	8-10	8/15/2009	Split spoon	Characterize soil with sheen and elevated PID readings.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-SB-9 (11-12.5)	11-12.5	8/15/2009	Split spoon	Characterize soil with OLM and elevated PID readings.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW-101S (2.0-2.5)	2-2.5	8/18/2009	Split spoon	Evaluate soil quality at overburden bedrock interface.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW103S (11-12.5)	11-12.5	8/26/2009	Split spoon	Evaluate soil quality at overburden bedrock interface.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW104S (9-11)	9-11	8/25/2009	Split spoon	Characterize soil with sheen and MGPO.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW105S (2"-4")	2"-4"	8/13/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate potential presence of PCBs near former transformer storage area.	PCBs
MGP-MW105S (1.5-2)	1.5-2	8/13/2009	Stainless steel trowel/ hand auger/posthole digger	Evaluate potential presence of PCBs near former transformer storage area.	PCBs
MGP-MW105S (5-6.5)	5-6.5	9/4/2009	Split spoon	Evaluate soil quality at the overburden-bedrock interface downgradient of the former MGP building that housed the purifiers and retorts and other former MGP structues.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW-108S (12-14)	12-14	9/28/2009	Split spoon	Characterize soil with sheen and elevated PID readings.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW-108S (14-15)	14-15	9/28/2009	Split spoon	Vertically delineate observed impacts and evaluate soil quality at overburden-bedrock interface.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW10D (12-13.7)	12-13.7	9/3/2009	Split spoon	Evaluate soil quality at overburden-bedrock interface.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)

Table 3-3
Summary of Subsurface Soil Samples
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Sample ID	Depth Interval (ft bgs)	Date Collected	Sample Collection Method	Sample Rationale	Laboratory Analysis
MGP-MW4DD (5-7)	5-7	8/19/2009	Split spoon	Evaluate soil with elevated PID readings and hydrocarbon like odors.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW4DD (7-8)	7-8	8/19/2009	Split spoon	Evaluate soil with elevated PID readings and hydrocarbon like odors.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW9DD ('5-7)	5-7	8/19/2009	Split spoon	Evaluate soil at groundwater interface.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW9DD (11.4-12.5)	11.4-12.5	8/12/2009	Split spoon	Characterize soil with OLM and MGPO.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
MGP-MW9DD (14-15)	14-15	8/19/2009	Split spoon	Evaluate vertical extent of shallower visible impacts.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
TP-3 (11-13)	11-13	8/26/2009	Split spoon	Characterize soil with sheen and MGPO	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
TP-3boring (5-6)	5-6	9/29/2009	Stainless steel trowel/ hand auger/posthole digger	Characterize soil with elevated PID readings. Presence of possible drain-like or cistern structure was seen at 3' bgs.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
TP-3boring (6-6.5)	6-6.5	9/29/2009	Stainless steel trowel/ hand auger/posthole digger	Characterize soil with OLM, sheen, and MGPO.	VOCs + 10 TICs, SVOCs + 20 TICs, TAL Metals, Cn (total)
Remedial Investigation Samples					
MGP-MW-109D (4-5)	4-4.5	3/10/2012	Split spoon	Evaluate soil quality at presumed overburden-bedrock interface.	VOCs, SVOCs
MGP-MW-110D (1.5-2.2)	1.5-2.2	1/4/2012	Split spoon	Evaluate soil quality at overburden-bedrock interface.	VOCs, SVOCs
MGP-MW- 112D (7-8.5)	7-8.5	1/12/2012	Split spoon	Evaluate soil quality at groundwater interface.	VOCs, SVOCs
MGP-MW-112D (15-16.5)	15-16.5	1/12/2012	Split spoon	Evaluate soil quality at overburden-bedrock interface.	VOCs, SVOCs
MGP-MW-113D (7- 8.5)	7-8.5	1/6/2012	Split spoon	Evaluate soil quality at groundwater interface.	VOCs, SVOCs
MGP-MW- 113D (11-13)	11-13	1/6/2012	Split spoon	Evaluate soil quality at overburden-bedrock interface.	VOCs, SVOCs
MGP-MW-114D (11-14)	11-14	2/24/2012	Split spoon	Evaluate soil quality at overburden-bedrock interface.	VOCs, SVOCs
MGP-MW-116D (10-12)	10-12	1/10/2012	Split spoon	Evaluate soil quality at groundwater interface.	VOCs, SVOCs
MGP-MW-116D (12-12.5)	12-12.5	1/10/2012	Split spoon	Evaluate soil quality at overburden-bedrock interface.	VOCs, SVOCs
MGP-SB-10 (6-7)	6-7*	2/25/2012	Geoprobe	Evaluate soil quality under crawl space	VOCs, SVOCs
MGP-SB-10 (15-16)	15-16*	2/25/2012	Geoprobe	Characterize soil with TLM and MGPO.	VOCs, SVOCs
MGP-SB-10 (19-20.4)	19-20.4*	2/25/2012	Geoprobe	Evaluate soil quality at bedrock interface	VOCs, SVOCs

Notes:
ft bgs = feet below ground surface
TLM - Tar Like Material
OLM - Oil Like Material
NAPL - Non-Aqueous Phase Liquid
MGPO - Manufactured Gas Plant-Like Odor
PLO -Petroleum-Like Odor
TCL - Target Compound List
VOCs + 10 TICs - TCL volatile organic compounds plus 10 tentatively identified compounds using EPA Method 8260B
SVOCs 20 TICs - TCL semivolatile organic compounds plus 20 tentatively identified compounds using EPA Method 8270C
Cn - Cyanide, total using EPA Method 9012 A
TAL Metals - Target Analyte List Metals using EPA Methods 6010 and 7471.
*Sample interval for these samples is relative to feet below the building floor which is 5.5 feet above ground surface. Therefore depth below ground surface is shallower than the interval indicated by 5.5 feet.

Table 3-4
Summary of Fingerprint Soil Sample and DNAPL Physical Property Sample
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Sample ID	Depth Interval (ft bgs)	Date Collected	Sample Collection Method	Sample Rationale	Laboratory Analysis
MGP-SG5 (1-2)	1-2	7/28/2009	Stainless steel trowel/ hand auger/posthole digger	Characterize source of Petroleum odor in slag/cinders.	Fingerprint*
MGP-MW-108D	22-24	12/7/2012	Bailer	Characterize physical properties of DNAPL	Interfacial and surface tension Viscosity Density Specific Gravity

Notes:
ft bgs = feet below ground surface
*- fingerprint analysis performed by CHEMTECH
Interfacial and surface tension by the DuNuoy Method ASTM D971
Viscosity by ASTM D445
Density by ASTMD1381
Specific Gravity by API RP40

Table 3-5
Summary of Bedrock Packer Test Groundwater Grab Samples
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Bedrock ID	Packer Depth (feet bgs)	Date collected	Groundwater Sampling Rationale	Laboratory Analysis
Site Characterization Samples				
MGP-MW-0DD (17-20)	17-20	10/1/2009	Evaluate the horizontal extent of impacts observed in both MW-4DD and MW-9DD, and, to provide bedrock data at a third site location to help triangulate data.	VOC + 10 tics
MGP-MW-0DD (37-40)	37-40	10/2/2009		
MGP-MW-0DD (57.5-60)	57.5-60	10/5/2009		
MGP-MW-0DD (60-65)	60-65	10/5/2009		
MGP-MW-0DD (76-80)	76-80	10/6/2009		
MGP-MW-4DD (35-41.5)	35-41.5	8/18/2009	Evaluate bedrock groundwater quality at natural fracture zones to determine the vertical extent of bedrock groundwater impacts noted in MW-4D during previous investigations and to determine the total depth of the well.	VOC + 10 tics
MGP-MW-4DD (45-51.6)	45-51.6	8/19/2009		
MGP-MW-4DD (55-60.5)	55-60.5	8/19/2009		
MGP-MW-4DD (60-65.6)	60-65.6	8/20/2009		
MGP-MW-4DD (70-75.5)	70-75.5	8/21/2009		
MGP-MW-4DD (75.5-80.0)	75.5-80.0	8/21/2009		
MGP-MW-4DD (80-85.2)	80-85.2	8/24/2009		
MGP-MW4DD (87-100.4)	87-100.4	8/25/2009		
MGP-MW-4DD (100-105.5)	100-105.5	9/17/2009	Evaluate bedrock groundwater quality at natural fracture zones to determine the vertical extent of bedrock groundwater impacts noted in MW-4DD during previous sampling activities and to determine the total depth of the well.	VOC + 10 tics
MGP-MW-4DD (102-110.5)	102-110.5	9/18/2009		
MGP-MW-4DD (117-125.5)	117-125.5	9/21/2009		
MGP-MW9DD (23-30.5)	23-30.5	8/27/2009	Evaluate bedrock groundwater quality at natural fracture zones to determine the vertical extent of bedrock groundwater impacts noted in MW-9D during previous investigations and to determine the total depth of the well.	VOC + 10 tics
MGP-MW-9DD (41- 46.6)	41-46.6	8/27/2009		
MGP-MW-9DD (52-55.4)	52-55.4	8/31/2009		
MGP-MW- 9DD (60-65.5)	60-65.5	9/1/2009		
MGP-MW 9DD (73-80.5)	73-80.5	9/1/2009		
MGP-MW-9DD (87-97)	87-97.0	9/2/2009		
MGP-MW-9DD (100-105)	100-105	9/23/2009	Evaluate bedrock groundwater quality at natural fracture zones to determine the vertical extent of bedrock groundwater impacts noted in MW-9DD during previous sampling activities and to determine the total depth of the well.	VOC + 10 tics
MGP-MW101D (17-22)	17-22	2/4/2010	Characterize bedrock groundwater quality at natural fracture zones upgradient of the former 3 MCF holder.	VOC + 10 tics
MGP-MW101D (35-40)	35-40	2/4/2010		
MGP-MW101D (46-51)	46-51	2/4/2010		
MGP-MW101D (103-108)	103-108	2/5/2010		
MGP-MW101D (108-113)	108-113	2/5/2010		
MGP-MW101D (132-137)	132-137	2/5/2010		
MGP-MW-102D (10-15)	10-15	2/8/2010	Evaluate bedrock groundwater quality to the east and side-gradient of MW-11D (screened 15-25 ft bgs) where bedrock groundwater contained concentration of BTEX exceeding the AWQSGVs and to evaluate bedrock groundwater quality at natural fracture zones east of the former MGP tar wells.	VOC + 10 tics
MGP-MW-102D (26-31)	26-31	2/8/2010		
MGP-MW-102D (37-42)	37-42	2/8/2010		
MGP-MW-102D (44-49)	44-49	2/8/2010		
MGP-MW-102D (47-52)	47-52	2/8/2010		
MGP-MW-102D (76-81)	76-81	2/8/2010		
MGP-MW-102D (81-86)	81-86	2/8/2010		
MGP-MW-102D (111-116)	111-116	2/8/2010		
MGP-MW-102D (116-121)	116-121	2/8/2010		
MGP-MW-102D (132-137)	132-137	2/8/2010		
MGP-MW-103D (24-29)	24-29	2/9/2010	Characterize bedrock groundwater quality at natural fracture zones to evaluate the north-northeastern extent of bedrock groundwater impacts.	VOC + 10 tics
MGP-MW-103D (30-35)	30-35	2/9/2010		
MGP-MW-103D (33-38)	33-38	2/9/2010		
MGP-MW-103D (38-43)	38-43	2/9/2010		
MGP-MW-103D (45-50)	45-50	2/9/2010		
MGP-MW-103D (51-56)	51-56	2/12/2010		
MGP-MW-103D (55-60)	55-60	2/12/2010		
MGP-MW-103D (63-68)	63-68	2/12/2010		
MGP-MW-103D (70-75)	70-75	2/12/2010		
MGP-MW-103D (82-87)	82-87	2/9/2010		
MGP-MW-103D (88-93)	88-93	2/9/2010		
MGP-MW-103D (94-99)	94-99	2/9/2010		
MGP-MW-103D (107-112)	107-112	2/9/2010		
MGP-MW-104D (23-28)	23-28	2/17/2010	Characterize bedrock groundwater quality at natural fracture zones to evaluate the northwestern extent of bedrock groundwater impacts.	VOC + 10 tics
MGP-MW-104D (33-38)	33-38	2/17/2010		
MGP-MW-104D (66-71)	66-71	2/17/2010		
MGP-MW-104D (71-76)	71-76	2/17/2010		
MGP-MW-104D (91-96)	91-96	2/17/2010		
MGP-MW-104D (102-107)	102-107	2/17/2010		
MGP-MW-105D (21-26)	21-26	2/15/2010	Charecterize groundwater quality at natural fracture zones to evaluate the southeastern extent of bedrock groundwater impacts.	VOC + 10 tics
MGP-MW-105D (26-31)	26-31	2/15/2010		
MGP-MW-105D (32-37)	32-37	2/15/2010		
MGP-MW-105D (51-56)	51-56	2/15/2010		
MGP-MW-105D (68-73)	68-73	2/15/2010		
MGP-MW-105D (80-85)	80-85	2/16/2010		
MGP-MW-105D (99-104)	99-104	2/16/2010		
MGP-MW-105D (114-119)	114-119	2/16/2010		
MGP-MW-105D (120-125)	120-125	2/16/2010		

Table 3-5
Summary of Bedrock Packer Test Groundwater Grab Samples
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Bedrock ID	Packer Depth (feet bgs)	Date collected	Groundwater Sampling Rationale	Laboratory Analysis
Site Characterization Samples				
MGP-MW-106D (8-13)	8-13	12/15/2009	Characterize groundwater quality to evaluate the southwestern extent of bedrock groundwater impacts at natural fracture zones.	VOC + 10 tics
MGP-MW-106D (20-25)	20-25	12/15/2009		
MGP-MW-106D (25-30)	25-30	12/15/2009		
MGP-MW-106D (43.5-48.5)	43.5-48.5	12/15/2009		
MGP-MW-106D (51-56)	51-56	12/16/2009		
MGP-MW-106D (63-68)	63-68	12/16/2009		
MGP-MW-106D (88-93)	88-93	12/16/2009		
MGP-MW-106D (104-109)	104-109	12/16/2009		
MGP-MW-106D (136-141)	136-141	12/16/2009		
MGP-MW-106D (143-148)	143-148	12/16/2009		
Remedial Investigation Samples				
MGP-MW-109D (30-35)	30-35	4/14/2012	Evaluate the northwestern extent of bedrock NAPL and groundwater impacts noted in MW-9D/DD and MGP-MW-108D.	VOCs
MGP-MW-109D (35-40)	35-40	4/14/2012		
MGP-MW-109D (43-48)	43-48	4/14/2012		
MGP-MW-109D (54-59)	54-59	4/14/2012		
MGP-MW-109D (66-71)	66-71	4/14/2012		
MGP-MW-109D (74-79)	74-79	4/15/2012		
MGP-MW-109D (89.5-94.5)	89.5-94.5	4/15/2012		
MGP-MW-109D (107.5-112.5)	107.5-112.5	4/15/2012		
MGP-MW-109D (149-154)	149-154	4/15/2012		
MGP-MW-109D (163.5- 168.5)	163.5-168.5	4/15/2012		
MGP-MW-109D (168.5-173.5)	168.5-173.5	4/15/2012		
MGP-MW-109D (184-189)	184-189	4/15/2012		
MGP-MW-109D (189-194)	189-194	4/15/2012		
MGP-MW-110D (15-20)	15-20	2/21/2012	Evaluate the northern extent of bedrock NAPL and groundwater impacts noted in MGP-MW-108D and MGP-MW-104D.	VOCs
MGP-MW-110D (23-28)	23-28	2/21/2012		
MGP-MW-110D (28-33)	28-33	2/21/2012		
MGP-MW-110D (33-39)	33-38	2/21/2012		
MGP-MW-110D (39-44)	39-44	2/21/2012		
MGP-MW-110D (48-53)	48-53	2/22/2012		
MGP-MW-110D (54-59)	54-59	2/22/2012		
MGP-MW-110D (73-78)	73-78	2/22/2012		
MGP-MW-110D (81-86)	81-86	2/22/2012		
MGP-MW-110D (94-99)	94-99	2/22/2012		
MGP-MW-110D (103-108)	103-108	2/22/2012		
MGP-MW-110D (108.5-113.5)	108.5-113.5	2/22/2012		
MGP-MW-110D (114-119)	114-119	2/23/2012		
MGP-MW-110D (121-126)	121-126	2/23/2012		
MGP-MW-110D (145-150)	145-150	2/23/2012		
MGP-MW-110D (165-170)	165-170	2/23/2012		
MGP-MW-110D (170-175)	170-175	2/23/2012		
MGP-MW-112D (7-8.5)	7-8.5	3/12/2012	Evaluate the south-southeastern extent of bedrock NAPL and/or groundwater impacts noted in MGP-MW-105D and MW-6D.	VOCs
MGP-MW-112D (15-16.5)	15-16.5	3/12/2012		
MGP-MW-112D (20-25)	20-25	3/12/2012		
MGP-MW-112D (23-28)	23-28	3/12/2012		
MGP-MW-112D (28-33)	28-33	3/12/2012		
MGP-MW-112D (33-38)	33-38	3/12/2012		
MGP-MW-112D (44-49)	44-46	3/12/2012		
MGP-MW-112D (50-55)	50-55	3/12/2012		
MGP-MW-112D (57-62)	57-62	3/12/2012		
MGP-MW-112D (65-70)	65-70	3/12/2012		
MGP-MW-112D (105-110)	105-110	3/13/2012		
MGP-MW-112D (186-191)	186-191	3/13/2012		
MGP-MW-112D (191-196)	191-196	3/13/2012		
MGP-MW-113D (17-22)	17-22	2/14/2012		
MGP-MW-113D (22-27)	22-27	2/14/2012	Evaluate the western extent of bedrock NAPL and/or groundwater impacts noted in MGP-MW-0DD and MW-13D.	VOCs
MGP-MW-113D (28-33)	28-33	2/14/2012		
MGP-MW-113D (35-40)	35-40	2/14/2012		
MGP-MW-113D (41-46)	41-46	2/14/2012		
MGP-MW-113D (45-50)	45-50	2/14/2012		
MGP-MW-113D (51-56)	51-56	2/14/2012		
MGP-MW-113D (71-76)	71-76	2/14/2012		
MGP-MW-113D (103-108)	103-108	2/14/2012		
MGP-MW-113D (124.5-128.5)	124.5-128.5	2/15/2012		
MGP-MW-113D (129.5-134.5)	129.5-134.5	2/15/2012		
MGP-MW-113D (135-140)	135-140	2/15/2012		
MGP-MW-113D (140-145)	140-145	2/15/2012		
MGP-MW-113D (158-163)	158-163	2/15/2012		
MGP-MW-113D (174-179)	174-179	2/15/2012		
MGP-MW-113D (180-185)	180-185	2/15/2012		

Table 3-5
Summary of Bedrock Packer Test Groundwater Grab Samples
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Bedrock ID	Packer Depth (feet bgs)	Date collected	Groundwater Sampling Rationale	Laboratory Analysis
Remedial Investigation Samples				
MGP-MW-114D (24-29)	24-29	3/7/2012	Evaluate the eastern extent of bedrock groundwater impacts noted in MGP-MW-102D.	VOCs
MGP-MW-114D (40-45)	40-45	3/7/2012		
MGP-MW-114D (48-53)	48-53	3/7/2012		
MGP-MW-114D (67-72)	67-72	3/7/2012		
MGP-MW-114D (72-77)	72-77	3/7/2012		
MGP-MW-114D (79-84)	79-84	3/7/2012		
MGP-MW-114D (91-96)	91-96	3/7/2012		
MGP-MW-114D (103-108)	103-108	3/7/2012		
MGP-MW-114D (136-141)	136-141	3/8/2012		
MGP-MW-114D (141-146)	141-146	3/8/2012		
MGP-MW-114D (147.5-152.5)	147.5-152.5	3/8/2012		
MGP-MW-114D (153-158)	153-158	3/8/2012		
MGP-MW-114D (163-168)	163-168	3/8/2012		
MGP-MW-114D (168-173)	168-173	3/8/2012		
MGP-MW-114D (179-184)	179-184	3/8/2012		
MGP-MW-116D (24-29)	24-29	2/16/2012		
MGP-MW-116D (30-35)	30-35	2/16/2012	Evaluate the western extent of bedrock NAPL and/or groundwater impacts noted in MGP-MW-9DD and MGP-MW-108D and MGP-MW-104D.	VOCs
MGP-MW-116D (37-42)	37-42	2/16/2012		
MGP-MW-116D (44-49)	44-49	2/16/2012		
MGP-MW-116D (48.5-53.5)	48.5-53.5	2/16/2012		
MGP-MW-116D (53.5-58.5)	53.5-58.5	2/17/2012		
MGP-MW-116D (68-73)	68-73	2/17/2012		
MGP-MW-116D (73-78)	73-78	2/17/2012		
MGP-MW-116D (81-86)	81-86	2/17/2012		
MGP-MW-116D (94-99)	94-99	2/17/2012		
MGP-MW-116D (99.5-104.5)	99.5-104.5	2/17/2012		
MGP-MW-116D (128-133)	128-133	2/17/2012		
MGP-MW-116D (141-146)	141-146	2/17/2012		
MGP-MW-116D (167-172)	167-172	2/20/2012		
MGP-MW-116D (172-177)	172-177	2/20/2012		
MGP-MW-116D (176-181)	176-181	2/20/2012		
MGP-MW-116D (180-185)	180-185	2/20/2012		

Table 3-6
Summary of Groundwater Samples
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Monitoring Well ID	Screen Depth	Date Installed	Groundwater Sampling Rationale	Groundwater Sampling	
				Method (date)	Laboratory Analysis
Site Characterazation Samples					
MW-1	?-6	8/96	Evaluate overburden groundwater quality in the former UST area	Low flow (3/9/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-2	?-5.25	8/96	Evaluate overburden groundwater quality in the former UST area	Low flow (3/10/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-3	5-10	11/04	Evaluate overburden groundwater quality in the former UST area	Low flow (3/9/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-4	3-7.3	11/04	Evaluate overburden groundwater quality in the former 100,000 cf holder area	Low flow (3/9/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-4D	5.5-20	8/06	Evaluate shallow bedrock groundwater quality in the former 100,000 cf holder area	Low flow (3/9/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-5	5-11	8/06	Evaluate overburden groundwater quality east of the MGP process area	Low flow (3/9/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-5D	42-57	3/07	Evaluate shallow bedrock groundwater quality east of the MGP process area	Low flow (3/9/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-6	6.5-11.5	8/06	Evaluate overburden groundwater quality of former coal pile and MGP process area	Low flow (3/9/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-6D	25-45	3/07	Evaluate shallow bedrock groundwater quality of former coal pile and MGP process area	Low flow (3/9/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-7	4.5-14.5	8/06	Evaluate overburden groundwater quality south of former MGP process area	Low flow (3/10/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-9	8-13	8/06	Evaluate overburden groundwater quality west of former MGP process area	Low flow (3/10/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-9D	35-45	3/07	Evaluate shallow bedrock groundwater quality west of former MGP process area	Low flow (3/10/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-10	7-12	8/06	Evaluate overburden groundwater quality north of former MGP process area	Low flow (3/8/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-11D	15-25	3/07	Evaluate shallow bedrock groundwater quality east of former hydraulic lift area	Low flow (3/9/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-12	4.5-12.5	12/08	Evaluate overburden groundwater quality south of former UST and MGP process area	Low flow (3/11/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-12D	41-49	3/8/10	Evaluate shallow bedrock groundwater quality south of former UST and MGP process area	Not Sampled due to NAPL at BOH	VOCs, SVOCs, TAL Metals, Cn total
MW-13D	43-53	12/08	Evaluate shallow bedrock groundwater quality west of former UST and MGP process area	Low flow (3/10/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-103S	5-10	8/09	Evaluate groundwater quality and groundwater impacts in the overburden to the east and side gradient of MW-10 (screened 7-12 ft bgs) when overburden groundwater contained benzene at a concentration exceeding AWQSGVs.	Low flow (3/8/2010)	VOCs, SVOCs, TAL Metals, Cn total

Table 3-6
Summary of Groundwater Samples
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Monitoring Well ID	Screen Depth	Date Installed	Groundwater Sampling Rationale	Groundwater Sampling	
				Method (date)	Laboratory Analysis
MW-104S	2-12	8/09	Evaluate groundwater quality and benzene impacts in overburden down gradient and north of MW-10 (screened 7-12 ft bgs) and northeast of MW-9S (screened 8-13 ft bgs) where BTEX and some PAHs were detected at concentrations exceeding AWQSGVs in overburden groundwater.	Low flow (3/10/2010)	VOCs, SVOCs, TAL Metals, Cn total
MW-108S	2-13	9/09	Evaluate groundwater quality in overburden northeast of MW-9S (screened 8-13 ft bgs) where BTEX and some PAHs were detected at concentrations exceeding AWQSGVs in overburden groundwater.	Low flow (3/10/2010)	VOCs, SVOCs, TAL Metals, Cn total
Remedial Investigation Samples					
MW-113S	5-9	2/13/12	Evaluate the western extent of groundwater impacts detected in MW-9 and MGP-MW-108S.	Low Flow (3/16/12)	VOCs, SVOCs, TAL Metals, Cn total

Notes:
All groundwater samples collected using low-flow sampling protocols
bgs - below ground surface
S - overburden wells
D - shallow bedrock wells
VOCs - TCL volatile organic compounds using USEPA Method 8260B
SVOCs - TCL semivolatile organic compounds using USEPA Method 8270C
Cn - Cyanide, total USEPA Method 9012A .
TAL Metals - Target Analyte List Metals using USEPA Methods 6010 and 7471.
NAPL - Non-aqueous phase liquid
BOH - Bottom of hole
Cf - Cubic feet

Table 3-7
Summary of Soil Gas/ Indoor Air Samples
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Sample ID	Depth Interval (ft bgs)	Date Collected	Sample Rationale	Laboratory Analysis
Site Characterization Samples				
MGP-SG-1	2.9-3.6	8/2/2009	At the northeastern corner of the garage to evaluate soil gas quality.	VOCs, Helium
MGP-SG-2	4.5-5.2	8/2/2009	In the locker room of the 1-story brick storage building in the southern portion of the site to evaluate soil gas quality.	VOCs, Helium
MGP-SG-3	Crawlspace	8/2/2009	At the northwestern corner of the storage building in the crawlspace along the western boundary of the site to evaluate soil gas quality.	VOCs, Helium
MGP-SG-4	3.7-4.4	8/2/2009	Along the eastern property boundary of the site to evaluate soil gas quality between the site and nearby residences.	VOCs, Helium
MGP-SG-5	0.5-1.2	8/2/2009	Near the sewer line in the pipe bedding on the northern portion of the property to evaluate the soil gas quality in the vicinity of the sewer which may be a potential migration pathway.	VOCs, Helium
MGP-SG-6	1.9-2.6	8/2/2009	Near the sewer line in the pipe bedding on the northern portion of the property to evaluate the soil gas quality in the vicinity of the sewer which may be a potential migration pathway.	VOCs, Helium
MGP-SG-7	1.2-1.8	8/2/2009	To the north of former Storage Holder no. 2 to evaluate soil gas quality between the site and residences.	VOCs, Helium
AMB-1 (indoor air)	Breathing Zone	8/2/2009	Inside the 1-story brick storage building in the southern portion of the site to evaluate ambient indoor air quality. (Duplicate sample collected here)	VOCs, Helium
AMB-2 (indoor air)	Breathing Zone	8/2/2009	Inside the storage building along the western boundary of the site to evaluate ambient indoor air quality.	VOCs, Helium
Remedial Investigation Samples				
MGP-SG-8	2-2.4	2/25/2012	North-northeast of MGP-SG-7 to Evaluate the extent of the elevated concentration of 1,1,1 trichloroethane detected during the site characterization and to evaluate the potential for offsite soIl vapor impacts in this area.	VOCs, Helium
AMB-1 (outdoor air)	Breathing Zone	2/25/2012	Adjacent to MGP-SG-8 B2to evaluate outside ambient air quality	VOCs, Helium

Notes:
ft bgs = feet below ground surface

VOCs - volatile organic compounds and naphthalene, 2-methylpentane, isopentane, 2,3 dimethylpentane, isooctane, indene, indan, thiophane, and helium using USEPA Method TO-15.

Table 3-8
Summary of Investigation Derived Waste Manifests
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Date	Manifest No.	No. of Drums	Liquid (1299)	C+D (1293)	Soil (1297)	Rolloff
8/18/2009	CEI308000014894	24	6	9	9	0
8/24/2009	CEI308000015633	31	28	3	0	0
8/28/2009	CEI308000016053	10	0	0	0	0
9/1/2009	CEI308000016292	24	15	9	0	0
9/15/2009	CEI308000017491	38	26	6	62	0
9/21/2009	CEI308000017996	23	21	2	0	0
10/12/2009	CEI308000019232	46	30	11	5	0
11/17/2009	CEI308000021217	61	49	8	4	0
12/8/2009	CEI308000022051	48	41	7	0	0
1/19/2010	CEI308000024453	56	32	11	133	0
3/12/2010	CEI308000027510	63	38	194	6	0
1/25/2012	214924	40	28	6	6	0
1/27/2012	214998	20	9	6	5	0
2/3/2012	215106	22	15	4	3	0
2/22/2012 (1)	109630	27	12	8	7	0
3/7/2012	109682	32	13	5	14	0
3/21/2012	109794	24	11	11	2	0
3/27/2012	210125	33	26	3	4	0
3/30/2012	210169	20	6	9	5	0
4/9/2012	210186	15	14	1	0	0
4/13/2012	109819	20	0	0	20	0
4/16/2012	109818	15	1	3	11	0
4/24/2012	195546	N/A	N/A	N/A	N/A	C+D

Notes:

C+D - Construction Debris
The numbers in parentheses next to the waste type correspond to the codes used in section 11 and J on the manifests.
1 - Manifest belongs to 20 cubic yard (cy) rolloff of soil. Manifests included in Appendix M.
2 - AECOM's notes indicated 8 soil drums removed while Clean Earth indicated 6 soil drums.
3 - AECOM's notes indicated 14 soil drums removed while Clean Earth indicated 13 soil drums.
4 - AECOM's notes indicated 20 Construction Debris drums removed while Clean Earth indicated 19 soil drums.
5 - Two 20 cy containers of construction debris from testpits were removed by Paragon. The manifests are not included.
6 - Soil and C + D drums were switched on the maifest.

Table 4-2
Summary of Overburden Hydraulic Conductivity
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Well	Test #	Generalized Soil Type in Screened Interval	Screened Interval (ft bgs)	Test Method	Solution Method	Estimated Hydraulic Conductivity (ft/sec)	(ft/day)	Observations
MW-4	F1	Sand with some silt; refusal on bedrock at 10' bgs	3 - 8	Slug - Falling Head	Bouwer and Rice	3.45E-05	2.98	No change in coupled bedrock well (MW-4D)
	R1			Slug - Rising Head	Bouwer and Rice	3.01E-05	2.60	
	F2			Slug - Falling Head	Bouwer and Rice	4.38E-05	3.79	
	R2			Slug - Rising Head	Bouwer and Rice	5.00E-06	0.43	
	Average:					*3.62E-05*	*3.12*	
	Geometric Mean:					*2.18E-05*	*1.89*	
MW-5	F1	Clayey silt and poorly graded sand with trace silt and gravel; refusal on bedrock at 11' bgs	5 - 11	Slug - Falling Head	Bouwer and Rice	3.04E-05	2.63	No change in coupled bedrock well (MW-5D)
	R1			Slug - Rising Head	Bouwer and Rice	2.71E-05	2.34	
	F2			Slug - Falling Head	Bouwer and Rice	4.18E-05	3.61	
	R2			Slug - Rising Head	Bouwer and Rice	2.74E-05	2.37	
	Average:					*3.17E-05*	*2.74*	
	Geometric Mean:					*3.12E-05*	*2.69*	
MW-6	F1	Sandy silt with little clay and trace gravel	6.5 - 11.5	Slug - Falling Head	Bouwer and Rice	7.81E-05	6.74	No change in coupled bedrock well (MW-6D)
	R1			Slug - Rising Head	Bouwer and Rice	2.82E-05	2.44	
	F2			Slug - Falling Head	Bouwer and Rice	9.34E-05	8.07	
	R2			Slug - Rising Head	Bouwer and Rice	3.31E-06	0.29	
	Average:					*5.07E-05*	*4.38*	
	Geometric Mean:					*2.87E-05*	*2.48*	
MW-9	F1	Poorly graded medium to fine sandy silt with little to some gravel below 10' bgs	8 - 13	Slug - Falling Head	Bouwer and Rice	8.37E-05	7.23	No change in coupled bedrock well (MW-9D)
	R1			Slug - Rising Head	Bouwer and Rice	1.75E-05	1.51	
	F2			Slug - Falling Head	Bouwer and Rice	1.84E-05	1.59	
	R2			Slug - Rising Head	Bouwer and Rice	2.49E-05	2.15	
	Average:					*3.61E-05*	*3.12*	
	Geometric Mean:					*2.86E-05*	*2.47*	

Table 4-1
Monitoring Well Construction Details and March 2010 and April 2012 Groundwater Elevations
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Well ID	Total Depth of PVC Well	Ground Surface Elevation (ft)	Top of Casing Elevation (ft)	Screened Interval (ft)	Well Type	March 8, 2010		April 13, 2012	
						Depth to Groundwater (ft)	Groundwater Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)
MW-1	6.00	64.31	63.72	?-6	OVB	4.97	59.34	5.61	58.11
MW-2	5.28	63.88	63.55	?-5.25	OVB	2.69	61.19	dry	dry
MW-3	10.00	64.9	64.64	5-10	OVB	4.35	60.55	6.5	58.14
MW-4	8.00	64.83	64.58	3-7.3	OVB	3.02	61.81	5.64	58.94
MW-4D	30.2	64.71	64.33	21-30	BDRK	6.82	57.89	9.13	55.2
MW-5	11.2	68.4	68.35	5-11	OVB	6.9	61.5	9.92	58.43
MW-5D	57	68.39	68.03	42-57	BDRK	11.37	57.02	14.29	53.74
MW-6	11.7	67.57	67.37	6.5-11.5	OVB	4.93	62.64	8.5	58.87
MW-6D	45	67.64	67.2	25-45	BDRK	5.44	62.2	8.81	58.39
MW-7	14.7	66.75	66.47	4.5-14.5	OVB	5.11	61.64	8.44	58.03
MW-9	13	61.67	61.39	8-13	OVB	4.82	56.85	6.32	55.07
MW-9D	45	61.63	61.24	35-45	BDRK	4.28	57.35	6.05	55.19
MW-10	12	64.19	64.00	7-12	OVB	7.19	57	5.88	58.12
MW-11D	25.2	64.34	64.02	15-25	BDRK	4.33	60.01	7.59	56.43
MW-12	12.5	67.34	67.01	4.5-12.5	OVB	5.2	62.14	8.25	58.76
MW-12D*	51	67.19	66.64	41-49	BDRK	9.21	57.98	10.78	55.86
MW-13D	55.5	67.7	67.46	43-53	BDRK	10.07	57.63	11.98	55.48
MW-103S [1]	12	59.55	58.95	5-10	OVB	2.21	57.34	5.24	53.71
MW-104S [1]	13	59.66	59.26	2-12	OVB	3.12	56.54	5.46	53.8
MW-108S [1]	15	61.02	60.3	2-13	OVB	4.75	56.27	5.41	54.89
MW-113S	13	58.47	58.02	5-9	OVB	NI	NI	4.42	53.6

*Was not sampled due to presence of NAPL - approximately 0.6' of NAPL in base of well on March 8, 2010 and approximately 0.02' of LNAPL on April 13, 2012
[1] PVC <0.5 feet above top of berock due to slough
Not Installed
OVB = oveburden monitoring well
BDRK = bedrock monitoring well

Table 5-1
Surface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	SS-01 8/10/2009 SS-1(0-0.2)081009 0-0.2	SS-02 8/10/2009 SS-2(0-0.2)081009 0-0.2	SS-03 8/10/2009 SS-3(0-0.2)081009 0-0.2	SS-04 8/10/2009 SS-4(0-0.2)081009 0-0.2	SS-04 DUP 8/11/2009 SS-DUP(0-0.2)081109 0-0.2	SS-05 8/10/2009 SS-5(0-0.2)081009 0-0.2
BTEX (mg/Kg)		ND	ND	ND	ND	ND	ND
VOC (mg/Kg)		ND	ND	ND	ND	ND	ND
PAH (mg/Kg)							
Acenaphthylene	100	2.1 U	8 U	**0.98 J**	**0.96 J**	**0.99 J**	**0.25 J**
Anthracene	100	2.1 U	8 U	**0.49 J**	**0.29 J**	**0.25 J**	**0.11 J**
Benzo(a)anthracene	1	**0.27 J**	**1.6 J**	**1.4 J**	**2 J**	**1.7 J**	**0.72**
Benzo(a)pyrene	1	**0.29 J**	**1.6 J**	**1.5 J**	**1.4 J**	**1.3 J**	**0.55**
Benzo(b)fluoranthene	1	**0.45 J**	**2.4 J**	**2.3**	**3.1**	**2.7**	**1**
Benzo(ghi)perylene	100	**0.29 J**	**1.4 J**	**1.4 J**	**2.1**	**1.8 J**	**0.64**
Benzo(k)fluoranthene	0.8	***2.1 U***	***8 U***	**0.75 J**	**0.9 J**	**0.78 J**	**0.28 J**
Chrysene	1	**0.35 J**	**1.7 J**	**2.1 J**	**2.4**	**2.2**	**0.81**
Dibenz(a,h)anthracene	0.33	***2.1 U***	***8 U***	**0.28 J**	**0.37 J**	**0.35 J**	**0.13 J**
Fluoranthene	100	**0.51 J**	**2.3 J**	**2.9**	**3**	**2.4**	**0.98**
Indeno(1,2,3-cd)pyrene	0.5	***2.1 U***	**1.1 J**	**1.1 J**	**1.5 J**	**1.4 J**	**0.49**
Phenanthrene	100	2.1 U	8 U	**1.5 J**	**0.87 J**	**0.76 J**	**0.4**
Pyrene	100	**0.49 J**	**2.3 J**	**3.5**	**3.7 J**	**3.2**	**1.2**
Total PAH	NL	**2.65**	**14.4**	**20.2**	**22.59**	**19.83**	**7.56**
BAP Equivalents	NL	**0.36235**	**2.1117**	**2.2696**	**2.4414**	**2.24**	**0.90461**
SVOC (mg/Kg)							
Benzaldehyde	NL	2.1 U	8 U	2.1 U	**1 J**	2.1 U	0.4 U
bis(2-Ethylhexyl) phthalate	NL	2.1 U	**1.1 J**	**0.55 J**	2 U	**0.22 J**	**0.054 J**
Carbazole	NL	2.1 U	8 U	2.1 U	2 U	2.1 U	**0.045 J**
Total SVOC	NL	**2.65**	**15.5**	**20.75**	**23.59**	**20.05**	**7.659**
Metals (mg/Kg)							
Aluminum	NL	**9040**	**5570**	**10200**	**12400**	**12500**	**9810**
Antimony	NL	**0.69 J**	**1.050 J**	**0.96 J**	**1.070 J**	**0.75 J**	**1.020 J**
Arsenic	13	**6.240 J**	**17.1 J**	**34.4 J**	**9.240 J**	**10.1 J**	**4.470 J**
Barium	350	**81.5**	**56.8**	**92.6**	**49.5**	**45.7**	**85.7**
Beryllium	7.2	**0.36**	**0.29 J**	**0.42**	**0.56**	**0.56**	**0.42**
Cadmium	2.5	**0.99**	**1.950**	**2.180**	**1.080**	**1.010**	**2.080**
Calcium	NL	**6850 J**	**28800 J**	**3540 J**	**1180 J**	**645 J**	**912 J**
Chromium	30	**17.1 J**	**26.1 J**	**36.4 J**	**20.6 J**	**22.2 J**	**31.9 J**
Cobalt	NL	**5.290**	**6.370**	**7.400**	**6.140**	**6.460**	**6.800**
Copper	50	**21.3 J**	**59.3 J**	**41.3 J**	**32.9 J**	**33.3 J**	**25.9 J**
Iron	NL	**13300 J**	**20300 J**	**17400 J**	**19600 J**	**20600 J**	**17400 J**
Lead	63	**65**	**143**	**334**	**291**	**306**	**1890**
Magnesium	NL	**5630 J**	**18900 J**	**3710 J**	**2890 J**	**2860 J**	**2480 J**
Manganese	1600	**262 J**	**308 J**	**298 J**	**267 J**	**281 J**	**268 J**
Mercury	0.18	**1.6 J+**	**0.146 J+**	**0.612 J+**	**0.432 J+**	**0.514 J+**	**0.282 J+**
Nickel	30	**13.3**	**17.5**	**27.7**	**15.8**	**16.4**	**15.7**
Potassium	NL	**788**	**1130**	**1310**	**511**	**461**	**790**
Selenium	3.9	**0.54 J-**	1.010 UJ	**0.97 J-**	**0.71 J-**	**0.74 J-**	**0.63 J-**
Sodium	NL	**131 J**	**554 J**	**216 J**	**501 J**	**295 J**	**540 J**
Vanadium	NL	**22.0**	**27.5**	**38.9**	**35.6**	**35.3**	**24.6**
Zinc	109	**71.4 J**	**167 J**	**310 J**	**84.5 J**	**75.5 J**	**407 J**
Cyanide (mg/Kg)							
Cyanide, Total	27	0.623 U	**2.370**	0.641 U	0.605 U	0.644 U	**2.510**

Notes:
NA = Not Applicable
mg/Kg = milligram per kilogram
Bold = detected
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
values bold and italics = nondetects above NYSDEC Part 375-6 Unrestricted Use
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run

Table 5-1
Surface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	Summary Statistics											
		Samples	Detects	Non-Detects	Exceedances	DL Exceedances	Max Detected Concentration	ID for Max Concentration	Min Detected Concentration	ID for Min Concentration	Average Detected Concentration	Min DL for NonDetects	Max DL for NonDetects
BTEX (mg/Kg)													
VOC (mg/Kg)													
PAH (mg/Kg)													
Acenaphthylene	100	6	4	2	0	0	0.99	SS-DUP(0-0.2)081109	0.25	SS-5(0-0.2)081009	0.795	2.1	8
Anthracene	100	6	4	2	0	0	0.49	SS-3(0-0.2)081009	0.11	SS-5(0-0.2)081009	0.285	2.1	8
Benzo(a)anthracene	1	6	6	0	4	0	2	SS-4(0-0.2)081009	0.27	SS-1(0-0.2)081009	1.281666667	-	-
Benzo(a)pyrene	1	6	6	0	4	0	1.6	SS-2(0-0.2)081009	0.29	SS-1(0-0.2)081009	1.106666667	-	-
Benzo(b)fluoranthene	1	6	6	0	4	0	3.1	SS-4(0-0.2)081009	0.45	SS-1(0-0.2)081009	1.991666667	-	-
Benzo(ghi)perylene	100	6	6	0	0	0	2.1	SS-4(0-0.2)081009	0.29	SS-1(0-0.2)081009	1.271666667	-	-
Benzo(k)fluoranthene	0.8	6	4	2	1	2	0.9	SS-4(0-0.2)081009	0.28	SS-5(0-0.2)081009	0.6775	2.1	8
Chrysene	1	6	6	0	4	0	2.4	SS-4(0-0.2)081009	0.35	SS-1(0-0.2)081009	1.593333333	-	-
Dibenz(a,h)anthracene	0.33	6	4	2	2	2	0.37	SS-4(0-0.2)081009	0.13	SS-5(0-0.2)081009	0.2825	2.1	8
Fluoranthene	100	6	6	0	0	0	3	SS-4(0-0.2)081009	0.51	SS-1(0-0.2)081009	2.015	-	-
Indeno(1,2,3-cd)pyrene	0.5	6	5	1	4	1	1.5	SS-4(0-0.2)081009	0.49	SS-5(0-0.2)081009	1.118	2.1	2.1
Phenanthrene	100	6	4	2	0	0	1.5	SS-3(0-0.2)081009	0.4	SS-5(0-0.2)081009	0.8825	2.1	8
Pyrene	100	6	6	0	0	0	3.7	SS-4(0-0.2)081009	0.49	SS-1(0-0.2)081009	2.398333333	-	-
Total PAH	NL	6	6	0	0	0	22.59	SS-4(0-0.2)081009	2.65	SS-1(0-0.2)081009	14.53833333	-	-
BAP Equivalents	NL	6	6	0	0	0	22.59	SS-4(0-0.2)081009	2.65	SS-1(0-0.2)081009	14.53833333	-	-
SVOC (mg/Kg)													
Benzaldehyde	NL	6	1	5	0	0	1	SS-4(0-0.2)081009	1	SS-4(0-0.2)081009	1	0.4	8
bis(2-Ethylhexyl) phthalate	NL	6	4	2	0	0	1.1	SS-2(0-0.2)081009	0.054	SS-5(0-0.2)081009	0.481	2	2.1
Carbazole	NL	6	1	5	0	0	0.045	SS-5(0-0.2)081009	0.045	SS-5(0-0.2)081009	0.045	2	8
Total SVOC	NL	6	6	0	0	0	23.59	SS-4(0-0.2)081009	2.65	SS-1(0-0.2)081009	15.03316667	-	-
Metals (mg/Kg)													
Aluminum	NL	6	6	0	0	0	12500	SS-DUP(0-0.2)081109	5570	SS-2(0-0.2)081009	9920	-	-
Antimony	NL	6	6	0	0	0	1.07	SS-4(0-0.2)081009	0.69	SS-1(0-0.2)081009	0.923333333	-	-
Arsenic	13	6	6	0	2	0	34.4	SS-3(0-0.2)081009	4.47	SS-5(0-0.2)081009	13.59166667	-	-
Barium	350	6	6	0	0	0	92.6	SS-3(0-0.2)081009	45.7	SS-DUP(0-0.2)081109	68.63333333	-	-
Beryllium	7.2	6	6	0	0	0	0.56	SS-4(0-0.2)081009	0.29	SS-2(0-0.2)081009	0.435	-	-
Cadmium	2.5	6	6	0	0	0	2.18	SS-3(0-0.2)081009	0.99	SS-1(0-0.2)081009	1.548333333	-	-
Calcium	NL	6	6	0	0	0	28800	SS-2(0-0.2)081009	645	SS-DUP(0-0.2)081109	6987.833333	-	-
Chromium	30	6	6	0	2	0	36.4	SS-3(0-0.2)081009	17.1	SS-1(0-0.2)081009	25.71666667	-	-
Cobalt	NL	6	6	0	0	0	7.4	SS-3(0-0.2)081009	5.29	SS-1(0-0.2)081009	6.41	-	-
Copper	50	6	6	0	1	0	59.3	SS-2(0-0.2)081009	21.3	SS-1(0-0.2)081009	35.66666667	-	-
Iron	NL	6	6	0	0	0	20600	SS-DUP(0-0.2)081109	13300	SS-1(0-0.2)081009	18100	-	-
Lead	63	6	6	0	6	0	1890	SS-5(0-0.2)081009	65	SS-1(0-0.2)081009	504.8333333	-	-
Magnesium	NL	6	6	0	0	0	18900	SS-2(0-0.2)081009	2480	SS-5(0-0.2)081009	6078.333333	-	-
Manganese	1600	6	6	0	0	0	308	SS-2(0-0.2)081009	262	SS-1(0-0.2)081009	280.6666667	-	-
Mercury	0.18	6	6	0	5	0	1.6	SS-1(0-0.2)081009	0.146	SS-2(0-0.2)081009	0.597666667	-	-
Nickel	30	6	6	0	0	0	27.7	SS-3(0-0.2)081009	13.3	SS-1(0-0.2)081009	17.73333333	-	-
Potassium	NL	6	6	0	0	0	1310	SS-3(0-0.2)081009	461	SS-DUP(0-0.2)081109	831.6666667	-	-
Selenium	3.9	6	5	1	0	0	0.97	SS-3(0-0.2)081009	0.54	SS-1(0-0.2)081009	0.718	1.01	1.01
Sodium	NL	6	6	0	0	0	554	SS-2(0-0.2)081009	131	SS-1(0-0.2)081009	372.8333333	-	-
Vanadium	NL	6	6	0	0	0	38.9	SS-3(0-0.2)081009	22	SS-1(0-0.2)081009	30.65	-	-
Zinc	109	6	6	0	3	0	407	SS-5(0-0.2)081009	71.4	SS-1(0-0.2)081009	185.9	-	-
Cyanide (mg/Kg)													
Cyanide, Total	27	6	2	4	0	0	2.51	SS-5(0-0.2)081009	2.37	SS-2(0-0.2)081009	2.44	0.605	0.644

Table 5-2
Visible Impacts
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location ID	Ground Surface Elevation (ft NAVD88)	Total Depth (ft bgs)	Elev of Bottom of Hole (ft NAVD88)	Top of Bedrock Elevation (ft NAVD88)	Visible Impact Description (ft bgs)	Drilling and Coring Visible Impact Summary												FLUTe Liner Visible Impact Summary					
						No Visible Impact		Stain, Odor		Blebs, Globs, Sheen		Coated Material , Lenses		Tar Saturated		Petroleum Impacts Staining and Odors		Light		Medium		Heavy	
						Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)
SITE CHARACTERIZATION SOIL GAS POINTS																							
MGP-SG-1	64.28	3.8	60.48	<60.48	No visible impacts.	0-3.8	64.28-60.48																
MGP-SG-2	71.84	5.5	66.34	66.34?	No visible impacts.	0-5.5	71.84-66.34																
MGP-SG-3	67.71	NA	NA	NA	Taken in crawl space. No visible impacts.																		
MGP-SG-4	71.87	4.5	67.37	67.37	Water not encountered. No Visible impacts.	0-4.5	71.87-67.37																
MGP-SG-5	58.91	2.2	56.71	<56.71	Water not encountered. Strong petroleum odor at 2-2.2 feet no visible impacts	0-2.5	58.91-56.71									2-2.2	56.91-56.71						
MGP-SG-6	64.08	2.7	61.38	<61.38	No water encountered. No visible impacts.	0-2.7	64.08-61.38																
MGP-SG-7	62.31	2.5	59.81	59.81	Water not encountered. No Visible impacts.	0-2.5	62.31-59.81																
SITE CHARACTERIZATION TEST PITS																							
TP-1	69.84	6	63.84	63.94	No visible impacts.	0-6	69.84-63.84																
TP-2	70.37	1.5	68.87	69.07	No visible impacts.	0-1.5	70.37-68.87																
TP-3	64.88	9.0	55.88	<55.88	Tar at 0.66-0.9' on north west side, strong odor at 1-9.8	0-0.66	64.88-64.22	1-9.0	63.88-55.88					0.66-0.9	64.22-63.98								
TP3 boring	64.88	13	51.88	51.88	Tar at 0.66-0.9, strong MGPO 1-11, MGPO and sheen 11-12.1	0-0.66	64.88-64.33	1-11	63.88-53.88	11-12.1	53.88-52.78			0.66-0.9	64.22-63.98								
TP-4	66.99	5.5	61.49	<61.49	1.33 to 5 ' strong petroleum odor pid 2390, No visible impact 5-5.5 slight odor pid 724	0-5.5	66.99-61.49									1.33-5.5	65.66-61.49						
TP-5	68.08	10.5	57.58	<57.08	Opened additional area to north on top of concrete and brick pad No visible impact	0-10.5	68.08-57.58																
TP-6	66.36	6.8	59.56	<59.56	Total depth 6.8 no odor no visible impacts	0-6.8	66.36-59.56																
TP-7	67.05	6	61.05	<61.05	Total depth 6' no odor no visible impacts	0- 6.0	67.05- 61.05																
TP-8	67.67	7	60.67	60.67?	Total depth 7 feet no odor no visible impacts	0-7.0	67.67-60.67																
SITE CHARACTERIZATION SOIL BORINGS																							
MGP-SB-1	70.87	4	66.87	66.87	Holder at 2' bedrock at 4' no contamination	0-4.0	70.87- 66.87																
MGP-SB-2	65.01	6	59.01	<59.01	Tar at 0.5-1 Petro odor 2-5 feet dry no visible impacts (2-5). 5-6 slight petro odor Refusal 6' concrete.	1.0- 6.0	64.01-59.01					0.5-1	64.51-64.01	0.5-1	64.51-64.1	2-5 5-6	63.01-60.01 60.01-59.01						
MGP-SB-3	66.53	3.2	63.33	<63.33	Odor and sheen 1.5-3.2 refusal 3.2	0-1.5	66.53-65.03			1.5-3.2	65.03-63.33												
MGP-SB-4	66.98	8.1	58.88	<58.88	No odor or visible impacts. Refusal due to concrete	0-8.1	66.98-58.88																
MGP-SB-5	68.13	17	51.13	54.13	10.9-13 odor and TLM, OLM, 13-13.8 sheen and OLM blebs, 16-17 odor- weathered schist. No deeper due to lack of rods.	0-10.9	68.13 - 57.23	16 - 17	52.13 - 51.13	13-13.8	55.13-54.33	10.9-13.8	57.23-54.33										
MGP-SB-6	64.1	8	56.10	56.1	5-8 ' mgp odor no visible impacts, Bedrock at 8'	0-8	64.1-56.10	5-8	59.1 - 56.1														
MGP-SB-7	67.23	8	59.23	59.23	Not impacted refusal 8' bedrock	0-8.0	67.23-59.23																
MGP-SB-8	68.93	12	56.93	56.93	No impacts 12' refusal bedrock	0-12.0	68.93-56.93																
MGP-SB-9	68.08	12.5	55.58	<55.58	10-11 naphthalene odor and sheen. 11-12.5 OLM. refusal at 12.5. no rock	0-10	68.08-58.08			10-11	58.08-57.08			11-12.5	57.08-55.58								
SITE CHARACTERIZATION MONITORING WELLS																							
MGP-MW-101S	71.56	4.4	67.16	67.23	Precleared to 4.4 feet bedrock refusal will become 101D no visible impacts - monitoring well not installed.	0-4.4	71.56- 67.16																
MGP-MW-101D	71.56	150	-78.44	67.23	No visual or odor impacts noted during drilling or coring. The FLUTe NAPL liner showed 2 black spots (approximately 1/4 inch) of unknown origin at 137.4 ft bgs for certain. Therefore, these points are not illustrated in the light category.	0-150	71.56 - -78.44											No impacts observed on FLUTe					
MGP-MW-102S	64.01	3.5	60.51	61.01	Precleared to 3.5 feet no odor or visual impacts - monitoring well not installed	0-3.5	64.01- 61.01																
MGP-MW-102D	64.01	150	-85.99	61.01	No visual or odor impacts noted during drilling or coring or on the FLUTe NAPL liner	0-150	64.01 - -85.99											No impacts observed on FLUTe					
MGP-MW-103S [2]	59.55	12.5	47.05	47.05	MGP like odor 2-3; MGPO 6; slight sheen & MGPO 8-9.3; PID detects 1-12	0-2 3-6 9.3-12.5	59.55-57.55 56.55-53.55 50.25-47.05	2-3 6	57.55-56.55 53.55	8-9.3	51.55-50.25												
MGP-MW-103D	59.60	151.5	-91.90	47.1	40.5-40.9 OLM stains, little OLM blebs on core; 53.15-53.5 heavy OLM staining on core No visible OLM/TLM impacts observed on FLUTe liner.	0-40.5 40.9-53.15 53.5-151.5	59.60-19.10 18.7-6.45 6.1- -01.9	40.5-40.9	19.1-18.7			40.5-40.9 53.15-53.5	19.1-18.7 6.45-6.1					No impacts observed on FLUTe					
MGP-MW-104S [2]	59.66	13.2	46.46	45.86	See impacts below for MGP-MW-104D																		

Table 5-2
Visible Impacts
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location ID	Ground Surface Elevation (ft NAVD88)	Total Depth (ft bgs)	Elev of Bottom of Hole (ft NAVD88)	Top of Bedrock Elevation (ft NAVD88)	Visible Impact Description (ft bgs)	Drilling and Coring Visible Impact Summary												FLUTe Liner Visible Impact Summary					
						No Visible Impact		Stain, Odor		Blebs, Globs, Sheen		Coated Material , Lenses		Tar Saturated		Petroleum Impacts Staining and Odors		Light		Medium		Heavy	
						Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)
SITE CHARACTERIZATION MONITORING WELLS (CONT'D)																							
MGP-MW-104D	59.66	151	-91.34	45.86	9.9-10 strong MGPO & sheen; 10-13.8 strong MGPO & sheen; PID detects 4-13. No odor or visual impacts noted during bedrock coring. However, the groundwater sample collected from packer zone 131-136 ft bgs was not submitted to the laboratory for analysis due to the presence of OLM in the sample.	0-9.9 13.8-131 136-151	59.66-49.76 45.86 - -71.34 -76.34 - -91.34			9.9-13.8	49.76-45.86	131-136	-71.34 - -76.34										
MGP-MW-104D	59.65	151	-91.35	45.85	FLUTe observations - light to heavy tar impacts were noted on the NAPL liner as indicated in the light, medium, heavy categories. Heavy impacts begin at 24.2 ft bgs and thick vertical finger(s) of tar extend downhole to approximately 77 ft bgs. Many individual small (<1/4 inch) tar blebs are evident on the liner and were likely suspended in the water column during the time the FLUTe was everted. These individual small blebs are not listed individually in the light category due to their abundance.													37 39.2 95.3 100.5 104.9	22.65 20.45 -35.65 -40.85 -45.25	19-19.3 19.55-19.65 21.4-21.8 22.9-23.1 64.1-64.3 72.3-72.7 84.3-84.6 89.8-90.4 127.7-128	40.65-40.35 40.1-40.00 38.25-37.85 36.75-36.55 -4.46--4.66 -12.65--13.05 -23.75--24.05 -30.25--30.75 -68.05---68.35	24.2-25.9 50.1-50.35 69.7-70.2	35.45-33.75 9.54-9.29 -10.05--10.55
MGP-MW-105D	67.59	151	-83.41	60.59	83.25-83.75 HCLO & slight sheen; 89 slight HCLO; 118.2-118.5 very slight HCLO in fracture zone	0 - 83.25 83.75 - 89 89- 151	67.59 - -15.66 -16.16 - -21.41 -21.41 - -83.41	89 118.2 - 118.5	`-21.41 -50.61 - -50.91	83.25-83.75	-15.66- -16.16												
MGP-MW-105D	67.59	151	-83.41	60.59	FLUTe observations - Abundant splattering of small to medium (<1/4 inch to 1/2 inch) throughout the liner between 79.8 ft bgs and 146 ft bgs. Tar smearing is evident between 129.7 -130.6, 132-138.2, and 142.7-144.5 but source/cause is uncertain. The FLUTe liner is tar saturated at the base from 148 to 149 ft bgs. The majority of the tar splotches observed on the liner are not included in the light, medium, heavy categories because their entry point into the boring is unknown.													79.8-80	-12.21--12.41	68.7-69.2 93.7	-1.11--1.61 -26.11	148-149	-80.41--81.41
MGP-MW-106S	65.74	1.5	64.24	64.24	Bedrock at 1.5 - shallow monitoring well not installed																		
MGP-MW-106D	65.74	150	-84.26	64.24	No visual or odor impacts noted during drilling or coring	0-150	65.74- -84.26																
MGP-MW-106D	65.74	150	-84.26	64.24	FLUTe observations - essentially no visible impacts were noted on the liner. There were few instances of very small black spots of unknown origin and one 3-inch long very thin black diagonal line at approximately 91 ft bgs of unknown origin. Also noted 2 black spots at 143.5 ft bgs. These minimal observations are not included in the impact categories due to their uncertain origin.													No impacts observed on FLUTe					
MGP-MW-107S					Not completed																		
MGP-MW-107D					Not completed																		
MGP-MW-108S [2]	61.02	15.85	45.17	46.02	6.9-8 sheen, 8,-8.6 very slight sheen & MGPO; 8.6-9.8 slight sheen & MGPO; 10 more sheen; 12 very slight sheen, MGPO;13-14 very slight MGPO; 4-13 PID detects	0-6.9 12-15.85	61.02 - 54.12 49.02 - 45.17	8 - 14	53.02 - 47.02	6.9-12	54.12- 49.02												
MGP-MW-108D	60.92	151	-90.08	45.92	23-24 sheen on edge & outside of core; NAPL bleb, sheen on core; 29 -30 NAPL blebs; 38-39 sheen on fractures; 50 tar, TLO; 55 tar in fracture zone; 64 heavy tar odor in rubble zone w/ heavy sheen; 76 strong odor and smeared tar; 77 fracture w/ possible tar; 91 sheen and blebs;	0-6.9 12-23 24-29 30-38 39-50 50-55 55-64 64-76 77-91 91-151	60.92-54.02 48.92 - 37.92 36.92 - 31.92 30.92 - 22.92 21.92 - 10.92 10.92 - 5.92 5.92 - -3.08 -3.08 - -15.08 -16.08 - -30.08 -30.08 - -90.08			23-24 29-30 38-39 64 91	37.92-36.92 31.92-30.92 22.92-21.92 -3.08 -30.08	76 77	-15.08 -16.08	50 55	10.92 5.92								
MGP-MW-108D	60.92	151	-90.08	45.92	FLUTe observations - light to heavy tar impacts were noted on the NAPL liner. Heavy impacts begin at 24.7 ft bgs and thick vertical finger(s) of tar extend downhole to approximately 69ft bgs. Many individual small (<1/4 inch) tar blebs are evident on the liner and were likely suspended in the water column during the time the FLUTe was everted. These individual small blebs are not listed individually in the light category due to their abundance.															22.9 23.5 53.5-53.8 59.9-60.2 69.1-69.2 144.9-145	38.02 37.42 7.42-7.12 1.02-0.72 -8.18- -8.28 -83.98- -84.05	24.7-25 32.1-32.3 34.2-34.4 43.2-43.4 83.5-85.3 87.9-88.7	36.22-35.92 28.82-28.62 26.72-26.52 17.72-17.52 -22.58- -24.38 -26.98- -27.78
MGP-MW-10D	63.98	19	44.98	50.28	Pre cleared to 5 feet MGP like odor at 4-5 feet	0-19	63.98 - 44.98	4-5	59.98-58.98														
MGP-MW-4DD	64.61	200	-135.39	56.61	2-7 strong HCLO; slight sheen @2; PID detects 1-7;7.75 hydrocarbon like odor	0-1 7.75 - 200	64.61 - 63.61 56.86 - -135.39	1-7.75	63.61 - 56.86	2 - 7	62.61 - 57.61												
MGP-MW-4DD	64.61	200	-135.39	56.61	FLUTe observations - few light to heavy tar impacts were noted on the NAPL liner. Heavy impacts were noted from 106.9 to 107.3 ft bgs with short thin vertical fingers extending down hole. Many individual small (<1/4 inch) tar blebs are evident on the liner between 106 and 118 ft bgs and were likely suspended in the water column during the time the FLUTe was everted. These individual small blebs are not listed individually in the light category due to their abundance.													106.5 177.4	-41.89 -112.79			106.9-107.3	-42.29- -42.69
MGP-MW-9DD	61.52	150	-88.48	43.52	Petro odor 0.3-2 and 4-5, 7-12 MGP odor, 10-11.4 visible coal tar; 12-14 sheen on sand and odor; 45 sheen in fracture zone, MGPO, PID detect; 50 sheen observed at horizontal fracture, PID impact; 54 OLM blebs, MGPO, sheen, PID impacts; 86 PID impact; 90 slight sheen PID impact	0-10 14 - 45 45 - 50 50-54 54-90-150	61.52 - 51.52 47.52 - 11.52 11.52 - 7.52 7.52 - -88.48	7 - 12	54.52 - 49.52	12-14 45 50 90	49.52-47.52 16.52 11.52 -28.48	54	7.52	10-11.4	51.52-50.12	0.3 - 2 4 - 5	61.82 - 59.52 57.52 - 56.52						

Table 5-2
Visible Impacts
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location ID	Ground Surface Elevation (ft NAVD88)	Total Depth (ft bgs)	Elev of Bottom of Hole (ft NAVD88)	Top of Bedrock Elevation (ft NAVD88)	Visible Impact Description (ft bgs)	Drilling and Coring Visible Impact Summary												FLUTe Liner Visible Impact Summary					
						No Visible Impact		Stain, Odor		Blebs, Globs, Sheen		Coated Material , Lenses		Tar Saturated		Petroleum Impacts Staining and Odors		Light		Medium		Heavy	
						Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)
MGP-MW-9DD	61.52	150	-88.48	43.52	FLUTe observations - few light to medium tar impacts were noted on the NAPL liner. Medium impacts were noted from 43.65-43.85 ft bgs with short thin vertical fingers extending down hole. Many individual small (<1/4 inch) tar blebs are evident on the liner between 23.2 and 61 ft bgs and few small blebs were evident between 61 and 138 ft bgs and were likely suspended in the water column during the time the FLUTe was everted. These individual small blebs are not listed individually in the light category due to their abundance.													23.2 26.7	38.32 34.83	43.65-43.85	17.87-17.67		
MGP-MW-0DD	66.13	150	-83.87	59.63	slight MGPO @ 52.8; 65.7 slight sheen on outside of core; 119.8 OLM, PID detect;	0-65.7 65.7 - 119.8 119.8 - 150	66.13 - 0.43 0.43 - -53.5 -53.5 - -83.87	52.8	13.33	65.7	0.43	119.8	-53.67										
MGP-MW-0DD	66.13	150	-83.87	59.63	FLUTe observations - few light to heavy tar impacts were noted on the NAPL liner. Heavy impacts were noted from 57.4 to 59.1 ft bgs with short thin vertical fingers extending down hole. Few individual small (<1/4 inch) tar blebs are evident on the liner and are not listed individually in the light category due to their abundance.													21.8 98.2-98.3 119.3-119.6	44.33 -32.07- -32.17 -53.17- -53.47	119.75-119.9	-53.62 --53.77	57.4 - 59.1	8.73- 7.03
MGP-TP-4	66.99	150	-83.01	58.49	Drilling/Test Pit observations: 3 ft - sheen at water table - 5.5-7 ft heavy sheen and strong MGPO 7-8.5 saturated with coal tar 9-9.5 probable tar on core 32.6 tar in fracture			5.5 - 7	61.49-59.99	3 5.5-7	63.99 61.49-59.99			7-8.5 9-9.5 32.6	59.99-58.49 57.99-57.49 34.39								
MGP-TP-4	66.99	150	-83.01	58.49	FLUTe observations - light to heavy tar impacts were noted on the NAPL liner as indicated in the light, medium, heavy categories. Heavy impacts begin at 15.6 ft bgs and thick vertical finger(s) of tar extend downhole to the bottom of the borehole. Many individual small (<1/4 inch) tar blebs are evident on the liner and were likely suspended in the water column during the time the FLUTe was everted. These individual small blebs are not listed individually in the light category due to their abundance. Tar saturation was observed wicked on the bottom of the FLUTe liner.													13-13.5 143.6	53.99-53.49 -76.61	12.5-12.7 14.2-14.4 55.5-55.7 131.7-131.8 145 147-147.2 148.3-148.5	54.49-54.29 '52.79-52.59 11.49-11.29 -64.71- -64.81 -78.01 -80.01- -80.21 -81.31- -81.51	15.6-16.7	51.39-50.29
PREVIOUS INVESTIGATION LOCATIONS																							
MW-1	64.31	NA	NA	NA	no Data																		
MW-2	63.88	NA	NA	NA	No Data																		
MW-3/SB SA9-8 [1]	64.9	10	54.90	<54.9	No Visible impact	0-10	64.9-54.9																
MW-4/SB-SA9-7	64.83	8	56.83	<56.8	2-8 strong petroleum odor No Visible impact	0-8	64.83-56.83									2-8.0	62.83-56.83						
MW-4D	64.71	30.2	34.51	56.71	1.5-2 Strong naphthalene odors, 4-5 slightly stained sand 5-7 naphthalene and coal tar odor- no visible impact	0-4 5- 30.2	64.71 - 60.71 59.71 - 34.51	1.5-2 4-5 5-7	63.21-62.71 60.71-59.71 59.71-57.71														
MW-5/SA-SA9-E1	68.4	11.2	57.20	57.2	No Visible impact	0-11.2	68.4-57.2																
MW-5D	68.39	57	11.39	57.39	No Visible impact	0-57	68.39-11.39																
MW-6/SB-SA11-S1	67.57	11.7	55.87	55.07?	5-9 slight petroleum odor, no visible impacts	0-11.7										5-9.0	62.57-58.57						
MW-6D	67.64	45	22.64	55.64	No Visible impact	0-45	67.64-22.64																
W-7/SB-SA11-SW	66.75	14.7	52.05	52.05	No Visible impact	0-14.7	66.75-52.05																
MW-9/SB-SA10-W	61.67	13	48.67	48.67	6.5- 7 strong petro odor, 7-9 slight petro odor no visible impact	0-13	61.67-48.67									6.5-9.0	55.17-52.67						
MW-9D	61.63	45	16.63	45.63	Strong petro odor 38-40 LNAPL ~1 gallon	0-38	61.63 - 23.63							38-40	23.63- 21.63	38-40	23.63-21.63						
W-10/SB-sa11-NE	64.19	12	52.19	52.19	No Visible impact	0-12	64.19-52.19																
MW-11D	64.34	25.2	39.14	57.34	No Visible impact	0-25.2	64.34-39.14																
MW-12	67.19	12.5	54.69	57.89	No Visible impact	0-12.5	67.19-54.69																
MW-12D*	67.19	51	16.19	57.89	10.3-13 trace sheen and petroleum like odor; 13-14.1 blebs, sheen and MGPO tar in bottom of well during gw sampling event	0-10.3 14.1 - 51	67.19 - 56.89 47.09 - 16.19			10.3-14.1	56.89-53.09			50.4-51	16.79-16.19								
MW-13D	67.7	55.5	12.20	60.5	No Visible impact	0-55.5	67.7-12.2																
SB-HL1	69.72	7	62.72	62.72	2.5-3 Petroleum odor 5-7 strong petroleum odor no visible impacts	0-7.0	69.72-62.72									2.5-3 5-7	67.22-66.72 64.72- 62.72						
SB-HL2	69.75	5	64.75	64.75	No Visible impact	0-5	69.75-64.75																
SB-HL3	64.96	4	60.96	60.96	No Visible impact	0-4	64.96-60.69																
SB-HL4	65.02	5	60.02	60.02	No Visible impact	0-5	65.02-60.2																
SB-HL5	69.63	2	67.63	67.63	0.5-2 light petroleum odor, coal fragments- no visible impacts	0-2	69.63-67.63									0.5-2	69.13-67.63						
SB-HL6	69.59	7	62.59	62.59	2.5-3 Petroleum odor, 4.5-7 strong petroleum odor no visible impacts	0-7	69.59 - 62.59									2.5-3 4.5-7	67.09-66.59 65.09-62.59						
SB-SA11-A1	66.85	6.5	60.35	60.35	No Visible impact	0-6.5	66.85-60.35																
SB-SA11-B1	67.53	12	55.53	55.53	3.5-5 heavy naphthalene odor, 8.5 strong petroleum odor and staining, 9-12 petroleum odor observed	0-8.5 9-12	67.53 - 59.03 58.53 - 55.53	3.5-5	64.03-62.53							8.5 9-12	59.03 58.53-55.53						
SB-SA11-C1	67.46	10.5	56.96	56.96	3.5-5 slight petro odor, staining observed	0-3.5 5-10.5	67.46 - 63.96 62.46 - 56.96									3.5-5	63.96-62.46						
SB-SA11-NW1	67.19	2	65.19	65.19?	Refusal at bedrock no visible impacts	0-2.0	67.19-65.19																
SB-SA9-5	63.5	5	58.50	<58.5	No Visible impact	0-5	63.5-58.50																
SB-SA9-6	64	5	59.00	<59	No Visible impact	0-5	64-59																
SB-SA9-7/MW4	64.83	8	56.83	<56.8	2-8 strong petroleum odor No Visible impact	0-8	64.83-56.83									2-8.0	62.83-56.83						
SB-SA9-8/MW3 [1]	64.9	10	54.90	52.9	10.2-12 strong petro odor No Visible impact	0-10	64.9-54.9									10.2-12	54.7-52.9						
SB-SA9-9	63	8	55.00	<55	4.5-7staining and Strong petro odor	0-4.5 7-8	63 - 58.5 56 - 55									4.5-7	58.5-56						
SB-SA9-11	*64.1	7.5	56.60	*<56.6	5.5-7.5 gray stained silty clay	0-5.5	64.1 - 58.6	5.5-7.5	58-55.5														
SB-SA10-10	*64.3	8	56.30	*<56.3	No Visible impact	0-8	64.3-56.30																
SB-SA10-12	65	12	53.00	<53	11-12 staining and slight petro odor	0-11	65 - 54									11-12	54-53						
SB-SA10-13	NA	13	NA	NA	No Visible impact	0-13	NA																
SB-SA11-NE1	*64.3	1	63.30	*<63.30	No Visible impact	0-1	64.3-63.30																
SB-SA11-14	64.7	4.2	60.50	<60.5	0.25-4.4 staining			0.25-4,2	64.45-60.5														
SB-SA11-17	65	13	52.00	<52	No Visible impact	0-13	65-52.00																
REMEDIAL INVESTIGATION SOIL GAS POINTS																							
MGP-SG-8	63.44	2.4	61.04	61.04	No Visible impact	0-2.4	63.44-61.04																
REMEDIAL INVESTIGATION TEST PITS																							
TP-9	66.74	8.5	72.24	NE	1.5 - 8.5 some discontinuous black staining and MGPO 6 - small tar seep in holder wall	0-1.5	66.74 - 65.24	1.5-8.5	65.24 - 54.94					6	60.74								
TP-10	64.72	5.5	59.22	NE	1.3 - 5.5 MGPO and some black staining	0 - 1.3	64.72 - 63.42	1.3 - 5.5	63.42 - 59.22														

Table 5-2
Visible Impacts
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location ID	Ground Surface Elevation (ft NAVD88)	Total Depth (ft bgs)	Elev of Bottom of Hole (ft NAVD88)	Top of Bedrock Elevation (ft NAVD88)	Visible Impact Description (ft bgs)	Drilling and Coring Visible Impact Summary												FLUTe Liner Visible Impact Summary					
						No Visible Impact		Stain, Odor		Blebs, Globs, Sheen		Coated Material , Lenses		Tar Saturated		Petroleum Impacts Staining and Odors		Light		Medium		Heavy	
						Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)	Depth (ft bgs)	Elev (ft NAVD88)
REMEDIAL INVESTIGATION SOIL BORINGS																							
MGP-SB-10	68.02	20.5	47.52	47.5	9-12 Sheen and strong tar like odor, 13-15 grains coated with TLM and strong tar like odor, 15- 16 Tar saturated, 17.5-20.5 Tar saturated.	0-9	68.02 - 59.02			9 -12	59.02 - 56.02	13 - 15	55.02 - 53.02	15 - 16 17.5 - 20.5	53.02 - 52.02 50.52 - 47.52								
MGP-SB-11	64.72	11.8	53.22	52.9	5-7 Some black stain and slight TLO, 7-7.9 Sheen, few tar blebs, moderate TLO, 7.9-8.5 Sheen, some black stain and moderate to strong TLO, 9-9.8 sheen and few blebs, 9.8-10.5 Black laminar staining, moderate TLO, 11-11.4 sheen and odor, 11.4-11.7 black staining and moderate TLO	0-5	64.72 - 59.72	5-7 7.9-8.5 9.8-10.5 11-11.7	59.72 - 57.72 56.82 - 56.22 54.92 - 54.22 53.72 - 53.02	7-8.5 9-9.8 11-11.4	57.72 - 56.22 55.72 - 54.92 53.72 - 53.32												
MGP-SB12	64.73	13	51.73	51.7	1.5-5 Slight to moderate TLO, 5-7Black staining, sheen, few blebs, and slight TLO, 7-7.2 little black staining, 7.2-7.7 few blebs and moderate TLO, 8.1-8.2 slight TLO, 9-9.8 some black staining and moderate TLO, 12.4-12.8 very slight TLO,	0-5	64.73 - 59.73	1.5-7.7 8.1-8.2 9-9.8 12.4-12.8	63.23-57.03 56.63-56.53 55.73-54.93 52.33-51.93	5-7 7.2-7.7	59.73-57.73 57.53-57.03												
REMEDIAL INVESTIGATION MONITORING WELLS																							
MGP-MW-109D	81.48	150	-68.52	74.48	No visible impacts.	0-150	81.48- -68.52											No impacts observed on FLUTe					
MGD MW-110D	72.44	150	-77.56	67.44	No visible impacts.	0-150	72.44- -77.56											No impacts observed on FLUTe					
MPG MW-112D	65.76	150	-84.24	48.76	No visible impacts.	0-150	65.76- -84.24											No impacts observed on FLUTe					
MGP-MW-113S	58.47	13	45.47	45.3	No visible impacts.	0-13	58.47-45.47											No impacts observed on FLUTe					
MGP MW-113D	58.47	150	-91.53	45.3	No visible impacts.	0-150	58.47- -91.53											No impacts observed on FLUTe					
MPG MW-114D	58.98	150	-91.02	45.98	No visible impacts.	0-150	58.98- -91.02											No impacts observed on FLUTe					
MGD MW-116D	60.92	150	-89.08	48.42	No visible impacts.	0-150	60.92- -89.08											No impacts observed on FLUTe					

NOTES:
[1] Auger refusal for MW-3 at 10 ft bgs, Geoprobe refusal at 12 ft bgs
[2] Monitoring well is< 0.5 feet above top of bedrock due to slough
ft NAVD88 - feet above the National Geodetic Vertical Datum of 1988
ft bgs - feet below ground surface
Elev - elevation
OLM - oil like material
TLM - tar like material
NA - not available
HCLO - hydrocarbon like odor
MGPO - manufactured gas plant like odor
PID - photoionization detector
Light - indicates individual OLM/TLM blebs less than 0.5 inches in diameter and/or discontinuous horizontal line of individual OLM/TLM blebs that are less than 0.5 inches in diameter.
Medium - indicates individual tar blebs or splotches between 0.5 and 4 inches in diameter, discontinuous horizontal line of tar blebs or a thin tar band that is less than 2 inches thick and may or may not extend across the FLUTe liner.
Heavy - indicates tar splotches greater than 4 inches in diameter and/or horizontal tar bands that are greater than 2 inches thick and generally extend across the FLUTe liner and may or may not have vertical fingers of tar extending down hole from the horizontal tar bands.
*estimated
FLUTe not used at these locations
Hardened Tar, Petroleum Impacts Saturation and Sheens, and Purifier Waste and Odor were not observed

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	MGP-MW-4DD(5-7) 8/19/2009 5-7	MGP-MW-4DD(7-8) 8/19/2009 7-8	MGP-MW-9DD(5-7) 8/19/2009 5-7	MGP-MW-9DD(11.4-12.5) 8/12/2009 11.4-12.5	MGP-MW-9DD(14-15) 8/19/2009 14-15	MGP-MW-10D(12-13.7) 9/3/2009 12-13.7	MW12D(6.2-9.3) 11/20/2008 6.2-9.3	MW12D(13-14.1) 11/20/2008 13-14.1	MW13D(6-7.2) 11/20/2008 6-7.2	MW13D(6-7.2) DUP 11/20/2008 6-7.2	MGP-MW-101S (2-2.5) 8/18/2009	MGP-MW-103S(11-12.5) 8/26/2009 11-12.5	MGP-MW-104S(9-11) 8/25/2009 9-11
BTEX mg/Kg														
Benzene	0.06	<0.0058 U	***<0.57 UJ***	<0.0057 U	**0.0047 J**	<0.0058 U	<0.0059 U	<0.0041 U	**0.061**	<0.0041 U	<0.0041 U	<0.0056 U	<0.0057 UJ	<0.0058 U
Ethylbenzene	1	**0.041 J**	**39**	<0.0057 U	**0.0071**	<0.0058 U	<0.0059 UJ	**4.9**	**0.62 J**	<0.0046 U	<0.0046 U	<0.0056 U	<0.0057 UJ	**0.0045 J**
Toluene	0.7	**0.0025 J**	**18 J**	<0.0057 U	<0.0058 U	<0.0058 U	<0.0059 U	**0.41 J**	**0.091**	<0.0051 U	<0.0051 U	<0.0056 U	<0.0057 UJ	<0.0058 U
m&p-Xylene	NL	**0.21 J**	**160**	<0.011 U	**0.025**	<0.012 U	<0.012 UJ	**4.1**	**0.18**	<0.011 U	<0.011 U	<0.011 U	<0.011 UJ	**0.0037 J**
o-Xylene	NL	**2**	**65**	<0.0057 U	**0.024**	<0.0058 U	<0.0059 U	**2.2**	**0.26**	<0.0044 U	<0.0044 U	<0.0056 U	<0.0057 UJ	**0.027**
Total Xylene (calculated)/Xylen	0.26	**2.21**	**225**	ND	**0.049**	ND	ND	**6.3**	**0.44**	ND	ND	ND	ND	**0.0307**
Total BTEX	*NL*	***2.2535***	***282***	*ND*	***0.0608***	*ND*	*ND*	***11.61***	***1.212***	*ND*	*ND*	*ND*	*ND*	***0.0352***
VOC (mg/Kg)														
1,2,3-Trichlorobenzene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	NL	<0.0058 U	<0.57 UJ	<0.0057 U	<0.0058 U	<0.0058 U	<0.0059 U	<0.0037 U	R	<0.0038 U	<0.0038 U	<0.0056 U	<0.0057 UJ	<0.0058 U
1,2,4-Trimethylbenzene	3.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	8.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	0.12	<0.029 U	***<2.9 UJ***	<0.029 U	<0.029 U	<0.029 U	<0.029 U	<0.028 U	<0.029 U	<0.029 U	<0.029 U	<0.028 U	<0.029 UJ	<0.029 U
2-Hexanone	NL	<0.029 U	<2.9 UJ	<0.029 U	<0.029 U	<0.029 U	<0.029 U	<0.025 U	<0.025 U	<0.025 U	<0.025 U	<0.028 U	<0.029 UJ	<0.029 U
4-Isopropyltoluene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acetone	0.05	<0.029 U	***<2.9 UJ***	<0.029 U	<0.029 U	<0.029 U	<0.029 U	**0.17**	***<0.097 U***	***<0.098 U***	***<0.098 U***	<0.028 U	<0.029 UJ	<0.029 U
Bromoform	NL	<0.0058 U	<0.57 UJ	<0.0057 U	<0.0058 U	<0.0058 U	<0.0059 U	<0.0046 U	<0.0046 U	<0.0047 U	<0.0047 U	<0.0056 U	<0.0057 UJ	<0.0058 U
Cyclohexane	NL	**1.2 D**	**21**	<0.0057 U	**0.0089**	<0.0058 U	<0.0059 U	<0.0057 U	<0.0058 U	<0.0059 U	<0.0059 U	<0.0056 U	<0.0057 UJ	<0.0058 U
Isopropylbenzene	NL	**0.1 J**	**7.8 J**	<0.0057 U	**0.0069**	<0.0058 U	<0.0059 U	**0.27 J**	**1.6**	<0.0047 U	<0.0047 U	<0.0056 U	<0.0057 UJ	**0.0036 J**
Methyl tert-butyl ether	0.93	<0.0058 U	<0.57 UJ	<0.0057 U	<0.0058 U	<0.0058 U	<0.0059 U	<0.005 U	<0.0051 U	<0.0051 U	<0.0051 U	<0.0056 U	<0.0057 UJ	<0.0058 U
Methylcyclohexane	NL	**2.8 D**	**40**	<0.0057 U	**0.038**	<0.0058 U	<0.0059 U	<0.0047 U	**0.15**	<0.0048 U	<0.0048 U	<0.0056 U	<0.0057 UJ	**0.0071**
Methylene chloride	0.05	<0.0058 U	***<0.57 UJ***	<0.0057 U	<0.0058 U	<0.0058 U	<0.0059 U	<0.014 U	<0.014 U	<0.014 U	<0.014 U	<0.0056 U	<0.0057 UJ	<0.0058 U
n - Propylbenzene	3.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Butylbenzene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	NL	<0.0058 U	**5.1 J**	<0.0057 U	<0.0058 U	<0.0058 U	<0.0059 UJ	**0.039**	**0.018 J**	<0.0036 U	<0.0036 U	<0.0056 U	<0.0057 UJ	<0.0058 U
Tetrachloroethene	1.3	<0.0058 U	<0.57 UJ	<0.0057 U	<0.0058 U	<0.0058 U	<0.0059 U	<0.007 U	<0.007 U	<0.0071 U	<0.0071 U	<0.0056 U	<0.0057 UJ	<0.0058 UJ
Total VOC	*NL*	***6.3535***	***355.9***	*ND*	***0.1146***	*ND*	*ND*	***12.089***	***2.98***	*ND*	*ND*	*ND*	*ND*	***0.0459***
PAH (mg/Kg)														
2-Methylnaphthalene	NL	**2.8**	**3.4**	**1.1 J**	**110**	<0.38 U	<0.39 U	**120**	**3.7 J**	**0.15 J**	**0.11 J**	<0.37 U	**0.55**	**0.3 J**
Acenaphthene	20	**0.06 J**	<1.9 U	**1.2 J**	**76**	**0.27 J**	<0.39 U	**55**	**28**	<0.0082 U	<0.0082 U	<0.37 U	**0.93**	**3.5**
Acenaphthylene	100	**0.14 J**	<1.9 U	<3.8 U	**9.2**	**0.074 J**	<0.39 U	**13**	**5.6**	**0.26 J**	**0.22 J**	<0.37 U	**0.46**	**0.57**
Anthracene	100	**0.16 J**	<1.9 U	<3.8 U	**28**	**0.2 J**	<0.39 U	**25**	**23**	**0.084 J**	**0.066 J**	<0.37 U	**1**	**2.8**
Benzo(a)anthracene	1	**0.3 J**	***<1.9 U***	***<3.8 U***	**20**	**0.2 J**	<0.39 U	**15**	**18**	**1.1**	**0.94**	<0.37 U	**1.2 J**	**1.6**
Benzo(a)pyrene	1	**0.12 J**	***<1.9 U***	***<3.8 U***	**17**	**0.17 J**	<0.39 U	**11 J**	**16**	**0.72 J**	**0.7**	<0.37 U	**0.82**	**1.2**
Benzo(b)fluoranthene	1	**0.2 J**	***<1.9 U***	***<3.8 U***	**14**	**0.16 J**	<0.39 U	**11 J**	**14**	**1.6 J**	**1.4**	**0.041 J**	**0.75**	**1.2**
Benzo(b,k)fluoranthene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(ghi)perylene	100	**0.12 J**	<1.9 U	<3.8 U	**10**	**0.096 J**	<0.39 U	**1.6 J**	**3.8**	**0.26 J**	**0.27 J**	<0.37 U	**0.42**	**0.36 J**
Benzo(k)fluoranthene	0.8	**0.096 J**	***<1.9 U***	***<3.8 U***	**5**	**0.04 J**	<0.39 U	**4.4 J**	**5.7**	**0.75 J**	**0.66**	<0.37 U	**0.27 J**	**0.36 J**
Chrysene	1	**0.29 J**	**0.21 J**	***<3.8 U***	**18**	**0.2 J**	<0.39 U	**16**	**18**	**1.2**	**1.1**	<0.37 U	**1.1**	**1.6**
Dibenz(a,h)anthracene	0.33	***<0.38 U***	***<1.9 U***	***<3.8 U***	**1.4 J**	***<0.38 U***	***<0.39 U***	***<0.56 UJ***	**0.83 J**	**0.083 J**	**0.095 J**	***<0.37 U***	**0.099 J**	**0.085 J**
Fluoranthene	100	**0.62**	**0.39 J**	<3.8 U	**61**	**0.45**	<0.39 U	**29**	**37**	**0.89**	**0.9**	<0.37 U	**2.2 J**	**3.8**
Fluorene	30	**0.3 J**	**0.29 J**	**0.47 J**	**51**	**0.19 J**	<0.39 U	**33**	**18**	**0.058 J**	<0.01 U	<0.37 U	**1**	**2.4**
Indeno(1,2,3-cd)pyrene	0.5	**0.095 J**	***<1.9 U***	***<3.8 U***	**6.3**	**0.073 J**	<0.39 U	**0.8 J**	**2.1 J**	**0.15 J**	**0.16 J**	<0.37 U	**0.33 J**	**0.36 J**
Naphthalene	12	**12**	**22**	**1.2 J**	**290**	<0.38 U	<0.39 U	**340**	**5.7**	**0.27 J**	**0.21 J**	<0.37 U	**0.24 J**	**2.4**
Phenanthrene	100	**1.3**	**0.9 J**	**0.75 J**	**130**	**0.89**	<0.39 U	**89**	**94**	**0.39**	**0.29 J**	<0.37 U	**4.4**	**11**
Pyrene	100	**0.76**	**0.5 J**	**0.4 J**	**65**	**0.63**	<0.39 U	**42**	**48**	**1.8**	**1.6**	**0.039 J**	**3.2**	**5.7**
Total PAH	*NL*	***19.361***	***27.69***	***5.12***	***911.9***	***3.643***	*ND*	***805.8***	***341.43***	***9.765***	***8.721***	***0.08***	***18.969***	***39.235***
SVOC (mg/Kg)														
1,1'-Biphenyl	NL	**0.23 J**	**0.47 J**	<3.8 U	**21**	<0.38 U	<0.39 U	**19**	**5.2**	<0.011 U	<0.011 U	<0.37 U	<0.38 U	**0.47**
3+4-Methylphenol	NL	<0.38 U	<1.9 U	<3.8 U	<3.8 U	<0.38 U	<0.39 U	<0.23 U	<0.11 U	<0.012 U	<0.012 U	<0.37 U	<0.38 U	<0.38 U
Acetophenone	NL	<0.38 U	<1.9 U	<3.8 U	<3.8 U	<0.38 U	<0.39 U	<0.23 U	<0.11 U	<0.011 U	<0.011 U	<0.37 U	<0.38 U	<0.38 U
Benzaldehyde	NL	<0.38 U	<1.9 U	<3.8 U	<3.8 U	<0.38 U	<0.39 U	<0.25 U	<0.13 U	<0.013 U	<0.013 U	**0.077 J**	<0.38 U	<0.38 U
bis(2-Ethylhexyl) phthalate	NL	**0.064 J**	<1.9 U	<3.8 U	<3.8 U	**0.061 J**	<0.39 U	<0.29 U	<0.14 U	**0.042 J**	**0.046 J**	**0.038 J**	**0.11 J**	**0.081 J**
Butyl benzyl phthalate	NL	<0.38 U	<1.9 U	<3.8 U	<3.8 U	<0.38 U	<0.39 U	<0.48 U	<0.24 U	<0.024 U	<0.024 U	<0.37 U	<0.38 U	<0.38 U
Carbazole	NL	<0.38 U	<1.9 U	<3.8 U	<3.8 U	<0.38 U	<0.39 U	<0.58 U	<0.29 U	<0.029 U	<0.029 U	<0.37 U	<0.38 U	<0.38 U
Dibenzofuran	7	<0.38 U	<1.9 U	<3.8 U	**2.2 J**	<0.38 U	<0.39 U	**3.8 J**	**1.7 J**	<0.012 U	<0.012 U	<0.37 U	**0.086 J**	**0.17 J**
Diethyl phthalate	NL	**0.074 J**	<1.9 U	<3.8 U	<3.8 U	**0.074 J**	<0.39 U	<0.26 U	<0.13 U	<0.013 U	<0.013 U	**0.078 J**	<0.38 U	<0.38 U
Dimethyl phthalate	NL	<0.38 U	<1.9 U	<3.8 U	<3.8 U	<0.38 U	**0.47**	<0.22 U	<0.11 U	<0.011 U	<0.011 U	<0.37 U	<0.49 U	<0.38 U
Di-n-butyl phthalate	NL	**0.043 J**	<1.9 U	<3.8 U	<3.8 U	**0.048 J**	<0.39 U	<0.36 U	<0.18 U	<0.018 U	<0.018 U	**0.077 J**	<0.38 U	**0.1 J**
Phenol	0.33	***<0.38 U***	***<1.9 U***	***<3.8 U***	***<3.8 U***	***<0.38 U***	***<0.39 U***	<0.21 U	<0.1 U	<0.011 U	<0.011 U	***<0.37 U***	***<0.38 U***	***<0.38 U***
Total SVOC	NL	**19.772**	**28.16**	**5.12**	**935.1**	**3.826**	**0.47**	**828.6**	**348.33**	**9.807**	**8.767**	**0.35**	**19.165**	**40.056**

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	MGP-MW-4DD(5-7) 8/19/2009 5-7	MGP-MW-4DD(7-8) 8/19/2009 7-8	MGP-MW-9DD(5-7) 8/19/2009 5-7	MGP-MW-9DD(11.4-12.5) 8/12/2009 11.4-12.5	MGP-MW-9DD(14-15) 8/19/2009 14-15	MGP-MW-10D(12-13.7) 9/3/2009 12-13.7	MW12D(6.2-9.3) 11/20/2008 6.2-9.3	MW12D(13-14.1) 11/20/2008 13-14.1	MW13D(6-7.2) 11/20/2008 6-7.2	MW13D(6-7.2) DUP 11/20/2008 6-7.2	MGP-MW-101S (2-2.5) 8/18/2009	MGP-MW-103S(11-12.5) 8/26/2009 11-12.5	MGP-MW-104S(9-11) 8/25/2009 9-11
Metals (mg/Kg)														
Aluminum	NL	**8850**	**7900**	**5620**	**6010**	**5360**	**10400**	NS	NS	NS	NS	**12900**	**5770**	**4850**
Antimony	NL	<2.580 U	<2.580 U	**0.85 J**	<2.690 U	**0.50 J**	<2.720 U	NS	NS	NS	NS	**0.72 J**	<1.970 U	<1.700 U
Arsenic	13	**0.99 J**	**1.490**	**146**	**1.490**	**1.430**	<1.090 U	NS	NS	NS	NS	**1.300**	**0.86**	**9.040**
Barium	350	**55.6**	**48.0**	**25.5**	**44.0**	**51.9**	**82.2**	NS	NS	NS	NS	**92.2**	**47.0**	**29.6**
Beryllium	7.2	**0.28 J**	**0.34**	**0.25 J**	**0.26 J**	**0.16 J**	**0.31 J**	NS	NS	NS	NS	**0.54**	**0.21 J**	**0.19 J**
Cadmium	2.5	<0.31 U	<0.31 U	<0.33 U	<0.32 U	<0.24 U	**0.67**	NS	NS	NS	NS	<0.34 U	<0.24 U	<0.20 U
Calcium	NL	**736**	**3970**	**8780**	**1470**	**1060**	**2210**	NS	NS	NS	NS	**467**	**1650**	**1460**
Chromium	30	**13.1**	**11.8**	**11.3**	**15.5 J**	**10.2**	**33.2**	NS	NS	NS	NS	**22.9**	**14.2**	**11.3**
Cobalt	NL	**5.740**	**6.420**	**2.800**	**6.210**	**5.680**	**10.0**	NS	NS	NS	NS	**9.070**	**5.310**	**3.810**
Copper	50	**12.9**	**19.6**	**9.330**	**17.2 J**	**11.3**	**20.2**	NS	NS	NS	NS	**35.1**	**21.8**	**10.3**
Iron	NL	**14600**	**16300**	**11100**	**14700**	**11300**	**19000**	NS	NS	NS	NS	**22500**	**13200**	**8940**
Lead	63	**6.070**	**9.160**	**7.810**	**6.510**	**2.580**	**3.960**	**6.97**	**3.15**	**45**	**50.3**	**78.1**	**6.930**	**12.3**
Magnesium	NL	**3290**	**5300**	**5660**	**3090**	**2620**	**6190**	NS	NS	NS	NS	**4910**	**2650**	**1440**
Manganese	1600	**318**	**290**	**135**	**228**	**228**	**256**	NS	NS	NS	NS	**341**	**159**	**108**
Mercury	0.18	**0.013**	**0.005 J**	**0.877**	**0.017 J-**	**0.004 J**	**0.005 J**	NS	NS	NS	NS	**0.026**	**0.021**	**0.045**
Nickel	30	**11.1**	**14.1**	**6.260**	**15.2**	**12.2**	**19.4**	NS	NS	NS	NS	**18.9**	**13.6**	**9.610**
Potassium	NL	**866**	**810**	**467**	**1420**	**2280**	**2440**	NS	NS	NS	NS	**2900**	**1770**	**566**
Selenium	3.9	<1.030 U	<1.030 U	<1.100 U	<1.070 U	<0.80 U	<1.090 U	NS	NS	NS	NS	<1.120 U	**0.48 J**	**0.44 J**
Silver	2	<0.52 U	<0.52 U	<0.55 U	<0.54 U	<0.40 U	<0.54 U	NS	NS	NS	NS	<0.56 U	<0.39 U	<0.34 U
Sodium	NL	**448**	**349**	**353**	**402**	**267**	**1120**	NS	NS	NS	NS	**131**	**285**	**276**
Thallium	NL	<2.060 U	<2.060 U	<2.210 U	<2.150 U	<1.610 U	**0.78 J**	NS	NS	NS	NS	<2.250 U	<1.570 U	<1.360 U
Vanadium	NL	**21.6**	**17.4**	**15.4**	**15.4**	**15.6**	**29.9**	NS	NS	NS	NS	**35.8**	**21.0**	**11.5**
Zinc	109	**32.9 J-**	**42.5 J-**	**22.1 J-**	**39.3 J**	**31.7 J-**	**35.1**	NS	NS	NS	NS	**60.5 J-**	**30.4**	**20.5**
Cyanide (mg/Kg)														
Cyanide, Total	27	<0.58 U	<0.57 U	<0.57 U	<0.580 U	<0.58 U	<0.587 U	NS	NS	NS	NS	<0.56 U	<0.57 U	<0.58 U
Fuel Oil (mg/Kg)														
Gasoline Range Organics (GR	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Petroleum Contaminant	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TPH (SGT-HEM)	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PCBs (mg/Kg)														
Aroclor 1260	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.019 UJ	NS
Total PCB	0.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND	NS
Percent Solids														
Solids, percent	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	MGP-MW105S (1.5-2) 8/13/2009 1.5-2	MGP-MW-105S(2-4) 8/13/2009 2-4	MGP-MW-105S(5-6.5) 9/4/2009 5-6.5	MGP-MW105D(5-7) 1/5/2010 5-7	MGP-MW-108S(12-14) 9/28/2009 12-14	MGP-MW-108S(14-15) 9/28/2009 14-15	MGP-MW-109D(4-5) 3/10/2012 4-5	MGP-MW-109D(4-5) DUP 3/10/2012 4-5	MGP-MW-110D(1.5-2.2) 1/4/2012 1.5-2.2	MGP-MW-112D(7-8.5) 1/12/2012 7-8.5	MGP-MW-112D(15-16.4) 1/12/2012 15-16.4	MGP-MW-113D(7-8.5) 1/6/2012 7-8.5	MGP-MW-113D(11-13) 1/6/2012 11-13
BTEX mg/Kg														
Benzene	0.06	NS	NS	<0.0055 U	<0.0056 U	***<0.56 U***	***<0.54 U***	<0.0010 UJ	<0.0011 UJ	<0.0010 U	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U
Ethylbenzene	1	NS	NS	<0.0055 U	<0.0056 U	**3.9**	**2.5**	<0.0010 UJ	<0.0011 UJ	<0.0010 U	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U
Toluene	0.7	NS	NS	<0.0055 U	<0.0056 U	<0.56 U	<0.54 U	<0.0010 UJ	<0.0011 UJ	<0.0010 U	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U
m&p-Xylene	NL	NS	NS	<0.011 U	<0.011 U	**6.4**	**3.5**	<0.0010 UJ	<0.0011 UJ	<0.0010 UJ	<0.0012 U	<0.0011 U	<0.0011 UJ	<0.0011 UJ
o-Xylene	NL	NS	NS	<0.0055 U	<0.0056 U	**4.2**	**2.2**	<0.0010 UJ	<0.0011 UJ	<0.0010 U	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U
Total Xylene (calculated)/Xylen	0.26	NS	NS	ND	ND	**10.6**	**5.7**	<0.0010 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U
Total BTEX	*NL*	*NS*	*NS*	*ND*	*ND*	***14.5***	***8.2***	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
VOC (mg/Kg)														
1,2,3-Trichlorobenzene	NL	NS	NS	NS	NS	NS	NS	<0.0021 UJ	**0.0031 J**	<0.0021 UJ	<0.0023 U	<0.0022 U	<0.0021 UJ	<0.0022 UJ
1,2,4-Trichlorobenzene	NL	NS	NS	<0.0055 U	<0.0056 U	<0.56 U	<0.54 U	<0.0021 UJ	**0.0023 J**	<0.0021 UJ	<0.0023 U	<0.0022 U	<0.0021 UJ	<0.0022 UJ
1,2,4-Trimethylbenzene	3.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	8.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	0.12	NS	NS	<0.028 U	<0.028 U	***<2.8 U***	***<2.7 U***	R	R	<0.0021 U	<0.0023 U	<0.0022 U	<0.0021 U	<0.0022 U
2-Hexanone	NL	NS	NS	<0.028 U	<0.028 U	<2.8 U	<2.7 U	<0.0021 U	<0.0022 U	<0.0021 U	<0.0023 U	<0.0022 U	<0.0021 U	<0.0022 U
4-Isopropyltoluene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acetone	0.05	NS	NS	<0.028 U	<0.028 U	***<2.8 U***	***<2.7 U***	R	R	<0.010 U	<0.012 U	<0.011 U	<0.011 U	<0.011 U
Bromoform	NL	NS	NS	<0.0055 U	<0.0056 U	<0.56 U	<0.54 U	<0.0021 UJ	<0.0022 UJ	<0.0021 UJ	<0.0023 UJ	<0.0022 UJ	<0.0021 UJ	<0.0022 UJ
Cyclohexane	NL	NS	NS	<0.0055 U	<0.0056 U	<0.56 U	<0.54 U	<0.0021 U	<0.0022 U	<0.0021 U	<0.0023 U	<0.0022 U	<0.0021 U	<0.0022 U
Isopropylbenzene	NL	NS	NS	<0.0055 U	<0.0056 U	**1.2**	**0.71**	<0.0010 UJ	<0.0011 UJ	<0.0010 UJ	<0.0012 U	<0.0011 U	<0.0011 UJ	<0.0011 UJ
Methyl tert-butyl ether	0.93	NS	NS	<0.0055 U	<0.0056 U	<0.56 U	<0.54 U	<0.0010 U	<0.0011 U	<0.00052 U	<0.00058 U	<0.00056 U	<0.00053 U	<0.00055 U
Methylcyclohexane	NL	NS	NS	<0.0055 U	<0.0056 U	**0.2 J**	**0.29 J**	<0.0021 U	<0.0022 U	<0.0021 U	<0.0023 U	<0.0022 U	<0.0021 U	<0.0022 U
Methylene chloride	0.05	NS	NS	<0.0055 U	<0.0056 U	***<0.56 U***	***<0.54 U***	<0.0021 U	<0.0022 U	<0.0029 U	<0.0023 U	<0.0022 U	<0.0021 U	<0.0022 U
n - Propylbenzene	3.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Butylbenzene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	NL	NS	NS	<0.0055 U	<0.0056 U	<0.56 U	<0.54 U	<0.0021 UJ	<0.0022 UJ	<0.0021 UJ	<0.0023 U	<0.0022 U	<0.0021 UJ	<0.0022 UJ
Tetrachloroethene	1.3	NS	NS	<0.0055 U	<0.0056 U	<0.56 U	<0.54 U	<0.0010 U	<0.0011 U	<0.0021 UJ	<0.0023 U	<0.0022 U	<0.0021 UJ	<0.0022 UJ
Total VOC	*NL*	*NS*	*NS*	*ND*	*ND*	***15.9***	***9.2***	*ND*	***0.0054***	*ND*	*ND*	*ND*	*ND*	*ND*
PAH (mg/Kg)														
2-Methylnaphthalene	NL	NS	NS	**0.27 J**	<0.37 U	**110**	**72**	<0.037 U	<0.038 U	<0.036 U	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Acenaphthene	20	NS	NS	**0.2 J**	<0.37 U	**47**	**35**	<0.037 U	<0.038 U	<0.036 U	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Acenaphthylene	100	NS	NS	**0.089 J**	<0.37 U	**5**	**4.2**	<0.037 U	<0.038 U	**0.051**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Anthracene	100	NS	NS	**0.15 J**	<0.37 U	**20**	**20**	<0.037 U	<0.038 U	**0.058**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Benzo(a)anthracene	1	NS	NS	**0.11 J**	**0.093 J**	**13**	**10**	<0.037 U	<0.038 U	**0.38**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Benzo(a)pyrene	1	NS	NS	**0.081 J**	**0.09 J**	**9.2**	**6.4**	<0.037 U	<0.038 U	**0.37**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Benzo(b)fluoranthene	1	NS	NS	**0.073 J**	**0.12 J**	**6.6**	**4.8**	<0.037 U	<0.038 U	**0.45**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Benzo(b,k)fluoranthene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(ghi)perylene	100	NS	NS	**0.058 J**	**0.097 J**	**4**	**3.6**	<0.037 U	<0.038 U	**0.29**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Benzo(k)fluoranthene	0.8	NS	NS	**0.039 J**	**0.065 J**	**2.4**	**1.5 J**	<0.037 U	<0.038 U	**0.14**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Chrysene	1	NS	NS	**0.1 J**	**0.11 J**	**11**	**8.9**	<0.037 U	<0.038 U	**0.37**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Dibenz(a,h)anthracene	0.33	NS	NS	***<0.37 U***	***<0.37 U***	**0.72 J**	**0.68 J**	<0.037 U	<0.038 U	**0.10**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Fluoranthene	100	NS	NS	**0.21 J**	**0.18 J**	**24**	**23**	<0.037 U	<0.038 U	**0.35**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Fluorene	30	NS	NS	**0.15 J**	<0.37 U	**24**	**23**	<0.037 U	<0.038 U	<0.036 U	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Indeno(1,2,3-cd)pyrene	0.5	NS	NS	**0.042 J**	**0.074 J**	**2.6**	**2.9 J**	<0.037 U	<0.038 U	**0.24**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Naphthalene	12	NS	NS	**0.7**	<0.37 U	**300**	**190**	<0.0093 U	<0.0096 U	<0.0090 U	<0.0099 U	<0.0096 U	<0.010 U	<0.0095 U
Phenanthrene	100	NS	NS	**0.62**	**0.078 J**	**96**	**63**	<0.037 U	<0.038 U	**0.086**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Pyrene	100	NS	NS	**0.31 J**	**0.17 J**	**37**	**28**	<0.037 U	<0.038 U	**0.70**	<0.040 U	<0.038 U	<0.040 U	<0.038 U
Total PAH	*NL*	*NS*	*NS*	***3.202***	***1.077***	***712.52***	***496.98***	*ND*	*ND*	***3.585***	*ND*	*ND*	*ND*	*ND*
SVOC (mg/Kg)														
1,1'-Biphenyl	NL	NS	NS	**0.049 J**	<0.37 U	**11**	**8.3**	NS	NS	NS	NS	NS	NS	NS
3+4-Methylphenol	NL	NS	NS	<0.37 U	<0.37 U	<1.8 U	<3.6 U	NS	NS	NS	NS	NS	NS	NS
Acetophenone	NL	NS	NS	<0.37 U	<0.37 U	<1.8 U	<3.6 U	NS	NS	NS	NS	NS	NS	NS
Benzaldehyde	NL	NS	NS	<0.37 U	<0.37 U	<1.8 U	<3.6 U	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl) phthalate	NL	NS	NS	**0.22 J**	**0.052 J**	<1.8 U	<3.6 U	NS	NS	NS	NS	NS	NS	NS
Butyl benzyl phthalate	NL	NS	NS	<0.37 U	<0.37 U	<1.8 U	<3.6 U	NS	NS	NS	NS	NS	NS	NS
Carbazole	NL	NS	NS	<0.37 U	<0.37 U	**0.24 J**	<3.6 U	NS	NS	NS	NS	NS	NS	NS
Dibenzofuran	7	NS	NS	<0.37 U	<0.37 U	**1.7 J**	**1.7 J**	NS	NS	NS	NS	NS	NS	NS
Diethyl phthalate	NL	NS	NS	<0.37 U	<0.37 U	<1.8 U	<3.6 U	NS	NS	NS	NS	NS	NS	NS
Dimethyl phthalate	NL	NS	NS	0.5 U	<0.37 U	<1.8 U	<3.6 U	NS	NS	NS	NS	NS	NS	NS
Di-n-butyl phthalate	NL	NS	NS	<0.37 U	<0.37 U	<1.8 U	<3.6 U	NS	NS	NS	NS	NS	NS	NS
Phenol	0.33	NS	NS	***<0.37 U***	**0.052 J**	***<1.8 U***	***<3.6 U***	NS	NS	NS	NS	NS	NS	NS
Total SVOC	NL	NS	NS	**3.971**	**1.181**	**725.46**	**506.98**	ND	ND	**3.585**	ND	ND	ND	ND

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	MGP-MW105S (1.5-2) 8/13/2009 1.5-2	MGP-MW-105S(2-4) 8/13/2009 2-4	MGP-MW-105S(5-6.5) 9/4/2009 5-6.5	MGP-MW105D(5-7) 1/5/2010 5-7	MGP-MW-108S(12-14) 9/28/2009 12-14	MGP-MW-108S(14-15) 9/28/2009 14-15	MGP-MW-109D(4-5) 3/10/2012 4-5	MGP-MW-109D(4-5) DUP 3/10/2012 4-5	MGP-MW-110D(1.5-2.2) 1/4/2012 1.5-2.2	MGP-MW-112D(7-8.5) 1/12/2012 7-8.5	MGP-MW-112D(15-16.4) 1/12/2012 15-16.4	MGP-MW-113D(7-8.5) 1/6/2012 7-8.5	MGP-MW-113D(11-13) 1/6/2012 11-13
Metals (mg/Kg)														
Aluminum	NL	NS	NS	**12100**	**7420**	**4930**	**3920**	NS	NS	NS	NS	NS	NS	NS
Antimony	NL	NS	NS	**0.65 J**	<2.780 U	**0.39 J**	<2.270 U	NS	NS	NS	NS	NS	NS	NS
Arsenic	13	NS	NS	**61.6**	**4.040**	**6.260**	**15.1**	NS	NS	NS	NS	NS	NS	NS
Barium	350	NS	NS	**132**	**97.5**	**34.3**	**28.5**	NS	NS	NS	NS	NS	NS	NS
Beryllium	7.2	NS	NS	**0.42**	**0.25 J**	**0.18 J**	**0.13 J**	NS	NS	NS	NS	NS	NS	NS
Cadmium	2.5	NS	NS	**0.58**	<0.33 U	**0.18 J**	**0.16 J**	NS	NS	NS	NS	NS	NS	NS
Calcium	NL	NS	NS	**1320**	**2060**	**4980**	**39000**	NS	NS	NS	NS	NS	NS	NS
Chromium	30	NS	NS	**33.6**	**15.7**	**13.4**	**9.540**	NS	NS	NS	NS	NS	NS	NS
Cobalt	NL	NS	NS	**10.1**	**6.150**	**5.530**	**3.120**	NS	NS	NS	NS	NS	NS	NS
Copper	50	NS	NS	**24.6**	**16.6 J**	**17.4**	**7.600**	NS	NS	NS	NS	NS	NS	NS
Iron	NL	NS	NS	**20400**	**12800**	**11400**	**7820**	NS	NS	NS	NS	NS	NS	NS
Lead	63	NS	NS	**9.120**	**21.0**	**4.610**	**4.010**	NS	NS	NS	NS	NS	NS	NS
Magnesium	NL	NS	NS	**5390**	**2400**	**4820**	**25700**	NS	NS	NS	NS	NS	NS	NS
Manganese	1600	NS	NS	**304**	**192**	**148**	**124**	NS	NS	NS	NS	NS	NS	NS
Mercury	0.18	NS	NS	**0.087**	**0.048**	**0.004 J**	**0.004 J**	NS	NS	NS	NS	NS	NS	NS
Nickel	30	NS	NS	**24.2**	**15.8**	**13.2**	**7.660**	NS	NS	NS	NS	NS	NS	NS
Potassium	NL	NS	NS	**5960**	**1480**	**1230**	**1290**	NS	NS	NS	NS	NS	NS	NS
Selenium	3.9	NS	NS	<1.100 U	<1.110 U	<0.66 U	<0.91 U	NS	NS	NS	NS	NS	NS	NS
Silver	2	NS	NS	<0.55 U	<0.56 U	<0.33 U	<0.45 U	NS	NS	NS	NS	NS	NS	NS
Sodium	NL	NS	NS	**330**	**611**	**190**	**198**	NS	NS	NS	NS	NS	NS	NS
Thallium	NL	NS	NS	**1.810 J**	<2.220 U	<1.320 U	<1.820 U	NS	NS	NS	NS	NS	NS	NS
Vanadium	NL	NS	NS	**34.7**	**18.9**	**15.2**	**12.4**	NS	NS	NS	NS	NS	NS	NS
Zinc	109	NS	NS	**213**	**46.5**	**24.8**	**16.8**	NS	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)														
Cyanide, Total	27	NS	NS	<0.557 U	<0.556 U	<0.559 U	<0.545 U	NS	NS	NS	NS	NS	NS	NS
Fuel Oil (mg/Kg)														
Gasoline Range Organics (GR	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Petroleum Contaminant	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TPH (SGT-HEM)	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PCBs (mg/Kg)														
Aroclor 1260	NL	**0.054**	**0.065**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PCB	0.1	**0.054**	**0.065**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Percent Solids														
Solids, percent	NL	NS	NS	NS	NS	NS	NS	**90**	**87**	**93**	**84**	**87**	**83**	**88**

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	MGP-MW-114D(11-13) 2/24/2012 11-13	MGP-MW-116D(10-12) 1/10/2012 10-12	MGP-MW-116D(12-12.5) 1/10/2012 12-12.5	MGP-SB-2(5-6) 8/13/2009 5-6	MGP-SB-3(1.5-2.0) 8/5/2009 1.5-2	MGP-SB-4(6-8) 8/13/2009 6-8	MGPSB5(10-11) 8/16/2009 10-11	MGPSB5(11-13) 8/16/2009 11-13	MGPSB5(16-17) 8/16/2009 16-17	MGP-SB-6(7-8) 8/12/2009 7-8	MGP-SB-7(6-7.3) 8/13/2009 6-7.3	MGP-SB-8(0.75-1) 8/10/2009 0.75-1	MGP-SB-8(1-2) 8/10/2009 1-2
BTEX mg/Kg														
Benzene	0.06	<0.0013 U	<0.0011 U	<0.0011 U	**0.016**	**550**	<0.0058 U	<0.0057 UJ	**0.71 J**	<0.0056 UJ	<0.0058 UJ	<0.0058 U	NS	NS
Ethylbenzene	1	<0.0013 UJ	<0.0011 U	<0.0011 U	**0.065**	**1200**	<0.0058 U	<0.0057 UJ	**4.4 J**	<0.0056 UJ	**0.011 J**	<0.0058 U	NS	NS
Toluene	0.7	<0.0013 UJ	<0.0011 U	<0.0011 U	**0.0037 J**	**670**	<0.0058 U	<0.0057 UJ	***<3 U***	<0.0056 UJ	<0.0058 UJ	<0.0058 U	NS	NS
m&p-Xylene	NL	<0.0013 U	<0.0011 U	<0.0011 U	**0.012 J**	**1000**	<0.012 U	<0.011 UJ	**2.6 J**	<0.011 UJ	**0.011 J**	<0.012 U	NS	NS
o-Xylene	NL	<0.0013 U	<0.0011 U	<0.0011 U	**0.019**	**490**	<0.0058 U	<0.0057 UJ	**4 J**	<0.0056 UJ	<0.0058 UJ	<0.0058 U	NS	NS
Total Xylene (calculated)/Xylen	0.26	<0.0013 U	<0.0011 U	<0.0011 U	**0.031**	**1490**	ND	ND	**6.6**	ND	**0.011**	ND	NS	NS
Total BTEX	*NL*	*ND*	*ND*	*ND*	***0.1157***	***3910***	*ND*	*ND*	***11.71***	*ND*	***0.022***	*ND*	*NS*	*NS*
VOC (mg/Kg)														
1,2,3-Trichlorobenzene	NL	<0.0025 UJ	<0.0021 U	<0.0022 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	NL	<0.0025 UJ	<0.0021 U	<0.0022 U	<0.0062 UJ	<0.82 U	<0.0058 U	<0.0057 UJ	<3 U	<0.0056 UJ	<0.0058 UJ	<0.0058 U	NS	NS
1,2,4-Trimethylbenzene	3.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	8.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	0.12	R	<0.0021 U	<0.0022 U	<0.031 U	***<4.1 U***	<0.029 U	<0.029 UJ	***<15 U***	<0.028 UJ	<0.029 UJ	<0.029 U	NS	NS
2-Hexanone	NL	<0.0025 U	<0.0021 U	<0.0022 U	<0.031 U	<4.1 U	<0.029 U	<0.029 UJ	<15 U	<0.028 UJ	<0.029 UJ	<0.029 U	NS	NS
4-Isopropyltoluene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acetone	0.05	R	<0.011 U	<0.011 U	<0.031 U	***<4.1 U***	<0.029 U	<0.029 UJ	***<15 U***	<0.028 UJ	<0.029 UJ	<0.029 U	NS	NS
Bromoform	NL	<0.0025 UJ	<0.0021 UJ	<0.0022 UJ	<0.0062 U	<0.82 U	<0.0058 U	<0.0057 UJ	<3 U	<0.0056 UJ	<0.0058 UJ	<0.0058 U	NS	NS
Cyclohexane	NL	<0.0025 U	<0.0021 U	<0.0022 U	**0.0054 J**	**0.66 J**	<0.0058 U	<0.0057 UJ	<3 U	<0.0056 UJ	**1.9**	<0.0058 U	NS	NS
Isopropylbenzene	NL	<0.0013 U	<0.0011 U	<0.0011 U	**0.045**	**95**	<0.0058 U	<0.0057 UJ	**1.6 J**	<0.0056 UJ	**0.04 J**	<0.0058 U	NS	NS
Methyl tert-butyl ether	0.93	<0.0013 U	<0.00054 U	<0.00054 U	<0.0062 U	<0.82 U	<0.0058 U	<0.0057 UJ	***<3 U***	<0.0056 UJ	<0.0058 UJ	<0.0058 U	NS	NS
Methylcyclohexane	NL	<0.0025 U	<0.0021 U	<0.0022 U	**0.029**	**1.9**	<0.0058 U	<0.0057 UJ	**1 J**	<0.0056 UJ	**8.1 D**	<0.0058 U	NS	NS
Methylene chloride	0.05	<0.0025 U	<0.0021 U	<0.0022 U	<0.0062 U	***<0.82 U***	<0.0058 U	<0.0057 UJ	***<3 U***	<0.0056 UJ	<0.0058 UJ	**0.0024 J**	NS	NS
n - Propylbenzene	3.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Butylbenzene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	NL	<0.0025 UJ	<0.0021 U	<0.0022 U	<0.0062 UJ	<0.82 U	<0.0058 U	<0.0057 J	<3 U	<0.0056 UJ	<0.0058 UJ	<0.0058 U	NS	NS
Tetrachloroethene	1.3	<0.0025 UJ	<0.0021 U	<0.0022 U	<0.0062 U	<0.82 U	<0.0058 U	<0.0057 UJ	**1.5 J**	<0.0056 UJ	<0.0058 UJ	<0.0058 U	NS	NS
Total VOC	*NL*	*ND*	*ND*	*ND*	***0.1951***	***4007.56***	*ND*	*ND*	***15.81***	*ND*	***10.062***	***0.0024***	*NS*	*NS*
PAH (mg/Kg)														
2-Methylnaphthalene	NL	<0.042 U	<0.039 U	<0.037 U	**0.12 J**	**1600**	<0.38 U	<7.6 U	**5.9 J**	**0.2 J**	**0.19 J**	**1.3 J**	NS	NS
Acenaphthene	20	<0.042 U	<0.039 U	<0.037 U	**0.1 J**	**850**	<0.38 U	<7.6 U	**2.2 J**	**0.15 J**	**0.045 J**	<1.9 U	NS	NS
Acenaphthylene	100	**0.11**	<0.039 U	<0.037 U	**0.43**	**130**	<0.38 U	**9.1**	**1.2**	**0.1 J**	<0.38 U	<1.9 U	NS	NS
Anthracene	100	**0.076**	<0.039 U	<0.037 U	**0.24 J**	**330**	<0.38 U	**1.9 J**	**3.7**	**0.28 J**	<0.38 U	<1.9 U	NS	NS
Benzo(a)anthracene	1	**0.45**	<0.039 U	<0.037 U	**1.3**	**240**	<0.38 U	**8.8 J**	**1.9 J**	**0.19 J**	<0.38 U	**0.26 J**	NS	NS
Benzo(a)pyrene	1	**0.31**	<0.039 U	<0.037 U	**0.78**	**190**	<0.38 U	**13 J**	**1.5 J**	**0.22 J**	<0.38 U	**0.33 J**	NS	NS
Benzo(b)fluoranthene	1	**0.46**	<0.039 U	<0.037 U	**1.7**	**160**	<0.38 U	**17**	**1.2**	**0.24 J**	<0.38 U	**0.42 J**	NS	NS
Benzo(b,k)fluoranthene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(ghi)perylene	100	**0.21**	<0.039 U	<0.037 U	**0.98**	**100**	<0.38 U	**16**	**0.74**	**0.21 J**	<0.38 U	**0.32 J**	NS	NS
Benzo(k)fluoranthene	0.8	**0.14**	<0.039 U	<0.037 U	**0.49**	**44**	<0.38 U	**4.7 J**	**0.36 J**	**0.067 J**	<0.38 U	***<1.9 U***	NS	NS
Chrysene	1	**0.40**	<0.039 U	<0.037 U	**1.4**	**230**	<0.38 U	**9.6 J**	**1.7 J**	**0.21 J**	<0.38 U	**0.3 J**	NS	NS
Dibenz(a,h)anthracene	0.33	**0.075**	<0.039 U	<0.037 U	**0.22 J**	**18 J**	***<0.38 U***	**2.8 J**	**0.16 J**	***<0.37 U***	***<0.38 U***	***<1.9 U***	NS	NS
Fluoranthene	100	**0.61**	<0.039 U	<0.037 U	**1.3**	**560**	<0.38 U	**7.3 J**	**4.7 J**	**0.31 J**	**0.055 J**	**0.3 J**	NS	NS
Fluorene	30	<0.042 U	<0.039 U	<0.037 U	**0.18 J**	**610**	<0.38 U	**0.8 J**	**3.4**	**0.16 J**	**0.071 J**	<1.9 U	NS	NS
Indeno(1,2,3-cd)pyrene	0.5	**0.18**	<0.039 U	<0.037 U	**0.71**	**62**	<0.38 U	**12**	**0.64**	**0.15 J**	<0.38 U	**0.21 J**	NS	NS
Naphthalene	12	**0.046**	<0.0097 U	<0.0093 U	**0.6**	**5700**	<0.38 U	<7.6 U	**24**	**0.41**	**0.11 J**	<1.9 U	NS	NS
Phenanthrene	100	**0.28**	<0.039 U	<0.037 U	**0.92**	**1500**	<0.38 U	**3.7 J**	**12 J**	**0.66**	**0.18 J**	**0.55 J**	NS	NS
Pyrene	100	**0.84**	<0.039 U	<0.037 U	**1.9**	**750**	<0.38 U	**12 J**	**5.7 J**	**0.51 J**	**0.074 J**	**0.52 J**	NS	NS
Total PAH	*NL*	***4.187***	*ND*	*ND*	***13.37***	***13074***	*ND*	***118.7***	***71***	***4.067***	***0.725***	***4.51***	*NS*	*NS*
SVOC (mg/Kg)														
1,1'-Biphenyl	NL	NS	NS	NS	<0.41 U	**190**	<0.38 U	<7.6 UJ	**1.5 J**	**0.065 J**	<0.38 U	<1.9 U	NS	NS
3+4-Methylphenol	NL	NS	NS	NS	<0.41 U	<43 U	<0.38 U	<7.6 U	<0.4 U	<0.37 U	<0.38 U	<1.9 U	NS	NS
Acetophenone	NL	NS	NS	NS	**0.051 J**	<43 U	<0.38 U	<7.6 U	<0.4 U	<0.37 U	<0.38 U	<1.9 U	NS	NS
Benzaldehyde	NL	NS	NS	NS	<0.41 U	<43 U	<0.38 U	<7.6 U	<0.4 U	<0.37 U	<0.38 U	<1.9 U	NS	NS
bis(2-Ethylhexyl) phthalate	NL	NS	NS	NS	<0.41 U	<43 U	<0.38 U	<7.6 UJ	<0.4 UJ	**0.047 J**	**0.068 J**	<1.9 U	NS	NS
Butyl benzyl phthalate	NL	NS	NS	NS	<0.41 U	<43 U	<0.38 U	<7.6 UJ	<0.4 U	<0.37 UJ	<0.38 U	<1.9 U	NS	NS
Carbazole	NL	NS	NS	NS	<0.41 U	**7.2 J**	<0.38 U	<7.6 U	<0.4 U	<0.37 U	<0.38 U	<1.9 U	NS	NS
Dibenzofuran	7	NS	NS	NS	<0.41 U	**58**	<0.38 U	***<7.6 UJ***	**0.21 J**	<0.37 UJ	<0.38 U	<1.9 U	NS	NS
Diethyl phthalate	NL	NS	NS	NS	<0.41 U	<43 U	<0.38 U	<7.6 U	<0.4 U	<0.37 U	<0.38 U	<1.9 U	NS	NS
Dimethyl phthalate	NL	NS	NS	NS	<0.41 U	<43 U	<0.38 U	<7.6 U	<0.5 U	<0.37 U	<0.38 U	<1.9 U	NS	NS
Di-n-butyl phthalate	NL	NS	NS	NS	<0.41 U	<43 U	<0.38 U	<7.6 UJ	<0.4 UJ	<0.37 UJ	<0.38 U	<1.9 U	NS	NS
Phenol	0.33	NS	NS	NS	***<0.41 U***	***<43 U***	***<0.38 U***	***<7.6 U***	***<0.4 U***	***<0.37 U***	***<0.38 U***	***<1.9 U***	NS	NS
Total SVOC	NL	**4.187**	ND	ND	**13.421**	**13329.2**	ND	**118.7**	**72.71**	**4.179**	**0.793**	**4.51**	NS	NS

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	MGP-MW-114D(11-13) 2/24/2012 11-13	MGP-MW-116D(10-12) 1/10/2012 10-12	MGP-MW-116D(12-12.5) 1/10/2012 12-12.5	MGP-SB-2(5-6) 8/13/2009 5-6	MGP-SB-3(1.5-2.0) 8/5/2009 1.5-2	MGP-SB-4(6-8) 8/13/2009 6-8	MGPSB5(10-11) 8/16/2009 10-11	MGPSB5(11-13) 8/16/2009 11-13	MGPSB5(16-17) 8/16/2009 16-17	MGP-SB-6(7-8) 8/12/2009 7-8	MGP-SB-7(6-7.3) 8/13/2009 6-7.3	MGP-SB-8(0.75-1) 8/10/2009 0.75-1	MGP-SB-8(1-2) 8/10/2009 1-2
Metals (mg/Kg)														
Aluminum	NL	NS	NS	NS	**6780**	**7950**	**4420**	**8820 J**	**8150 J**	**13600 J**	**8530**	**12300**	NS	NS
Antimony	NL	NS	NS	NS	**0.87 J**	**2.390 J**	<2.340 U	**1.180 J**	<3.020 U	**1.070 J**	<2.530 U	<2.230 U	NS	NS
Arsenic	13	NS	NS	NS	**3.540**	**10.4**	<0.94 U	**6.640**	**1.390**	<1.120 U	<1.010 U	<0.89 U	NS	NS
Barium	350	NS	NS	NS	**68.0**	**68.5**	**24.5**	**128 J**	**66.8 J**	**202 J**	**85.2**	**105**	NS	NS
Beryllium	7.2	NS	NS	NS	**0.32 J**	**0.36 J**	**0.17 J**	**0.42**	**0.43**	**0.32 J**	**0.26 J**	**0.44**	NS	NS
Cadmium	2.5	NS	NS	NS	<0.36 U	**1.960**	<0.28 U	<0.35 U	<0.36 U	<0.34 U	<0.30 U	<0.27 U	NS	NS
Calcium	NL	NS	NS	NS	**2080**	**17700**	**786**	**16500**	**1550**	**1270**	**1340**	**1910**	NS	NS
Chromium	30	NS	NS	NS	**16.3 J**	**13.7**	**8.160 J**	**20.6 J**	**19.5 J**	**28.7 J**	**24.9 J**	**52.0 J**	NS	NS
Cobalt	NL	NS	NS	NS	**5.930**	**5.520**	**3.170**	**9.180**	**7.540**	**11.8**	**8.140**	**8.630**	NS	NS
Copper	50	NS	NS	NS	**29.5 J**	**53.1**	**10.7 J**	**57.8 J**	**20.7 J**	**19.4 J**	**21.2 J**	**31.0 J**	NS	NS
Iron	NL	NS	NS	NS	**26100**	**14700**	**7030**	**29600 J**	**19600 J**	**27700 J**	**17000**	**17800**	NS	NS
Lead	63	NS	NS	NS	**69.2**	**486**	**2.010**	**297**	**6.650**	**7.010**	**4.040**	**10.7**	NS	NS
Magnesium	NL	NS	NS	NS	**2330**	**4250**	**1090**	**4840**	**3410**	**6470**	**3980**	**6800**	NS	NS
Manganese	1600	NS	NS	NS	**206**	**282**	**231**	**397**	**381**	**365**	**255**	**442**	NS	NS
Mercury	0.18	NS	NS	NS	**0.026 J-**	**0.147**	<0.012 UJ	**0.154**	**0.010 J**	**0.004 J**	**0.084 J-**	**0.003 J-**	NS	NS
Nickel	30	NS	NS	NS	**15.7**	**13.2**	**9.090**	**23.9**	**16.3**	**23.3**	**26.4**	**44.9**	NS	NS
Potassium	NL	NS	NS	NS	**1250**	**1270**	**882**	**2400**	**1760**	**11200**	**4170**	**3460**	NS	NS
Selenium	3.9	NS	NS	NS	<1.180 U	**4.59**	<0.94 U	<1.150 U	<1.210 U	<1.120 U	<1.010 U	<0.89 U	NS	NS
Silver	2	NS	NS	NS	<0.59 U	**0.39 J**	<0.47 U	<0.58 U	<0.60 U	<0.56 U	<0.51 U	<0.45 U	NS	NS
Sodium	NL	NS	NS	NS	**256**	**1040**	**217**	**385**	**272**	**521**	**345**	**648**	NS	NS
Thallium	NL	NS	NS	NS	<2.370 U	<2.620 U	<1.870 U	<2.310 U	<2.420 U	**1.250 J**	<2.030 U	<1.780 U	NS	NS
Vanadium	NL	NS	NS	NS	**21.8**	**19.4**	**10.6**	**29.7**	**23.4**	**49.6**	**28.9**	**31.7**	NS	NS
Zinc	109	NS	NS	NS	**140 J**	**182**	**26.4 J**	**77.2 J**	**44.6 J**	**66.5 J**	**35.3 J**	**47.8 J**	NS	NS
Cyanide (mg/Kg)														
Cyanide, Total	27	NS	NS	NS	**2.860**	**4.510**	<0.581 U	**2.480**	<0.604 U	<0.561 U	<0.577 U	<0.579 U	NS	NS
Fuel Oil (mg/Kg)														
Gasoline Range Organics (GR	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Petroleum Contaminant	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TPH (SGT-HEM)	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PCBs (mg/Kg)														
Aroclor 1260	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.02 U	<0.02 U
Total PCB	0.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND	ND
Percent Solids														
Solids, percent	NL	**80**	**86**	**90**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	MGP-SB-8(10-12) 8/13/2009 10-12	MGP-SB-8(10-12)DUP 8/13/2009 10-12	MGPSB9(8-10) 8/15/2009 8-10	MGPSB9(11-12.5) 8/15/2009 11-12.5	MGPSB9(11-12.5)DUP 8/15/2009 11-12.5	MGP-SB-10(6-7) 2/25/2012 6-7	MGP-SB-10(15-16) 2/25/2012 15-16	MGP-SB-10(19-20.4) 2/25/2012 19-20.4	MGPSG5(1-2.2) 7/28/2009 1-2.2	TP-1(5-5.5) 8/11/2009 5-5.5	TP-2(1.0-1.3) 8/12/2009 1-1.3	TP-3(2.0-2.5) 8/25/2009 2-2.5	TP-3(5.0-5.5) 8/25/2009 5-5.5
BTEX mg/Kg														
Benzene	0.06	<0.0056 UJ	<0.0057 U	<0.0060 U	3.6	<2.8 U	<0.0011 U	1.3	<0.11 U	0.0033 J	<0.0057 U	<0.0055 U	<0.0057 U	<0.0055 U
Ethylbenzene	1	<0.0056 UJ	<0.0057 U	<0.0060 U	29	7.4	<0.0011 UJ	23	5.3	<0.0065 U	<0.0057 U	<0.0055 U	<0.0057 U	<0.0055 U
Toluene	0.7	<0.0056 UJ	<0.0057 U	<0.0060 U	15	2.3 J	<0.0011 UJ	3	<0.23 U	<0.0065 U	<0.0057 U	<0.0055 U	<0.0057 U	<0.0055 U
m&p-Xylene	NL	<0.011 UJ	<0.011 U	<0.012 U	56	16	<0.0011 U	27	7.5	<0.013 U	<0.011 U	<0.011 U	<0.011 U	<0.011 U
o-Xylene	NL	<0.0056 UJ	<0.0057 U	<0.0060 U	27	9	<0.0011 U	15	5.0	<0.0065 U	<0.0057 U	<0.0055 U	<0.0057 U	<0.0055 U
Total Xylene (calculated)/Xylen	0.26	ND	ND	ND	83	25	<0.0011 U	42	12.5	ND	ND	ND	ND	ND
Total BTEX	*NL*	*ND*	*ND*	*ND*	*130.6*	*34.7*	*ND*	*69.3*	*17.8*	*0.0033*	*ND*	*ND*	*ND*	*ND*
VOC (mg/Kg)														
1,2,3-Trichlorobenzene	NL	NS	NS	NS	NS	NS	<0.0023 UJ	<1.2 U	<0.23 U	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	NL	<0.0056 UJ	<0.0057 U	<0.0060 U	<2.8 U	1.7 J	<0.0023 UJ	<1.2 U	<0.23 U	<0.0065 U	<0.0057 U	<0.0055 UJ	<0.0057 U	<0.0055 U
1,2,4-Trimethylbenzene	3.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	8.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	0.12	<0.028 UJ	<0.029 U	<0.03 U	<14 U	<14 U	R	<1.2 U	<0.23 U	0.013 J	<0.029 U	<0.028 U	<0.028 U	<0.028 U
2-Hexanone	NL	<0.028 UJ	<0.029 U	0.0087 J	<14 U	<14 U	<0.0023 U	<1.2 U	<0.23 U	<0.032 U	<0.029 U	<0.028 U	<0.028 U	<0.028 U
4-Isopropyltoluene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acetone	0.05	<0.028 UJ	<0.029 U	<0.03 U	<14 U	<14 U	R	<12 UJ	<2.3 U	0.1	<0.029 U	<0.028 U	<0.028 U	<0.028 U
Bromoform	NL	<0.0056 UJ	<0.0057 U	<0.0060 U	<2.8 U	<2.8 U	<0.0023 UJ	<1.2 UJ	<0.23 UJ	<0.0065 U	<0.0057 U	<0.0055 U	<0.0057 U	<0.0055 U
Cyclohexane	NL	<0.0056 UJ	<0.0057 U	<0.0060 U	<2.8 U	<2.8 U	<0.0023 U	<1.2 U	0.67	<0.0065 U	<0.0057 U	<0.0055 U	<0.0057 U	<0.0055 U
Isopropylbenzene	NL	<0.0056 UJ	<0.0057 U	<0.0060 U	2.5 J	1.2 J	<0.0011 U	2.1	2.5	<0.0065 U	<0.0057 U	<0.0055 UJ	<0.0057 U	<0.0055 U
Methyl tert-butyl ether	0.93	<0.0056 UJ	<0.0057 U	<0.0060 U	<2.8 U	<2.8 U	<0.0011 U	<0.60 U	<0.11 UJ	<0.0065 U	<0.0057 U	<0.0055 U	<0.0057 U	<0.0055 U
Methylcyclohexane	NL	<0.0056 UJ	<0.0057 U	<0.0060 U	0.77 J	<2.8 U	<0.0023 U	5.7	2.1	<0.0065 U	<0.0057 U	<0.0055 U	<0.0057 U	<0.0055 U
Methylene chloride	0.05	0.0029 J	0.0026 J	<0.0060 U	<2.8 U	<2.8 U	<0.0023 U	<1.2 U	<0.23 U	<0.0065 U	<0.0057 U	0.0027 J	<0.0057 U	<0.0055 U
n - Propylbenzene	3.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Butylbenzene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	NL	<0.0056 UJ	<0.0057 U	<0.0060 U	4.1	1.7 J	<0.0023 U	<1.2 U	<0.23 U	<0.0065 U	<0.0057 U	<0.0055 UJ	<0.0057 U	<0.0055 U
Tetrachloroethene	1.3	<0.0056 UJ	<0.0057 U	<0.0060 U	<2.8 UJ	<2.8 UJ	<0.0023 UJ	<1.2 U	<0.23 U	<0.0065 U	<0.0057 U	<0.0055 U	<0.0057 UJ	<0.0055 UJ
Total VOC	*NL*	*0.0029*	*0.0026*	*0.0087*	*137.97*	*39.3*	*ND*	*77.1*	*23.07*	*0.1163*	*ND*	*0.0027*	*ND*	*ND*
PAH (mg/Kg)														
2-Methylnaphthalene	NL	<0.37 U	<0.38 U	<7.8 U	380	220	<2.3 U	77	92	2.9 J	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Acenaphthene	20	<0.37 U	<0.38 U	<7.8 U	33	20	<2.3 U	45	90	1.6 J	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Acenaphthylene	100	<0.37 U	<0.38 U	7.7 J	130	87	14	6.7	11	4.8	1.2 J	1.4 J	<0.37 U	<0.37 U
Anthracene	100	<0.37 U	<0.38 U	1.5 J	150	90	4.3	21	34	6.1	1.1 J	0.68 J	<0.37 U	<0.37 U
Benzo(a)anthracene	1	<0.37 U	<0.38 U	2.4 J	58	43 J	20	19	30	11	4.3	4.4 J	<0.37 U	<0.37 U
Benzo(a)pyrene	1	<0.37 U	<0.38 U	13 J	47	37 J	18	12	23	9	2.6	5.2 J	<0.37 U	<0.37 U
Benzo(b)fluoranthene	1	<0.37 U	<0.38 U	11	42	30	28	10	18	11	3.4	6.7 J	<0.37 U	<0.37 U
Benzo(b,k)fluoranthene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(ghi)perylene	100	<0.37 U	<0.38 U	11	27	17	25	<6.0 U	11	7.3	2.2	4.8 J	<0.37 U	<0.37 U
Benzo(k)fluoranthene	0.8	<0.37 U	<0.38 U	2.7 J	10	7 J	9.5	<6.0 U	<5.7 U	3.7 J	1.1 J	1.9 J	<0.37 U	<0.37 U
Chrysene	1	<0.37 U	<0.38 U	6 J	60	42 J	23	14	25	12	4.6	4 J	<0.37 U	<0.37 U
Dibenz(a,h)anthracene	0.33	<0.37 U	<0.38 U	3 J	4.7 J	3.1 J	7.8	<6.0 U	<5.7 U	1.5 J	0.49 J	0.62 J	<0.37 U	<0.37 U
Fluoranthene	100	<0.37 U	<0.38 U	1.2 J	150	110	17	39	68	22	4.9	8	<0.37 U	<0.37 U
Fluorene	30	<0.37 U	<0.38 U	<7.8 U	130	87	<2.3 U	34	54	3.5 J	0.33 J	<3.7 U	<0.37 U	<0.37 U
Indeno(1,2,3-cd)pyrene	0.5	<0.37 U	<0.38 U	9.7	20	14	20	<6.0 U	6.4	5	1.7 J	3.4 J	<0.37 U	<0.37 U
Naphthalene	12	<0.37 U	<0.38 U	<7.8 U	1000	510	<0.57 U	220	170	3.1 J	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Phenanthrene	100	<0.37 U	<0.38 U	<7.8 U	410	280	4.0	120	220	22	4.5	1.1 J	<0.37 U	<0.37 U
Pyrene	100	<0.37 U	<0.38 U	3.9 J	190	140 J	35	57	110	29 D	8.4	8	<0.37 U	<0.37 U
Total PAH	*NL*	*ND*	*ND*	*73.1*	*2841.7*	*1737.1*	*225.6*	*674.7*	*962.4*	*155.5*	*40.82*	*50.2*	*ND*	*ND*
SVOC (mg/Kg)														
1,1'-Biphenyl	NL	<0.37 U	<0.38 U	<7.8 UJ	65	41 J	NS	NS	NS	<4.3 U	<1.9 U	<3.7 U	<0.37 U	<0.37 U
3+4-Methylphenol	NL	<0.37 U	<0.38 U	<7.8 U	<7.3 U	<7.4 U	NS	NS	NS	<4.3 U	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Acetophenone	NL	<0.37 U	<0.38 U	<7.8 U	0.96 J	<7.4 U	NS	NS	NS	<4.3 U	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Benzaldehyde	NL	<0.37 U	<0.38 U	<7.8 U	<7.3 U	<7.4 U	NS	NS	NS	<4.3 U	<1.9 U	<3.7 U	<0.37 U	<0.37 U
bis(2-Ethylhexyl) phthalate	NL	0.09 J	0.075 J	<7.8 UJ	<7.3 U	<7.4 UJ	NS	NS	NS	<4.3 U	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Butyl benzyl phthalate	NL	<0.37 U	<0.38 U	<7.8 UJ	<7.3 U	<7.4 UJ	NS	NS	NS	<4.3 U	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Carbazole	NL	<0.37 U	<0.38 U	<7.8 U	0.98 J	<7.4 U	NS	NS	NS	0.49 J	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Dibenzofuran	7	<0.37 U	<0.38 U	<7.8 UJ	10	6.8 J	NS	NS	NS	1.3 J	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Diethyl phthalate	NL	<0.37 U	<0.38 U	<7.8 U	<7.3 U	<7.4 U	NS	NS	NS	<4.3 U	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Dimethyl phthalate	NL	<0.37 U	<0.38 U	<7.8 U	<7.3 U	<7.4 U	NS	NS	NS	<4.3 U	<1.9 U	<3.7 U	<0.71 U	<0.37 U
Di-n-butyl phthalate	NL	<0.37 U	<0.38 U	<7.8 UJ	<7.3 U	<7.4 UJ	NS	NS	NS	<4.3 U	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Phenol	0.33	<0.37 U	<0.38 U	<7.8 U	<7.3 U	<7.4 U	NS	NS	NS	<4.3 U	<1.9 U	<3.7 U	<0.37 U	<0.37 U
Total SVOC	NL	0.09	0.075	73.1	2508.64	1784.9	225.6	674.7	962.4	157.29	40.82	50.2	ND	ND

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	MGP-SB-8(10-12) 8/13/2009 10-12	MGP-SB-8(10-12)DUP 8/13/2009 10-12	MGPSB9(8-10) 8/15/2009 8-10	MGPSB9(11-12.5) 8/15/2009 11-12.5	MGPSB9(11-12.5)DUP 8/15/2009 11-12.5	MGP-SB-10(6-7) 2/25/2012 6-7	MGP-SB-10(15-16) 2/25/2012 15-16	MGP-SB-10(19-20.4) 2/25/2012 19-20.4	MGPSG5(1-2.2) 7/28/2009 1-2.2	TP-1(5-5.5) 8/11/2009 5-5.5	TP-2(1.0-1.3) 8/12/2009 1-1.3	TP-3(2.0-2.5) 8/25/2009 2-2.5	TP-3(5.0-5.5) 8/25/2009 5-5.5
Metals (mg/Kg)														
Aluminum	NL	**5840**	**6340**	**10800 J**	**7310 J**	**7310 J**	NS	NS	NS	**7500**	**10200**	**5690**	**9600**	**8880**
Antimony	NL	<2.820 U	<2.000 U	**0.82 J**	<1.880 U	**0.51 J**	NS	NS	NS	**4.240**	**0.66 J**	<2.790 U	<1.660 U	<1.800 U
Arsenic	13	<1.130 U	<0.80 U	**1.460**	<0.75 U	<0.83 U	NS	NS	NS	**537**	**3.540 J**	**6.520**	**0.80**	**0.61 J**
Barium	350	**42.8**	**49.7**	**48.6 J**	**60.9 J**	**63.0 J**	NS	NS	NS	**132**	**49.7**	**67.6**	**63.8**	**62.3**
Beryllium	7.2	**0.17 J**	**0.17 J**	**0.41**	**0.25**	**0.30**	NS	NS	NS	**0.59**	**0.42**	**0.25 J**	**0.32**	**0.29**
Cadmium	2.5	<0.34 U	**0.08 J**	<0.31 U	<0.33 U	<0.34 U	NS	NS	NS	**1.750**	**1.780**	**2.380**	**0.31**	**0.17 J**
Calcium	NL	**1460**	**1420**	**652**	**1520**	**1380**	NS	NS	NS	**2940**	**1550 J**	**65200**	**907**	**1010**
Chromium	30	**17.4 J**	**22.3 J**	**20.1 J**	**17.0 J**	**19.4 J**	NS	NS	NS	**23.3**	**15.1 J**	**23.6 J**	**18.1**	**19.9**
Cobalt	NL	**5.040**	**5.830**	**6.830**	**5.360**	**7.730**	NS	NS	NS	**7.670**	**7.800**	**5.920**	**7.800**	**7.160**
Copper	50	**13.1 J**	**15.4 J**	**15.1 J**	**15.8 J**	**21.6 J**	NS	NS	NS	**86.6**	**27.2 J**	**50.2 J**	**20.6**	**22.4**
Iron	NL	**11300**	**12400**	**18400 J**	**11800 J**	**15700 J**	NS	NS	NS	**23200**	**18000 J**	**13300**	**17000**	**15400**
Lead	63	**2.770**	**3.230**	**9.410**	**4.960**	**5.800**	NS	NS	NS	**349**	**111**	**659**	**4.690**	**10.4**
Magnesium	NL	**2530**	**3150**	**2640**	**2820**	**3050**	NS	NS	NS	**2380**	**2690 J**	**36700**	**3300**	**3210**
Manganese	1600	**295**	**291**	**292**	**282**	**325**	NS	NS	NS	**253**	**201 J**	**228**	**161**	**150**
Mercury	0.18	<0.011 UJ	<0.011 UJ	**0.026**	**0.006 J**	**0.011 J**	NS	NS	NS	**0.552**	**0.087 J+**	**0.162**	**0.012**	**0.012**
Nickel	30	**14.9**	**17.3**	**12.9**	**17.3**	**23.0**	NS	NS	NS	**19.4**	**17.2**	**19.1**	**20.5**	**20.7**
Potassium	NL	**1420**	**1540**	**1440**	**1600**	**1980**	NS	NS	NS	**1310**	**1090**	**2050**	**2480**	**2170**
Selenium	3.9	<1.130 U	<0.80 U	<1.050 U	<0.75 U	<0.83 U	NS	NS	NS	**2.34**	<1.130 UJ	<1.120 U	**0.37 J**	**0.30 J**
Silver	2	<0.56 U	<0.40 U	<0.52 U	<0.38 U	<0.41 U	NS	NS	NS	<0.61 U	<0.57 U	<0.56 U	<0.33 U	<0.36 U
Sodium	NL	**400**	**427**	**176**	**150**	**177**	NS	NS	NS	**1450**	**590 J**	**833**	**686**	**708**
Thallium	NL	<2.260 U	<1.600 U	<2.100 U	<1.500 U	<1.660 U	NS	NS	NS	<2.430 U	<2.260 UJ	<2.230 U	<1.330 U	<1.440 U
Vanadium	NL	**18.5**	**20.9**	**30.5**	**16.0**	**22.5**	NS	NS	NS	**26.8**	**22.8**	**19.8**	**23.4**	**23.3**
Zinc	109	**22.9 J**	**27.8 J**	**33.7 J**	**34.5 J**	**35.2 J**	NS	NS	NS	**205**	**939 J**	**390 J**	**29.3**	**32.6**
Cyanide (mg/Kg)														
Cyanide, Total	27	<0.564 U	<0.572 U	<0.593 U	<0.556 U	<0.560 U	NS	NS	NS	**1.73**	<0.577 U	**20**	<0.56 U	<0.55 U
Fuel Oil (mg/Kg)														
Gasoline Range Organics (GR	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Petroleum Contaminant	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TPH (SGT-HEM)	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PCBs (mg/Kg)														
Aroclor 1260	NL	NS	NS	NS	NS	NS	NS	NS	NS	<0.023 U	NS	NS	NS	NS
Total PCB	0.1	NS	NS	NS	NS	NS	NS	NS	NS	ND	NS	NS	NS	NS
Percent Solids														
Solids, percent	NL	NS	NS	NS	NS	NS	**88**	**84**	**88**	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	TP-3(6.0-6.5) 8/25/2009 6-6.5	TP-3(8.5-9.0) 8/25/2009 8.5-9	TP-3-(11-13) 8/26/2009 11-13	TP-3BORING(5-6) 9/29/2009 5-6	TP-3BORING(6-6.5) 9/29/2009 6-6.5	TP-4(3.0-3.5) 8/27/2009 3-3.5	TP-4(5.5) 8/27/2009 5.5-5.5	MGP-TP-4(7-8.5) 9/4/2009 7-8.5	TP-5B(0.5-1.0) 8/24/2009 0.5-1	TP-5(8.0-8.5) 8/24/2009 8-8.5	TP-5(10.0-10.5) 8/24/2009 10-10.5	TP-5CONF 8/21/2009 0-0.5	TP-6(2.0-2.5) 8/14/2009 2-2.5
BTEX mg/Kg														
Benzene	0.06	<0.0058 U	<0.0056 U	<0.0060 U	3	6.9	140	210	430	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
Ethylbenzene	1	0.085	<0.0056 U	<0.0060 U	170	290	670	790	1000	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
Toluene	0.7	0.0065	<0.0056 U	<0.0060 U	66	160	490	620	920	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
m&p-Xylene	NL	0.026	<0.011 U	<0.012 U	240	390	550	630	800	<0.012 U	<0.011 U	<0.012 U	NS	<0.011 U
o-Xylene	NL	0.11	<0.0056 U	<0.0060 U	97	150	270	300	350	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
Total Xylene (calculated)/Xylen	0.26	0.136	ND	ND	337	540	820	930	1150	ND	ND	ND	NS	ND
Total BTEX	*NL*	*0.2275*	*ND*	*ND*	*576*	*996.9*	*2120*	*2550*	*3500*	*ND*	*ND*	*ND*	*NS*	*ND*
VOC (mg/Kg)														
1,2,3-Trichlorobenzene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	NL	<0.0058 U	<0.0056 U	<0.0060 U	<0.6 U	<0.64 U	<3.2 U	<3.5 U	<6.6 U	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
1,2,4-Trimethylbenzene	3.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	8.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	0.12	<0.029 U	<0.028 U	<0.03 U	*<3 U*	*<3.2 U*	*<16 U*	*<17 U*	*<33 U*	<0.031 U	<0.028 U	<0.029 U	NS	<0.028 U
2-Hexanone	NL	<0.029 U	<0.028 U	<0.03 U	<3 U	<3.2 U	<16 U	<17 U	<33 U	<0.031 U	<0.028 U	<0.029 U	NS	0.012 J
4-Isopropyltoluene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acetone	0.05	<0.029 U	<0.028 U	<0.03 U	*<3 U*	*<3.2 U*	*<16 U*	*<17 U*	*<33 U*	<0.031 U	<0.028 U	<0.029 U	NS	<0.028 U
Bromoform	NL	<0.0058 U	<0.0056 U	<0.0060 U	<0.6 U	<0.64 U	<3.2 U	<3.5 U	<6.6 U	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
Cyclohexane	NL	0.027	<0.0056 U	<0.0060 U	4.4	12	<3.2 U	<3.5 U	<6.6 U	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
Isopropylbenzene	NL	0.054	<0.0056 U	<0.0060 U	17	18	74	73	85	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
Methyl tert-butyl ether	0.93	<0.0058 U	<0.0056 U	<0.0060 U	<0.6 U	<0.64 U	*<3.2 U*	*<3.5 U*	*<6.6 U*	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
Methylcyclohexane	NL	0.2	<0.0056 U	<0.0060 U	35	87 D	<3.2 U	<3.5 U	4.8 J	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
Methylene chloride	0.05	<0.0058 U	<0.0056 U	<0.0060 U	*<0.6 U*	*<0.64 U*	*<3.2 U*	*<3.5 U*	*<6.6 U*	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
n - Propylbenzene	3.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Butylbenzene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	NL	<0.0058 U	<0.0056 U	<0.0060 U	1.6	3.4	<3.2 U	<3.5 U	5.4 J	<0.0061 U	<0.0057 U	<0.0058 U	NS	<0.0056 U
Tetrachloroethene	1.3	<0.0058 UJ	<0.0056 UJ	<0.0060 UJ	<0.6 U	<0.64 U	*<3.2 U*	*<3.5 U*	*<6.6 U*	<0.0061 UJ	<0.0057 UJ	<0.0058 U	NS	<0.0056 U
Total VOC	*NL*	*0.5085*	*ND*	*ND*	*634*	*1117.3*	*2194*	*2623*	*3595.2*	*ND*	*ND*	*ND*	*NS*	*0.012*
PAH (mg/Kg)														
2-Methylnaphthalene	NL	2.8	<0.37 U	0.29 J	26 D	3.9	620	750	0.77	<2 U	<0.37 U	<0.38 U	NS	<1.9 U
Acenaphthene	20	0.19 J	<0.37 U	<0.39 U	0.49	0.14 J	300	350	0.97	<2 U	<0.37 U	<0.38 U	NS	<1.9 U
Acenaphthylene	100	0.045 J	<0.37 U	<0.39 U	1	0.2 J	42	48	0.25 J	<2 U	<0.37 U	<0.38 U	NS	1.3 J
Anthracene	100	0.087 J	<0.37 U	<0.39 U	0.33 J	0.086 J	130	150	0.97	<2 U	<0.37 U	<0.38 U	NS	0.46 J
Benzo(a)anthracene	1	0.13 J	<0.37 U	<0.39 U	0.54	0.12 J	74	84	0.8	0.21 J	<0.37 U	<0.38 U	NS	2.4 J
Benzo(a)pyrene	1	0.073 J	<0.37 U	<0.39 U	0.27 J	0.065 J	51	57	0.53	0.23 J	<0.37 U	<0.38 U	NS	2.5 J
Benzo(b)fluoranthene	1	0.13 J	<0.37 U	<0.39 U	0.4	0.081 J	46	47	0.45	0.29 J	<0.37 U	<0.38 U	NS	3.9
Benzo(b,k)fluoranthene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(ghi)perylene	100	0.075 J	<0.37 U	<0.39 U	0.25 J	0.043 J	26	27	0.25 J	<2 U	<0.37 U	<0.38 U	NS	3.9
Benzo(k)fluoranthene	0.8	0.041 J	<0.37 U	<0.39 U	0.16 J	0.048 J	12 J	18 J	0.16 J	*<2 U*	<0.37 U	<0.38 U	NS	1.1 J
Chrysene	1	0.16 J	<0.37 U	<0.39 U	0.56	0.14 J	67	75	0.82	0.24 J	<0.37 U	<0.38 U	NS	2.8 J
Dibenz(a,h)anthracene	0.33	*<0.38 U*	*<0.37 U*	*<0.39 U*	0.041 J	*<0.42 U*	6 J	6.9 J	0.06 J	*<2 U*	*<0.37 U*	*<0.38 U*	NS	0.62 J
Fluoranthene	100	0.32 J	<0.37 U	<0.39 U	1.1	0.21 J	150	170	1.5	0.38 J	<0.37 U	<0.38 U	NS	2.6
Fluorene	30	0.22 J	<0.37 U	<0.39 U	0.93	0.19 J	160	170	1.1	<2 U	<0.37 U	<0.38 U	NS	<1.9 U
Indeno(1,2,3-cd)pyrene	0.5	0.21 J	<0.37 U	<0.39 U	0.2 J	<0.42 U	16 J	19 J	0.21 J	*<2 U*	<0.37 U	<0.38 U	NS	2.9
Naphthalene	12	9.2 D	<0.37 U	1	260	46	1800	2100	0.31 J	<2 U	<0.37 U	<0.38 U	NS	0.59 J
Phenanthrene	100	0.7	<0.37 U	0.065 J	2.6	0.56	440	510	4.2	<2 U	<0.37 U	0.045 J	NS	1.5 J
Pyrene	100	0.44	<0.37 U	0.04 J	1.6	0.31 J	170	190	2.7	0.4 J	0.038 J	<0.38 U	NS	4.6 J
Total PAH	*NL*	*14.821*	*ND*	*1.395*	*296.471*	*52.093*	*4110*	*4771.9*	*16.05*	*1.75*	*0.038*	*0.045*	*NS*	*31.17*
SVOC (mg/Kg)														
1,1'-Biphenyl	NL	0.3 J	<0.37 U	<0.39 U	1.7	0.3 J	59	69	0.11 J	<2 U	<0.37 U	<0.38 U	NS	<1.9 UJ
3+4-Methylphenol	NL	<0.38 U	<0.37 U	<0.39 U	0.099 J	0.046 J	3 J	3.9 J	<0.43 U	<2 U	<0.37 U	<0.38 U	NS	<1.9 U
Acetophenone	NL	<0.38 U	<0.37 U	<0.39 U	<0.4 U	<0.42 U	<21 U	<22 U	<0.43 U	<2 U	<0.37 U	<0.38 U	NS	<1.9 U
Benzaldehyde	NL	<0.38 U	<0.37 U	<0.39 U	<0.4 U	<0.42 U	<21 U	<22 U	<0.43 U	<2 U	<0.37 U	<0.38 U	NS	<1.9 U
bis(2-Ethylhexyl) phthalate	NL	<0.38 U	0.097 J	<0.39 U	<0.4 U	<0.42 U	<21 U	<22 U	<0.43 U	<2 U	<0.37 U	<0.38 U	NS	<1.9 UJ
Butyl benzyl phthalate	NL	<0.38 U	<0.37 U	<0.39 U	<0.4 U	<0.42 U	<21 U	<22 U	<0.43 U	<2 U	<0.37 U	<0.38 U	NS	<1.9 UJ
Carbazole	NL	<0.38 U	<0.37 U	<0.39 U	<0.4 U	<0.42 U	2.7 J	2.8 J	<0.43 U	<2 U	<0.37 U	<0.38 U	NS	<1.9 U
Dibenzofuran	7	<0.38 U	<0.37 U	<0.39 U	0.046 J	<0.42 U	19 J	22 J	0.095 J	<2 U	<0.37 U	<0.38 U	NS	<1.9 UJ
Diethyl phthalate	NL	<0.38 U	<0.37 U	<0.39 U	<0.4 U	<0.42 U	<21 U	<22 U	<0.43 U	<2 U	<0.37 U	<0.38 U	NS	<1.9 U
Dimethyl phthalate	NL	<0.38 U	<0.57 U	<0.39 U	<0.44 U	<0.5 U	<21 U	<22 U	0.56 U	<2 U	<0.47 U	<0.38 U	NS	<1.9 U
Di-n-butyl phthalate	NL	<0.38 U	<0.37 U	<0.39 U	<0.4 U	<0.42 U	<21 U	<22 U	<0.43 U	<2 U	<0.37 U	<0.38 U	NS	<1.9 UJ
Phenol	0.33	*<0.38 U*	*<0.37 U*	*<0.39 U*	0.052 J	*<0.42 U*	*<21 U*	*<22 U*	*<0.43 U*	*<2 U*	*<0.37 U*	*<0.38 U*	NS	*<1.9 U*
Total SVOC	NL	15.121	0.097	1.395	298.368	52.439	4193.7	4869.6	16.815	1.75	0.038	0.385	NS	31.17

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	TP-3(6.0-6.5) 8/25/2009 6-6.5	TP-3(8.5-9.0) 8/25/2009 8.5-9	TP-3-(11-13) 8/26/2009 11-13	TP-3BORING(5-6) 9/29/2009 5-6	TP-3BORING(6-6.5) 9/29/2009 6-6.5	TP-4(3.0-3.5) 8/27/2009 3-3.5	TP-4(5.5) 8/27/2009 5.5-5.5	MGP-TP-4(7-8.5) 9/4/2009 7-8.5	TP-5B(0.5-1.0) 8/24/2009 0.5-1	TP-5(8.0-8.5) 8/24/2009 8-8.5	TP-5(10.0-10.5) 8/24/2009 10-10.5	TP-5CONF 8/21/2009 0-0.5	TP-6(2.0-2.5) 8/14/2009 2-2.5
Metals (mg/Kg)														
Aluminum	NL	**10100**	**7240**	**6830**	**11900**	**11200**	**12300**	**16500**	**6990**	**8500**	**12000**	**4840**	NS	**9620 J**
Antimony	NL	<1.680 U	<1.680 U	<1.590 U	**0.52 J**	**0.68 J**	<3.170 U	**1.060 J**	**3.210 J**	<1.980 U	<1.670 U	<1.540 U	NS	**0.78 J**
Arsenic	13	**0.43 J**	**0.39 J**	**0.98**	<0.83 U	<1.080 U	**3.280**	**2.070**	**14.3**	**8.910**	**0.89**	**0.27 J**	NS	**39.7**
Barium	350	**77.3**	**49.0**	**52.6**	**80.9**	**77.6**	**59.3**	**71.1**	**53.5**	**83.3**	**73.6**	**33.9**	NS	**182 J**
Beryllium	7.2	**0.34**	**0.26**	**0.22**	**0.47**	**0.56**	**0.52**	**0.50**	**0.34 J**	**0.34**	**0.45**	**0.19**	NS	**0.47**
Cadmium	2.5	**0.43**	**0.08 J**	**0.17 J**	**0.50**	**0.17 J**	**0.19 J**	**1.650**	**1.460**	**0.37**	**0.11 J**	**0.11 J**	NS	**0.90**
Calcium	NL	**1450**	**809**	**1270**	**5700**	**1590**	**2980**	**1300**	**5340**	**9450**	**749**	**863**	NS	**25200**
Chromium	30	**20.8**	**14.9**	**16.8**	**24.8**	**22.4**	**17.8**	**78.4**	**13.5**	**18.4**	**24.1**	**8.510**	NS	**25.9 J**
Cobalt	NL	**9.470**	**6.270**	**7.150**	**9.610**	**8.070**	**6.520**	**17.0**	**7.590**	**5.900**	**7.930**	**5.060**	NS	**7.580**
Copper	50	**22.1**	**16.6**	**32.0**	**25.0**	**16.1**	**39.4**	**22.1**	**63.9**	**24.6**	**21.2**	**16.6**	NS	**38.7 J**
Iron	NL	**17500**	**12800**	**11800**	**18100**	**17300**	**17300**	**24000**	**13400**	**13300**	**15500**	**10000**	NS	**21600 J**
Lead	63	**9.240**	**3.400**	**5.180**	**115**	**8.750**	**109**	**83.8**	**393**	**43.9**	**5.340**	**2.670**	NS	**268**
Magnesium	NL	**3930**	**2450**	**3330**	**4810**	**3410**	**3380**	**7280**	**4820**	**7000**	**3550**	**1370**	NS	**8450**
Manganese	1600	**234**	**284**	**198**	**331**	**219**	**341**	**644**	**244**	**343**	**192**	**142**	NS	**345**
Mercury	0.18	**0.009 J**	**0.005 J**	**0.014**	**0.006 J**	**0.013 J**	**0.193**	**0.171**	**0.446**	**0.213**	**0.006 J**	<0.012 U	NS	**4.3**
Nickel	30	**23.5**	**17.1**	**18.2**	**23.3**	**16.2**	**16.7**	**73**	**12.5**	**13.7**	**22.2**	**18.8**	NS	**18.8**
Potassium	NL	**3070**	**1650**	**2180**	**2370**	**1100**	**1040**	**1320**	**1300**	**938**	**2550**	**912**	NS	**3950**
Selenium	3.9	<0.67 U	**0.46 J**	<0.63 U	<0.83 U	**0.54 J**	**1.910**	**1.670**	**7.21**	<0.79 U	**0.41 J**	**0.28 J**	NS	<1.060 U
Silver	2	<0.34 U	<0.34 U	<0.32 U	<0.42 U	<0.54 U	<0.63 U	<0.53 U	**0.47 J**	<0.40 U	<0.33 U	<0.31 U	NS	<0.53 U
Sodium	NL	**607**	**315**	**434**	**380**	**533**	**512**	**556**	**1800**	**704**	**279**	**138**	NS	**578**
Thallium	NL	<1.350 U	<1.340 U	<1.270 U	<1.670 U	<2.150 U	<2.540 U	<2.120 U	**2.300 J**	<1.580 U	**0.27 J**	<1.230 U	NS	<2.110 U
Vanadium	NL	**32.6**	**19.0**	**21.1**	**30.6**	**31.0**	**25.8**	**28.3**	**18.3**	**20.7**	**26.9**	**14.9**	NS	**33.0**
Zinc	109	**32.6**	**23.4**	**27.9**	**41.0**	**31.4**	**105**	**442**	**169**	**70.1**	**28.8**	**15.2**	NS	**186 J**
Cyanide (mg/Kg)														
Cyanide, Total	27	<0.58 U	<0.57 U	<0.59 U	<0.600 U	<0.641 U	**1.730**	**0.988**	**4.080**	<0.61 U	<0.57 U	<0.57 U	NS	<0.565 UJ
Fuel Oil (mg/Kg)														
Gasoline Range Organics (GR	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Petroleum Contaminant	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TPH (SGT-HEM)	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**642**	NS
PCBs (mg/Kg)														
Aroclor 1260	NL	NS	NS	NS	NS	NS	<0.023 UJ	<0.023 UJ	NS	NS	NS	NS	NS	NS
Total PCB	0.1	NS	NS	NS	NS	NS	ND	ND	NS	NS	NS	NS	NS	NS
Percent Solids														
Solids, percent	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	TP-6(2.0-2.5) DUP 8/14/2009 2-2.5	TP-6(5.5-5.8) 8/14/2009 5.5-5.8	TP7(5.5-6.0) 8/20/2009 5.5-6	TP8(3.5-4.0) 8/20/2009 3.5-4	TP8(6.5-7.0) 8/20/2009 6.5-7	MW-1, S2(DRILL) 8/7/1996	MW-1, S2(DRILL) 8/6/1996	MW-4D-A 8/28/2006 5-5.5	MW-4D-B 8/28/2006 6.5-7	MW-4D-C 8/28/2006 7.5-8	SB-1, S1(HE) 7/26/1996	SB-1, S1(HE) 8/7/1996	SB-2(HE) 7/26/1996
BTEX mg/Kg														
Benzene	0.06	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	ND	ND	*<0.576 U*	*<0.592 U*	*<0.611 U*	ND	0.14	0.012
Ethylbenzene	1	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	2.9	27	17.9	57.5	0.32 J	1.3	0.22	0.019
Toluene	0.7	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	1.4	ND	9.72	31.9	0.34 J	0.43	0.13	0.008
m&p-Xylene	NL	<0.011 U	<0.012 U	<0.011 U	<0.011 U	<0.011 U	NS	NS	NS	NS	NS	NS	NS	NS
o-Xylene	NL	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	NS	NS	NS	NS	NS	NS	NS	NS
Total Xylene (calculated)/Xylen	0.26	ND	ND	ND	ND	ND	19	99	168	386	2.56	3.8	0.84	0.062
Total BTEX	*NL*	*ND*	*ND*	*ND*	*ND*	*ND*	*23.3*	*126*	*195.62*	*475.4*	*3.22*	*5.53*	*1.33*	*0.101*
VOC (mg/Kg)														
1,2,3-Trichlorobenzene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	NL	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trimethylbenzene	3.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6.1	0.43	0.2
1,3,5-Trimethylbenzene	8.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.2	0.18	0.072
2-Butanone	0.12	<0.027 U	<0.03 U	<0.028 U	<0.029 U	<0.028 U	ND	ND	NS	NS	NS	NS	NS	NS
2-Hexanone	NL	0.017 J	<0.03 U	<0.028 U	<0.029 U	<0.028 U	ND	ND	NS	NS	NS	NS	NS	NS
4-Isopropyltoluene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.28	ND	0.006
Acetone	0.05	<0.027 U	<0.03 U	<0.028 U	<0.029 U	<0.028 U	ND	ND	NS	NS	NS	NS	NS	NS
Bromoform	NL	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	ND	ND	<1.15 U	<1.18 U	0.611	NS	NS	NS
Cyclohexane	NL	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	NS	NS	NS	NS	NS	NS	NS	NS
Isopropylbenzene	NL	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	NS	NS	NS	NS	NS	0.89	0.028	0.027
Methyl tert-butyl ether	0.93	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	ND	ND	NS	NS	NS	ND	0.019	0.006
Methylcyclohexane	NL	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	NS	NS	NS	NS	NS	NS	NS	NS
Methylene chloride	0.05	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	ND	ND	*<1.15 U*	*<1.18 U*	*<0.611 U*	NS	NS	NS
n - Propylbenzene	3.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.77	0.07	0.073
Naphthalene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.5	0.68	0.07
n-Butylbenzene	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4.2	0.2	0.3
sec-Butylbenzene	11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.1	0.008	0.019
Styrene	NL	<0.0054 U	<0.0060 U	<0.0056 U	<0.0057 U	<0.0056 U	ND	ND	NS	NS	NS	NS	NS	NS
Tetrachloroethene	1.3	<0.0054 U	<0.0060 U	<0.0056 UJ	<0.0057 UJ	<0.0056 UJ	ND	ND	<1.15 U	<1.18 U	<0.611 U	NS	NS	NS
Total VOC	*NL*	*0.017*	*ND*	*ND*	*ND*	*ND*	*23.3*	*126*	*195.62*	*475.4*	*3.831*	*21.57*	*2.945*	*0.874*
PAH (mg/Kg)														
2-Methylnaphthalene	NL	<3.5 U	0.22 J	<3.7 U	<0.38 U	<0.37 U	NS	NS	2.92	10.9	1.08	NS	NS	NS
Acenaphthene	20	<3.5 U	<2 U	<3.7 U	<0.38 U	<0.37 U	ND	ND	0.206	0.424	0.165	ND	ND	ND
Acenaphthylene	100	1.6 J	0.47 J	<3.7 U	0.62	<0.37 U	NS	NS	0.234	1.02	<0.221 U	NS	NS	NS
Anthracene	100	0.57 J	0.47 J	<3.7 U	0.16 J	<0.37 U	0.63	ND	0.387	0.804	<0.221 U	ND	ND	ND
Benzo(a)anthracene	1	3.5 J	2.2 J	*<3.7 U*	0.79	0.16 J	ND	ND	0.986	1.32	<0.221 U	ND	ND	ND
Benzo(a)pyrene	1	3.3 J	1.6 J	*<3.7 U*	1.3	0.13 J	0.42	ND	0.366	0.514	<0.221 U	ND	ND	ND
Benzo(b)fluoranthene	1	5.1	2.1	*<3.7 U*	1.9	0.22 J	ND	ND	0.442	0.578	<0.221 U	ND	ND	ND
Benzo(b,k)fluoranthene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(ghi)perylene	100	4.5	1.3 J	<3.7 U	2.4	0.13 J	ND	ND	0.417	0.457	<0.221 U	ND	ND	ND
Benzo(k)fluoranthene	0.8	1.4 J	0.73 J	*<3.7 U*	0.49	0.079 J	ND	ND	0.53	0.672	<0.221 U	ND	ND	ND
Chrysene	1	4.2 J	2.3 J	*<3.7 U*	0.94	0.17 J	ND	ND	1.12	1.53	0.166	ND	ND	ND
Dibenz(a,h)anthracene	0.33	0.75 J	0.26 J	*<3.7 U*	0.29 J	*<0.37 U*	ND	ND	<0.211 U	<0.222 U	<0.221 U	ND	ND	ND
Fluoranthene	100	3.5 J	3.2	<3.7 U	0.72	0.35 J	0.96	ND	1.99	2.75	0.172	ND	ND	ND
Fluorene	30	<3.5 U	<2 U	<3.7 U	<0.38 U	<0.37 U	0.69	ND	0.828	1.74	0.192	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.5	3.5 J	1.1 J	*<3.7 U*	1.4	0.087 J	ND	ND	0.269	0.356	<0.221 U	ND	ND	ND
Naphthalene	12	0.49 J	0.32 J	<3.7 U	0.039 J	<0.37 U	6.8	5.1	7.4	35.4	2.32	ND	ND	ND
Phenanthrene	100	1.4 J	2.7	<3.7 U	0.25 J	0.2 J	2.8	ND	4.38	7.3	0.632	ND	ND	ND
Pyrene	100	6.4 J	5.1 J	<3.7 U	1.5	0.32 J	1.5	ND	2.88	4.17	0.313	ND	53	ND
Total PAH	*NL*	*40.21*	*24.07*	*ND*	*12.799*	*1.846*	*7*	*ND*	*25.355*	*69.935*	*5.04*	*ND*	*53*	*ND*
SVOC (mg/Kg)														
1,1'-Biphenyl	NL	<3.5 UJ	<2 UJ	<3.7 U	<0.38 U	<0.37 U	NS	NS	NS	NS	NS	NS	NS	NS
3+4-Methylphenol	NL	<3.5 U	<2 U	<3.7 U	<0.38 U	<0.37 U	NS	NS	NS	NS	NS	NS	NS	NS
Acetophenone	NL	<3.5 U	<2 U	<3.7 U	<0.38 U	<0.37 U	NS	NS	NS	NS	NS	NS	NS	NS
Benzaldehyde	NL	<3.5 U	<2 U	<3.7 U	<0.38 U	<0.37 U	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl) phthalate	NL	<3.5 UJ	<2 UJ	<3.7 U	<0.38 U	<0.37 U	NS	NS	<0.211 U	<0.222 U	0.137	NS	NS	NS
Butyl benzyl phthalate	NL	<3.5 UJ	<2 UJ	<3.7 U	<0.38 U	<0.37 U	NS	NS	<0.211 U	<0.222 U	<0.221 U	NS	NS	NS
Carbazole	NL	<3.5 U	<2 U	<3.7 U	<0.38 U	<0.37 U	NS	NS	<0.211 U	<0.222 U	<0.221 U	NS	NS	NS
Dibenzofuran	7	<3.5 UJ	<2 UJ	<3.7 U	<0.38 U	<0.37 U	NS	NS	<0.211 U	<0.222 U	<0.221 U	NS	NS	NS
Diethyl phthalate	NL	<3.5 U	<2 U	<3.7 U	<0.38 U	<0.37 U	NS	NS	<0.211 U	<0.222 U	<0.221 U	NS	NS	NS
Dimethyl phthalate	NL	<3.5 U	<2 U	<3.7 U	<0.86 U	<0.84 U	NS	NS	<0.211 U	<0.222 U	<0.221 U	NS	NS	NS
Di-n-butyl phthalate	NL	<3.5 UJ	<2 UJ	<3.7 U	<0.38 U	<0.37 U	NS	NS	<0.211 U	<0.222 U	<0.221 U	NS	NS	NS
Phenol	0.33	*<3.5 U*	*<2 U*	*<3.7 U*	0.038 J	*<0.37 U*	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	NL	40.21	24.07	ND	13.697	2.686	7	ND	25.355	69.935	5.177	ND	53	ND

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	TP-6(2.0-2.5) DUP 8/14/2009 2-2.5	TP-6(5.5-5.8) 8/14/2009 5.5-5.8	TP7(5.5-6.0) 8/20/2009 5.5-6	TP8(3.5-4.0) 8/20/2009 3.5-4	TP8(6.5-7.0) 8/20/2009 6.5-7	MW-1, S2(DRILL) 8/7/1996	MW-1, S2(DRILL) 8/6/1996	MW-4D-A 8/28/2006 5-5.5	MW-4D-B 8/28/2006 6.5-7	MW-4D-C 8/28/2006 7.5-8	SB-1, S1(HE) 7/26/1996	SB-1, S1(HE) 8/7/1996	SB-2(HE) 7/26/1996
Metals (mg/Kg)														
Aluminum	NL	**10000 J**	**7830 J**	**12600**	**14200**	**12200**	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	NL	**1.460 J**	**1.020 J**	<2.540 U	**0.82 J**	**0.71 J**	ND	ND	NS	NS	NS	NS	NS	NS
Arsenic	13	**25.7**	**39.2**	**0.56 J**	**2.710**	<1.110 U	**2.23**	**2.22**	NS	NS	NS	NS	NS	NS
Barium	350	**183 J**	**146 J**	**84.7**	**59.5**	**94.9**	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	7.2	**0.46**	**0.51**	**0.46**	**0.57**	**0.43**	**1.85**	**1.45**	NS	NS	NS	NS	NS	NS
Cadmium	2.5	**0.68 J**	**0.66 J**	<0.31 U	<0.30 U	<0.33 U	ND	ND	NS	NS	NS	NS	NS	NS
Calcium	NL	**22100**	**25100**	**827**	**4070**	**1390**	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	30	**26.3 J**	**17.8 J**	**23.0**	**24.1**	**32.6**	**12.1**	**10.7**	NS	NS	NS	NS	NS	NS
Cobalt	NL	**7.120**	**7.930**	**8.380**	**6.800**	**8.420**	NS	NS	NS	NS	NS	NS	NS	NS
Copper	50	**32.1 J**	**27.4 J**	**20.0**	**42.4**	**26.2**	**10.5**	**19.3**	NS	NS	NS	NS	NS	NS
Iron	NL	**17300 J**	**17100 J**	**18900**	**20600**	**18800**	NS	NS	NS	NS	NS	NS	NS	NS
Lead	63	**305**	**169**	**6.470**	**18.0**	**4.270**	**11.4**	**9.06**	**11.5**	**11.2**	**9.39**	NS	NS	NS
Magnesium	NL	**8390**	**10900**	**4180**	**3660**	**4650**	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	1600	**324**	**337**	**369**	**189**	**453**	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.18	**3**	**0.586**	**0.033**	**0.118**	<0.011 U	ND	ND	NS	NS	NS	NS	NS	NS
Nickel	30	**18.4**	**33.2**	**19.4**	**16.9**	**27.7**	**11.4**	**16.5**	NS	NS	NS	NS	NS	NS
Potassium	NL	**4380**	**2410**	**3030**	**1400**	**3580**	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	3.9	<1.040 U	**1.110**	<1.020 U	<1.000 U	<1.110 U	ND	ND	NS	NS	NS	NS	NS	NS
Silver	2	<0.52 U	<0.48 U	<0.51 U	<0.50 U	<0.55 U	ND	ND	NS	NS	NS	NS	NS	NS
Sodium	NL	**557**	**656**	**254**	**1710**	**520**	NS	NS	NS	NS	NS	NS	NS	NS
Thallium	NL	<2.080 U	**0.59 J**	**0.86 J**	**1.130 J**	**0.84 J**	ND	ND	NS	NS	NS	NS	NS	NS
Vanadium	NL	**32.3**	**25.5**	**33.0**	**32.8**	**33.3**	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	109	**161 J**	**126 J**	**37.4**	**36.7**	**47.7**	**21.1**	**26.7**	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)														
Cyanide, Total	27	**0.706 J**	<0.602 UJ	<0.554 U	**0.906**	<0.558 U	NS	NS	NS	NS	NS	NS	NS	NS
Fuel Oil (mg/Kg)														
Gasoline Range Organics (GR	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Petroleum Contaminant	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TPH (SGT-HEM)	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PCBs (mg/Kg)														
Aroclor 1260	NL	NS	NS	NS	NS	NS	ND	ND	NS	NS	NS	ND	ND	ND
Total PCB	0.1	NS	NS	NS	NS	NS	ND	ND	NS	NS	NS	ND	ND	ND
Percent Solids														
Solids, percent	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	SB-2, S1(HE) 8/6/1996	SB-2, S2(DRILL) 8/6/1996	SB-3, S1(HE) 7/26/1996	SB-3, S1(HE) 8/7/1996	SB-3, S2(DRILL) 8/5/1996	SB-3, S2(DRILL) 8/7/1996	SB-4, S1(HE) 7/26/1996	SB-4, S1(HE) 8/6/1996	SB-4, S2(DRILL) 8/5/1996	SB-4, S2(DRILL) 8/6/1996	SB-4, S55(HE) 7/26/1996	SB-HL-1-A 8/22/2006 3-3.5	SB-HL-1-B 8/23/2006 6.5-7
BTEX mg/Kg														
Benzene	0.06	ND	ND	ND	ND	ND	ND	ND	0.11	ND	ND	ND	***<0.617 U***	***<0.28 U***
Ethylbenzene	1	20	4.9	0.56	2.5	5.5	ND	35	0.51	14	5.1	57	<0.617 U	<0.56 U
Toluene	0.7	1.4	0.57	0.56	ND	ND	ND	3.6	0.26	1.2	1.1	6.9	<0.617 U	<0.56 U
m&p-Xylene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
o-Xylene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total Xylene (calculated)/Xylen	0.26	97	29	1.4	2.4	29	ND	160	2	72	31	260	***<0.617 U***	2.88
Total BTEX	*NL*	*118.4*	*34.47*	*2.52*	*4.9*	*34.5*	*ND*	*198.6*	*2.88*	*87.2*	*37.2*	*323.9*	*ND*	*2.88*
VOC (mg/Kg)														
1,2,3-Trichlorobenzene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trimethylbenzene	3.6	66	NS	4.7	11	NS	NS	110	1.3	NS	NS	160	NS	NS
1,3,5-Trimethylbenzene	8.4	21	NS	0.97	0.46	NS	NS	30	0.28	NS	NS	46	NS	NS
2-Butanone	0.12	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	NS	NS
2-Hexanone	NL	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	NS	NS
4-Isopropyltoluene	NL	ND	NS	ND	0.33	NS	NS	0.93	0.032	NS	NS	1.4	NS	NS
Acetone	0.05	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	NS	NS
Bromoform	NL	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	<0.617 U	<0.56 U
Cyclohexane	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Isopropylbenzene	NL	5.2	NS	0.29	0.97	NS	NS	5.6	0.1	NS	NS	9.1	NS	NS
Methyl tert-butyl ether	0.93	ND	ND	ND	ND	ND	ND	ND	0.01	ND	ND	ND	NS	NS
Methylcyclohexane	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Methylene chloride	0.05	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	***<0.617 U***	***<0.56 U***
n - Propylbenzene	3.9	8.7	NS	0.84	2.2	NS	NS	15	0.21	NS	NS	24	NS	NS
Naphthalene	12	8.3	NS	1.4	1.3	NS	NS	11	0.18	NS	NS	12	NS	NS
n-Butylbenzene	12	27	NS	2.1	3.6	NS	NS	32	0.39	NS	NS	50	NS	NS
sec-Butylbenzene	11	1.4	NS	0.13	0.67	NS	NS	1.4	0.053	NS	NS	2.3	NS	NS
Styrene	NL	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	NS	NS
Tetrachloroethene	1.3	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	<0.617 U	<0.56 U
Total VOC	*NL*	*256*	*34.47*	*12.95*	*25.43*	*34.5*	*ND*	*404.53*	*5.435*	*87.2*	*37.2*	*628.7*	*ND*	*2.88*
PAH (mg/Kg)														
2-Methylnaphthalene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.235 U	4.18
Acenaphthene	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.189
Acenaphthylene	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.235 U	<0.211 U
Anthracene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.193
Benzo(a)anthracene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.301
Benzo(a)pyrene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.197
Benzo(b)fluoranthene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.234
Benzo(b,k)fluoranthene	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(ghi)perylene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.13
Benzo(k)fluoranthene	0.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.17
Chrysene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.296
Dibenz(a,h)anthracene	0.33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	<0.211 U
Fluoranthene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.173	0.622
Fluorene	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.266
Indeno(1,2,3-cd)pyrene	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.128
Naphthalene	12	ND	ND	ND	ND	2.2	ND	ND	ND	2.1	2.1	ND	<0.235 U	<0.211 U
Phenanthrene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.144	0.722
Pyrene	100	0.51	ND	ND	0.62	ND	ND	ND	ND	ND	ND	ND	<0.235 U	0.64
Total PAH	*NL*	***0.51***	*ND*	*ND*	***0.62***	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	***0.317***	***8.268***
SVOC (mg/Kg)														
1,1'-Biphenyl	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3+4-Methylphenol	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acetophenone	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzaldehyde	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl) phthalate	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.235 U	0.482
Butyl benzyl phthalate	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.235 U	0.493
Carbazole	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.235 U	<0.211 U
Dibenzofuran	7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.235 U	<0.211 U
Diethyl phthalate	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.235 U	<0.211 U
Dimethyl phthalate	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.235 U	<0.211 U
Di-n-butyl phthalate	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.235 U	0.138
Phenol	0.33	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	NL	0.51	ND	ND	0.62	ND	ND	ND	ND	ND	ND	ND	0.317	9.381

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	SB-2, S1(HE) 8/6/1996	SB-2, S2(DRILL) 8/6/1996	SB-3, S1(HE) 7/26/1996	SB-3, S1(HE) 8/7/1996	SB-3, S2(DRILL) 8/5/1996	SB-3, S2(DRILL) 8/7/1996	SB-4, S1(HE) 7/26/1996	SB-4, S1(HE) 8/6/1996	SB-4, S2(DRILL) 8/5/1996	SB-4, S2(DRILL) 8/6/1996	SB-4, S55(HE) 7/26/1996	SB-HL-1-A 8/22/2006 3-3.5	SB-HL-1-B 8/23/2006 6.5-7
Metals (mg/Kg)														
Aluminum	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	NL	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	NS	NS
Arsenic	13	NS	**2**	NS	NS	**2.4**	**5.94**	NS	NS	**3.7**	**4.44**	NS	NS	NS
Barium	350	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	7.2	NS	**3.69**	NS	NS	**1.92**	**3.1**	NS	NS	**2.25**	**2.34**	NS	NS	NS
Cadmium	2.5	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	NS	NS
Calcium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	30	NS	**30.3**	NS	NS	**19.8**	**31.5**	NS	NS	**22.4**	**25.1**	NS	NS	NS
Cobalt	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	50	NS	**54.6**	NS	NS	**24.9**	**37.2**	NS	NS	**25**	**25.8**	NS	NS	NS
Iron	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	63	NS	**15.1**	NS	NS	**14.5**	**12.3**	NS	NS	**17.1**	**15.3**	NS	**9.63**	**8.86**
Magnesium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	1600	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.18	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	NS	NS
Nickel	30	NS	**33.6**	NS	NS	**24.3**	**36.4**	NS	NS	**27.6**	**29.8**	NS	NS	NS
Potassium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	3.9	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	NS	NS
Silver	2	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	NS	NS
Sodium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Thallium	NL	NS	ND	NS	NS	ND	ND	NS	NS	ND	ND	NS	NS	NS
Vanadium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	109	NS	**80.3**	NS	NS	**50.9**	**52.7**	NS	NS	**62.9**	**42.7**	NS	NS	NS
Cyanide (mg/Kg)														
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fuel Oil (mg/Kg)														
Gasoline Range Organics (GR	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Petroleum Contaminant	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TPH (SGT-HEM)	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PCBs (mg/Kg)														
Aroclor 1260	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
Total PCB	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
Percent Solids														
Solids, percent	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	SB-HL-1-BD 8/23/2006 6.5-7	SB-HL-2-A 8/22/2006 5-5.5	SB-HL-5-A 8/21/2006 2-2.5	SB-HL-6-A 8/23/2006 6.5-7	SB-SA-10-10 10/22/2004 7.5-8	SB-SA10-12 10/21/2004 11.5-12	SB-SA10-13 10/22/2004 7.5-8	SB-SA10-W1-A 8/24/2006 6.5-7	SB-SA10-W1-B 8/24/2006 9-9.5	SB-SA11-17A 10/21/2004 6.5-7	SB-SA11-17B 10/21/2004 9.5-10	SB-SA11-A1-A 8/18/2006 6-6.5	SB-SA11-B1-A 8/18/2006 8.5-9
BTEX mg/Kg														
Benzene	0.06	***<0.281 U***	***<0.553 U***	***<0.613 U***	***<0.27 U***	**0.00887**	<0.0021 U	**0.41**	<0.057 U	<0.057 U	<0.0024 U	<0.0021 U	<0.0062 U	**0.355**
Ethylbenzene	1	<0.562 U	<0.553 U	<0.613 U	<0.54 U	**0.0234**	<0.011 U	**12.2**	<0.115 U	<0.114 U	<0.012 U	<0.011 U	<0.0062 U	**18.9**
Toluene	0.7	<0.562 U	<0.553 U	<0.613 U	<0.54 U	**0.0128**	<0.011 U	**0.77**	<0.115 U	<0.114 U	<0.012 U	<0.011 U	<0.0062 U	**2.46**
m&p-Xylene	NL	NS	NS	NS	NS	**0.0863**	<0.021 U	**46.6**	NS	NS	<0.024 U	<0.021 U	NS	NS
o-Xylene	NL	NS	NS	NS	NS	**0.0348**	<0.011 U	**4.22**	NS	NS	<0.012 U	<0.011 U	NS	NS
Total Xylene (calculated)/Xylen	0.26	**3.05**	***<0.553 U***	***<0.613 U***	**2.78**	**0.1211**	ND	**50.82**	<0.115 U	<0.114 U	ND	ND	<0.0062 U	**25**
Total BTEX	*NL*	***3.05***	*ND*	*ND*	***2.78***	***0.16617***	*ND*	***64.2***	*ND*	*ND*	*ND*	*ND*	*ND*	***46.715***
VOC (mg/Kg)														
1,2,3-Trichlorobenzene	NL	NS	NS	NS	NS	<0.011 U	<0.011 U	<0.59 U	NS	NS	<0.012 U	<0.011 U	NS	NS
1,2,4-Trichlorobenzene	NL	NS	NS	NS	NS	<0.011 U	<0.011 U	<0.59 U	<0.115 U	<0.114 U	<0.012 U	<0.011 U	NS	NS
1,2,4-Trimethylbenzene	3.6	NS	NS	NS	NS	**0.0875**	<0.011 U	**43.6**	NS	NS	<0.012 U	<0.011 U	NS	NS
1,3,5-Trimethylbenzene	8.4	NS	NS	NS	NS	**0.025**	<0.011 U	**11.1**	NS	NS	<0.012 U	<0.011 U	NS	NS
2-Butanone	0.12	NS	NS	NS	NS	<0.057 U	<0.054 U	***<3 U***	<0.115 U	<0.114 U	<0.06 U	<0.053 U	NS	NS
2-Hexanone	NL	NS	NS	NS	NS	<0.057 U	<0.054 U	<3 U	NS	NS	<0.06 U	<0.053 U	NS	NS
4-Isopropyltoluene	NL	NS	NS	NS	NS	<0.011 U	<0.011 U	<0.59 U	NS	NS	<0.012 U	<0.011 U	NS	NS
Acetone	0.05	NS	NS	NS	NS	**0.234**	***<0.054 U***	***<3 U***	***<0.287 U***	***<0.285 U***	***<0.06 U***	***<0.053 U***	NS	NS
Bromoform	NL	<0.562 U	<0.553 U	<0.613 U	<0.54 U	<0.011 U	<0.011 U	<0.59 U	NS	NS	<0.012 U	<0.011 U	<0.0062 U	<0.618 U
Cyclohexane	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Isopropylbenzene	NL	NS	NS	NS	NS	<0.011 U	<0.011 U	**1.94**	NS	NS	<0.012 U	<0.011 U	NS	NS
Methyl tert-butyl ether	0.93	NS	NS	NS	NS	<0.011 U	<0.011 U	<0.59 U	NS	NS	<0.012 U	<0.011 U	NS	NS
Methylcyclohexane	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Methylene chloride	0.05	***<0.562 U***	***<0.553 U***	***<0.613 U***	***<0.54 U***	<0.011 U	<0.011 U	***<0.59 U***	***<0.115 U***	***<0.114 U***	<0.012 U	<0.011 U	<0.0062 U	***<0.618 U***
n - Propylbenzene	3.9	NS	NS	NS	NS	<0.011 U	<0.011 U	**5.58**	NS	NS	<0.012 U	<0.011 U	NS	NS
Naphthalene	12	NS	NS	NS	NS	**0.165**	<0.011 U	**10.4**	NS	NS	<0.012 U	<0.011 U	NS	NS
n-Butylbenzene	12	NS	NS	NS	NS	<0.011 U	<0.011 U	**2.34**	NS	NS	<0.012 U	<0.011 U	NS	NS
sec-Butylbenzene	11	NS	NS	NS	NS	<0.011 U	<0.011 U	**0.642**	NS	NS	<0.012 U	<0.011 U	NS	NS
Styrene	NL	NS	NS	NS	NS	<0.011 U	<0.011 U	<0.59 U	NS	NS	<0.012 U	<0.011 U	NS	NS
Tetrachloroethene	1.3	<0.562 U	<0.553 U	**1.45**	<0.54 U	<0.011 U	<0.011 U	<0.59 U	<0.115 U	<0.114 U	<0.012 U	<0.011 U	<0.0062 U	<0.618 U
Total VOC	*NL*	***3.05***	*ND*	***1.45***	***2.78***	***0.40017***	*ND*	***66.14***	*ND*	*ND*	*ND*	*ND*	*ND*	***46.715***
PAH (mg/Kg)						**0.67767**		**139.802**						
2-Methylnaphthalene	NL	**4.67**	<0.218 U	**0.829**	**1.37**	<0.56 U	<0.53 U	**5.48**	<0.038 U	<0.039 U	<0.56 U	<0.56 U	**7.65**	**1.45**
Acenaphthene	20	**0.2**	<0.218 U	<0.24 U	<0.212 U	<0.56 U	<0.53 U	<0.58 U	**0.492**	<0.045 U	<0.56 U	<0.56 U	**4.88**	**1.98**
Acenaphthylene	100	<0.214 U	<0.218 U	<0.24 U	<0.212 U	<0.56 U	<0.53 U	<0.58 U	**0.187**	<0.032 U	<0.56 U	<0.56 U	**1.14**	**0.473**
Anthracene	100	**0.174**	<0.218 U	**0.206**	**0.158**	<0.56 U	<0.53 U	<0.58 U	**1.01**	<0.066 U	<0.56 U	<0.56 U	**2.42**	**1.72**
Benzo(a)anthracene	1	**0.331**	<0.218 U	**0.434**	<0.212 U	<0.31 U	<0.3 U	**0.436**	**1.09**	<0.032 U	<0.31 U	<0.31 U	**1.62**	**1.11**
Benzo(a)pyrene	1	**0.213**	<0.218 U	**0.35**	<0.212 U	<0.36 U	<0.34 U	<0.37 U	**0.933**	<0.032 U	<0.36 U	<0.36 U	**1.3**	**0.863**
Benzo(b)fluoranthene	1	**0.191**	<0.218 U	**0.578**	<0.212 U	NS	NS	NS	**0.533**	<0.073 U	NS	NS	**0.726**	**0.446**
Benzo(b,k)fluoranthene	NL	NS	NS	NS	NS	<0.67 U	<0.64 U	<0.69 U	NS	NS	<0.67 U	<0.67 U	NS	NS
Benzo(ghi)perylene	100	**0.137**	<0.218 U	**0.435**	<0.212 U	<0.33 U	<0.32 U	<0.35 U	**0.567**	<0.148 U	<0.34 U	<0.33 U	**0.784**	**0.504**
Benzo(k)fluoranthene	0.8	**0.215**	<0.218 U	**0.327**	<0.212 U	NS	NS	NS	**0.569**	<0.054 U	NS	NS	**0.729**	**0.565**
Chrysene	1	**0.28**	<0.218 U	**1.87**	<0.212 U	<0.34 U	<0.33 U	**0.416**	**1.21**	<0.054 U	<0.35 U	<0.34 U	**1.53**	**1.09**
Dibenz(a,h)anthracene	0.33	<0.214 U	<0.218 U	**0.346**	<0.212 U	***<0.36 U***	***<0.34 U***	***<0.37 U***	<0.101 U	<0.103 U	***<0.36 U***	***<0.36 U***	**0.182**	**0.16**
Fluoranthene	100	**0.688**	<0.218 U	**0.684**	<0.212 U	<0.56 U	<0.53 U	**0.886**	**1.86**	<0.039 U	<0.56 U	<0.56 U	**4.15**	**2.99**
Fluorene	30	**0.243**	<0.218 U	<0.24 U	<0.212 U	<0.56 U	<0.53 U	<0.58 U	**0.621**	<0.039 U	<0.56 U	<0.56 U	**3.9**	**1.97**
Indeno(1,2,3-cd)pyrene	0.5	<0.214 U	<0.218 U	**0.343**	<0.212 U	<0.37 U	<0.35 U	<0.38 U	**0.405**	<0.126 U	<0.37 U	<0.37 U	**0.555**	**0.379**
Naphthalene	12	<0.214 U	<0.218 U	**0.734**	<0.212 U	**1.08**	<0.53 U	**10.7**	<0.029 U	<0.03 U	<0.56 U	<0.56 U	**19.3**	**1.35**
Phenanthrene	100	**0.73**	<0.218 U	**1.18**	**0.235**	<0.56 U	<0.53 U	**1.25**	**4.66**	<0.056 U	<0.56 U	<0.56 U	**10.7**	**7.27**
Pyrene	100	**0.718**	<0.218 U	**0.63**	**0.135**	<0.56 U	<0.53 U	**1.34**	**3.26**	<0.034 U	<0.56 U	<0.56 U	**4.59**	**3.27**
Total PAH	*NL*	***8.79***	*ND*	***8.946***	***1.898***	***1.08***	*ND*	***20.508***	***17.397***	*ND*	*ND*	*ND*	***66.156***	***27.59***
SVOC (mg/Kg)														
1,1'-Biphenyl	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3+4-Methylphenol	NL	NS	NS	NS	NS	<2.2 U	<2.1 U	<2.3 U	NS	NS	<2.2 U	<2.2 U	NS	NS
Acetophenone	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzaldehyde	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl) phthalate	NL	**0.429**	<0.218 U	<0.24 U	**0.703**	<0.56 U	<0.53 U	<0.58 U	<0.055 U	<0.056 U	<0.56 U	<0.56 U	<0.244 U	<0.236 U
Butyl benzyl phthalate	NL	**0.237**	<0.218 U	<0.24 U	**0.547**	<0.56 U	<0.53 U	<0.58 U	<0.086 U	<0.088 U	<0.56 U	<0.56 U	<0.244 U	<0.236 U
Carbazole	NL	<0.214 U	<0.218 U	<0.24 U	<0.212 U	NS	NS	NS	NS	NS	NS	NS	<0.244 U	<0.236 U
Dibenzofuran	7	<0.214 U	<0.218 U	<0.24 U	<0.212 U	NS	NS	NS	<0.027 U	<0.028 U	NS	NS	**0.302**	**0.15**
Diethyl phthalate	NL	<0.214 U	<0.218 U	<0.24 U	**0.252**	<0.56 U	<0.53 U	<0.58 U	<0.034 U	<0.034 U	<0.56 U	<0.56 U	<0.244 U	<0.236 U
Dimethyl phthalate	NL	<0.214 U	<0.218 U	<0.24 U	<0.212 U	<0.56 U	<0.53 U	<0.58 U	<0.036 U	<0.036 U	<0.56 U	<0.56 U	<0.244 U	<0.236 U
Di-n-butyl phthalate	NL	**0.155**	<0.218 U	<0.24 U	**0.16**	<0.56 U	<0.53 U	<0.58 U	<0.048 U	<0.049 U	<0.56 U	<0.56 U	<0.244 U	<0.236 U
Phenol	0.33	NS	NS	NS	NS	***<0.56 U***	***<0.53 U***	***<0.58 U***	<0.069 U	<0.071 U	***<0.56 U***	***<0.56 U***	NS	NS
Total SVOC	NL	**9.611**	ND	**8.946**	**3.56**	**1.08**	ND	**20.508**	**17.397**	ND	ND	ND	**66.458**	**27.74**

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	SB-HL-1-BD 8/23/2006 6.5-7	SB-HL-2-A 8/22/2006 5-5.5	SB-HL-5-A 8/21/2006 2-2.5	SB-HL-6-A 8/23/2006 6.5-7	SB-SA-10-10 10/22/2004 7.5-8	SB-SA10-12 10/21/2004 11.5-12	SB-SA10-13 10/22/2004 7.5-8	SB-SA10-W1-A 8/24/2006 6.5-7	SB-SA10-W1-B 8/24/2006 9-9.5	SB-SA11-17A 10/21/2004 6.5-7	SB-SA11-17B 10/21/2004 9.5-10	SB-SA11-A1-A 8/18/2006 6-6.5	SB-SA11-B1-A 8/18/2006 8.5-9
Metals (mg/Kg)														
Aluminum	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	350	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	7.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	2.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	30	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	63	**8.61**	**4.99**	**11.3**	**5.24**	NS	NS	NS	**3.95**	**8.59**	NS	NS	**10.8**	**5.2**
Magnesium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	1600	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.18	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	30	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	3.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Thallium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vanadium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	109	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)														
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fuel Oil (mg/Kg)														
Gasoline Range Organics (GR	NL	NS	NS	NS	NS	<53.3 U	<57 U	**4140**	NS	NS	<60.6 U	<57.3 U	NS	NS
Petroleum Contaminant	NL	NS	NS	NS	NS	<53.3 U	<57 U	**1270**	NS	NS	<60.6 U	<57.3 U	NS	NS
TPH (SGT-HEM)	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PCBs (mg/Kg)														
Aroclor 1260	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PCB	0.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Percent Solids														
Solids, percent	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	SB-SA11-C1-A 8/18/2006 10-10.5	SB-SA11-NE2-A 8/24/2006 11-11.5	SB-SA11-NW1-A 8/18/2006 2-2.5	SB-SA11-S1-A 8/18/2006 12-12.5	SB-SA11-SW1-A 8/24/2006 5-5.5	SB-SA11-SW1-B 8/24/2006 9.5-10	SB-SA9-6 10/20/2004 2.5-3	SB-SA9-5 10/21/2004 4-4.5	SB-SA9-7 10/21/2004 6.5-7	SB-SA9-9 10/21/2004 7-7.5	SB-SA9-11 10/22/2004 7-7.5	SB-SA9-8 10/21/2004 7.5-8	SB-SA9-E1-A 8/18/2006 10.5-11
BTEX mg/Kg														
Benzene	0.06	<0.0056 U	**0.103**	<0.00625 U	<0.006 U	<0.054 U	<0.056 U	<0.0021 U	<0.0024 U	***<0.12 U***	***<0.11 U***	**0.445**	<0.0022 U	<0.006 U
Ethylbenzene	1	<0.0056 U	<0.112 U	<0.00625 U	<0.006 U	<0.109 U	<0.113 U	<0.010 U	<0.012 U	**4.44**	**14**	**18.6**	<0.011 U	<0.006 U
Toluene	0.7	<0.0056 U	<0.112 U	<0.00625 U	<0.006 U	<0.109 U	<0.113 U	<0.010 U	<0.012 U	<0.58 U	<0.56 U	**1.66**	<0.011 U	<0.006 U
m&p-Xylene	NL	NS	NS	NS	NS	NS	NS	<0.021 U	<0.024 U	**6.65**	**23.9**	**95**	<0.022 U	NS
o-Xylene	NL	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	**3.97**	**1.58**	**32.4**	<0.011 U	NS
Total Xylene (calculated)/Xylen	0.26	<0.0056 U	<0.112 U	<0.00625 U	<0.006 U	<0.109 U	<0.113 U	ND	ND	**10.62**	**25.5**	**127.4**	ND	<0.006 U
Total BTEX	*NL*	*ND*	***0.103***	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	***15.06***	***39.48***	***148.105***	*ND*	*ND*
VOC (mg/Kg)														
1,2,3-Trichlorobenzene	NL	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	<0.58 U	<0.56 U	<0.56 U	<0.011 U	NS
1,2,4-Trichlorobenzene	NL	NS	<0.112 U	NS	NS	<0.109 U	<0.113 U	<0.010 U	<0.012 U	<0.58 U	<0.56 U	<0.56 U	<0.011 U	NS
1,2,4-Trimethylbenzene	3.6	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	**39.7**	**74.4**	**69.2**	<0.011 U	NS
1,3,5-Trimethylbenzene	8.4	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	**6.57**	**8.08**	**16.6**	<0.011 U	NS
2-Butanone	0.12	NS	<0.112 U	NS	NS	<0.109 U	<0.113 U	<0.052 U	<0.06 U	***<2.9 U***	***<2.8 U***	***<2.8 U***	<0.055 U	NS
2-Hexanone	NL	NS	NS	NS	NS	NS	NS	<0.052 U	<0.06 U	<2.9 U	<2.8 U	<2.8 U	<0.055 U	NS
4-Isopropyltoluene	NL	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	**1.24**	**0.641**	**0.683**	<0.011 U	NS
Acetone	0.05	NS	***<0.281 U***	NS	NS	***<0.271 U***	***<0.282 U***	***<0.052 U***	***<0.06 U***	***<2.9 U***	***<2.8 U***	***<2.8 U***	**0.138**	NS
Bromoform	NL	<0.0056 U	NS	<0.00625 U	<0.006 U	NS	NS	<0.010 U	<0.012 U	<0.58 U	<0.56 U	<0.56 U	<0.011 U	<0.006 U
Cyclohexane	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Isopropylbenzene	NL	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	**3.36**	**4.2**	**4.55**	<0.011 U	NS
Methyl tert-butyl ether	0.93	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	<0.58 U	<0.56 U	<0.56 U	<0.011 U	NS
Methylcyclohexane	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Methylene chloride	0.05	<0.0056 U	***<0.112 U***	<0.00625 U	<0.006 U	***<0.109 U***	***<0.113 U***	<0.010 U	<0.012 U	***<0.58 U***	***<0.56 U***	***<0.56 U***	<0.011 U	<0.006 U
n - Propylbenzene	3.9	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	**3.75**	**8.94**	**8.74**	<0.011 U	NS
Naphthalene	12	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	**113**	**88.7**	**11.4**	**0.0168**	NS
n-Butylbenzene	12	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	<0.58 U	**3.56**	**3.75**	<0.011 U	NS
sec-Butylbenzene	11	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	<0.58 U	**0.995**	**1.08**	<0.011 U	NS
Styrene	NL	NS	NS	NS	NS	NS	NS	<0.010 U	<0.012 U	<0.58 U	<0.56 U	<0.56 U	<0.011 U	NS
Tetrachloroethene	1.3	<0.0056 U	<0.112 U	<0.00625 U	<0.006 U	<0.109 U	<0.113 U	<0.010 U	<0.012 U	<0.58 U	<0.56 U	<0.56 U	<0.011 U	<0.006 U
Total VOC	*NL*	*ND*	***0.103***	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	***182.68***	***228.996***	***264.108***	***0.1548***	*ND*
PAH (mg/Kg)														
2-Methylnaphthalene	NL	<0.215 U	<0.02 U	<0.243 U	<0.229 U	**4.65**	<0.02 U	<0.57 U	<0.6 U	**15.5**	**3.11**	**4.1**	<0.53 U	<0.234 U
Acenaphthene	20	<0.215 U	<0.023 U	<0.243 U	<0.229 U	**0.862**	<0.023 U	<0.57 U	<0.6 U	**0.701**	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Acenaphthylene	100	<0.215 U	<0.016 U	<0.243 U	<0.229 U	**0.169**	<0.016 U	<0.57 U	<0.6 U	<0.58 U	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Anthracene	100	**0.176**	<0.034 U	<0.243 U	<0.229 U	**0.336**	<0.034 U	<0.57 U	<0.6 U	<0.58 U	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Benzo(a)anthracene	1	**0.413**	<0.016 U	**0.188**	<0.229 U	<0.031 U	<0.016 U	**1.16**	<0.33 U	**0.65**	<0.31 U	<0.31 U	<0.3 U	<0.234 U
Benzo(a)pyrene	1	**0.272**	<0.016 U	**0.174**	<0.229 U	<0.031 U	<0.016 U	**0.428**	<0.38 U	<0.37 U	<0.36 U	<0.36 U	<0.34 U	<0.234 U
Benzo(b)fluoranthene	1	**0.384**	<0.037 U	**0.2**	<0.229 U	<0.069 U	<0.037 U	NS	NS	NS	NS	NS	NS	<0.234 U
Benzo(b,k)fluoranthene	NL	NS	NS	NS	NS	NS	NS	**1.44**	<0.72 U	<0.7 U	<0.66 U	<0.67 U	<0.64 U	NS
Benzo(ghi)perylene	100	**0.205**	<0.075 U	**0.159**	<0.229 U	<0.141 U	<0.076 U	**0.661**	<0.36 U	<0.35 U	<0.33 U	<0.34 U	<0.32 U	<0.234 U
Benzo(k)fluoranthene	0.8	**0.228**	<0.027 U	<0.243 U	<0.229 U	<0.051 U	<0.027 U	NS	NS	NS	NS	NS	NS	<0.234 U
Chrysene	1	**0.408**	<0.027 U	**0.188**	<0.229 U	**0.199**	<0.027 U	**1.34**	<0.37 U	**0.784**	<0.34 U	<0.35 U	<0.33 U	<0.234 U
Dibenz(a,h)anthracene	0.33	<0.215 U	<0.052 U	<0.243 U	<0.229 U	<0.098 U	<0.053 U	***<0.36 U***	***<0.38 U***	***<0.37 U***	***<0.36 U***	***<0.36 U***	***<0.34 U***	<0.234 U
Fluoranthene	100	**1.14**	<0.02 U	**0.408**	<0.229 U	**0.177**	<0.02 U	**0.98**	<0.6 U	**1.27**	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Fluorene	30	<0.215 U	<0.02 U	<0.243 U	<0.229 U	**1.05**	<0.02 U	<0.57 U	<0.6 U	**0.855**	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Indeno(1,2,3-cd)pyrene	0.5	**0.19**	<0.064 U	<0.243 U	<0.229 U	<0.121 U	<0.065 U	**0.51**	<0.39 U	<0.38 U	<0.37 U	<0.37 U	<0.35 U	<0.234 U
Naphthalene	12	<0.215 U	<0.015 U	<0.243 U	<0.229 U	**0.213**	<0.015 U	<0.57 U	<0.6 U	**70.1**	**3.34**	**6.99**	<0.53 U	<0.234 U
Phenanthrene	100	**0.812**	**0.16**	<0.243 U	<0.229 U	**2.91**	<0.029 U	<0.57 U	<0.6 U	**3.44**	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Pyrene	100	**0.628**	**0.093**	**0.299**	<0.229 U	**0.505**	<0.018 U	**1.51**	<0.6 U	**1.64**	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Total PAH	*NL*	***4.856***	***0.253***	***1.616***	*ND*	***11.071***	*ND*	***8.029***	*ND*	***94.94***	***6.45***	***11.09***	*ND*	*ND*
SVOC (mg/Kg)														
1,1'-Biphenyl	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3+4-Methylphenol	NL	NS	NS	NS	NS	NS	NS	<2.3 U	<2.4 U	<2.3 U	<2.2 U	<2.2 U	<2.1 U	NS
Acetophenone	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzaldehyde	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl) phthalate	NL	<0.215 U	<0.028 U	<0.243 U	<0.229 U	**0.331**	<0.029 U	<0.57 U	<0.6 U	<0.58 U	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Butyl benzyl phthalate	NL	<0.215 U	<0.044 U	<0.243 U	<0.229 U	<0.084 U	<0.045 U	<0.57 U	<0.6 U	<0.58 U	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Carbazole	NL	<0.215 U	NS	<0.243 U	<0.229 U	NS	NS	NS	NS	NS	NS	NS	NS	<0.234 U
Dibenzofuran	7	<0.215 U	<0.014 U	<0.243 U	<0.229 U	**0.411**	<0.014 U	NS	NS	NS	NS	NS	NS	<0.234 U
Diethyl phthalate	NL	<0.215 U	<0.017 U	<0.243 U	<0.229 U	<0.033 U	<0.018 U	<0.57 U	<0.6 U	<0.58 U	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Dimethyl phthalate	NL	<0.215 U	<0.018 U	<0.243 U	<0.229 U	<0.035 U	<0.019 U	<0.57 U	<0.6 U	<0.58 U	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Di-n-butyl phthalate	NL	<0.215 U	<0.025 U	<0.243 U	<0.229 U	<0.047 U	<0.025 U	<0.57 U	<0.6 U	<0.58 U	<0.55 U	<0.56 U	<0.53 U	<0.234 U
Phenol	0.33	NS	<0.036 U	NS	NS	<0.068 U	<0.036 U	***<0.57 U***	***<0.6 U***	***<0.58 U***	***<0.55 U***	***<0.56 U***	***<0.53 U***	NS
Total SVOC	NL	**4.856**	**0.253**	**1.616**	ND	**11.813**	ND	**6.589**	ND	**94.94**	**6.45**	**11.09**	ND	ND

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	SB-SA11-C1-A 8/18/2006 10-10.5	SB-SA11-NE2-A 8/24/2006 11-11.5	SB-SA11-NW1-A 8/18/2006 2-2.5	SB-SA11-S1-A 8/18/2006 12-12.5	SB-SA11-SW1-A 8/24/2006 5-5.5	SB-SA11-SW1-B 8/24/2006 9.5-10	SB-SA9-6 10/20/2004 2.5-3	SB-SA9-5 10/21/2004 4-4.5	SB-SA9-7 10/21/2004 6.5-7	SB-SA9-9 10/21/2004 7-7.5	SB-SA9-11 10/22/2004 7-7.5	SB-SA9-8 10/21/2004 7.5-8	SB-SA9-E1-A 8/18/2006 10.5-11
Metals (mg/Kg)														
Aluminum	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	350	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	7.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	2.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	30	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	63	**4.65**	**7.12**	**139**	**4.33**	**6.46**	**2.42**	NS	NS	NS	NS	NS	NS	**2.08**
Magnesium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	1600	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.18	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	30	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	3.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Thallium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vanadium	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	109	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)														
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fuel Oil (mg/Kg)														
Gasoline Range Organics (GR	NL	NS	NS	NS	NS	NS	NS	<55.8 U	<61.4 U	**4150**	**2560**	**2520**	<55.5 U	NS
Petroleum Contaminant	NL	NS	NS	NS	NS	NS	NS	<55.8 U	<61.4 U	<58.3 U	<56.4 U	<53.8 U	<55.5 U	NS
TPH (SGT-HEM)	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PCBs (mg/Kg)														
Aroclor 1260	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PCB	0.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Percent Solids														
Solids, percent	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	Samples	Detects	Non-Detects	Exceedances	DL Exceedances	Max Detected Concentration	ID for Max Concentration	Min Detected Concentration	ID for Min Concentration	Average Detected Concentration	Min DL for NonDetects	Max DL for NonDetects
BTEX mg/Kg													
Benzene	0.06	112	21	91	16	16	550	MGP-SB-3(1.5-2.0)080509	0.0033	MGPSG5(1-2.2)072809	64.15137476	-	2.8
Ethylbenzene	1	112	46	66	33	0	1200	MGP-SB-3(1.5-2.0)080509	0.0045	MGP-MW-104S(9-11)082509	99.14404348	-	0.617
Toluene	0.7	112	34	78	21	1	920	MGP-TP-4(7-8.5)090409	0.0025	MGP-MW-4DD(5-7)081909	89.09513235	-	3
m&p-Xylene	NL	76	27	49	0	0	1000	MGP-SB-3(1.5-2.0)080509	0.0037	MGP-MW-104S(9-11)082509	150.5853333	0.001	0.024
o-Xylene	NL	76	26	50	0	0	490	MGP-SB-3(1.5-2.0)080509	0.019	MGP-SB-2(5-6)081309	70.58633846	0.001	0.012
Total Xylene (calculated)/Xylen	0.26	63	25	38	19	0	1490	MGP-SB-3(1.5-2.0)080509	0.011	MGP-SB-6(7-8)081209	233.861952	-	-
Total BTEX	*NL*	*112*	*52*	*60*	*0*	*0*	*3910*	*MGP-SB-3(1.5-2.0)080509*	*0.0033*	*MGPSG5(1-2.2)072809*	*312.2218379*	-	-
VOC (mg/Kg)													
1,2,3-Trichlorobenzene	NL	24	1	23	0	0	0.0031	DUP-5-031012	0.0031	DUP-5-031012	0.0031	0.0021	1.2
1,2,4-Trichlorobenzene	NL	81	2	79	0	0	1.7	MGPSBDUPLICATE-081609	0.0023	DUP-5-031012	0.85115	0.0021	6.6
1,2,4-Trimethylbenzene	3.6	20	14	6	10	0	160	SB-4, S55(HE)072696	0.0875	SB-SA-10-10-102204	41.90839286	0.01	0.012
1,3,5-Trimethylbenzene	8.4	20	14	6	5	0	46	SB-4, S55(HE)072696	0.025	SB-SA-10-10-102204	10.18121429	0.01	0.012
2-Butanone	0.12	88	1	87	0	18	0.013	MGPSG5(1-2.2)072809	0.013	MGPSG5(1-2.2)072809	0.013	-	33
2-Hexanone	NL	83	3	80	0	0	0.017	TP-DUP-081409	0.0087	MGPSB9(8-10)081509	0.012566667	-	33
4-Isopropyltoluene	NL	20	9	11	0	0	1.4	SB-4, S55(HE)072696	0.006	SB-2(HE)072696	0.615777778	-	0.59
Acetone	0.05	88	4	84	4	31	0.234	SB-SA-10-10-102204	0.1	MGPSG5(1-2.2)072809	0.1605	-	33
Bromoform	NL	98	1	97	0	0	0.611	MW-4D-C-082806	0.611	MW-4D-C-082806	0.611	-	6.6
Cyclohexane	NL	65	10	55	0	0	21	MGP-MW-4DD(7-8)081909	0.0054	MGP-SB-2(5-6)081309	4.18713	0.0021	6.6
Isopropylbenzene	NL	85	35	50	0	0	95	MGP-SB-3(1.5-2.0)080509	0.0036	MGP-MW-104S(9-11)082509	11.99955714	0.001	0.012
Methyl tert-butyl ether	0.93	92	3	89	0	6	0.019	SB-1, S1(HE)080796	0.006	SB-2(HE)072696	0.011666667	-	6.6
Methylcyclohexane	NL	65	18	47	0	0	87	TP-3BORING(6-6.5)092909	0.0071	MGP-MW-104S(9-11)082509	10.56022778	0.0021	3.5
Methylene chloride	0.05	103	4	99	0	33	0.0029	MGP-SB-8(10-12)081309	0.0024	MGP-SB-7(6-7.3)081309	0.00265	-	6.6
n - Propylbenzene	3.9	20	13	7	6	0	24	SB-4, S55(HE)072696	0.07	SB-1, S1(HE)080796	6.067153846	0.01	0.012
Naphthalene	12	20	15	5	2	0	113	SB-SA9-7-102104	0.0168	SB-SA9-8-102104	17.34078667	0.01	0.012
n-Butylbenzene	12	20	12	8	3	0	50	SB-4, S55(HE)072696	0.2	SB-1, S1(HE)080796	10.78666667	0.01	0.58
sec-Butylbenzene	11	20	12	8	0	0	2.3	SB-4, S55(HE)072696	0.008	SB-1, S1(HE)080796	0.816416667	0.01	0.58
Styrene	NL	83	8	75	0	0	5.4	MGP-TP-4(7-8.5)090409	0.018	MW12D(13-14.1)112008	2.669625	-	3.5
Tetrachloroethene	1.3	103	2	101	2	5	1.5	MGPSB5(11-13)081609	1.45	SB-HL-5-A-082106	1.475	-	6.6
Total VOC	*NL*	*112*	*61*	*51*	*0*	*0*	*4007.56*	*MGP-SB-3(1.5-2.0)080509*	*0.0024*	*MGP-SB-7(6-7.3)081309*	*278.1747831*	-	-
PAH (mg/Kg)													
2-Methylnaphthalene	NL	96	46	50	0	0	1600	MGP-SB-3(1.5-2.0)080509	0.11	DUPLICATE-112008	92.95345652	0.02	7.8
Acenaphthene	20	112	37	75	11	0	850	MGP-SB-3(1.5-2.0)080509	0.045	MGP-SB-6(7-8)081209	52.73362162	-	7.8
Acenaphthylene	100	96	44	52	2	0	130	MGPSB9(11-12.5)081509	0.045	TP-3(6.0-6.5)082509	12.32527273	0.016	3.8
Anthracene	100	112	50	62	4	0	330	MGP-SB-3(1.5-2.0)080509	0.058	MW-110D(1.5-2.2)010412	21.13482	-	3.8
Benzo(a)anthracene	1	112	55	57	31	3	240	MGP-SB-3(1.5-2.0)080509	0.093	MGP-MW105D(5-7)010509	12.83294545	-	3.8
Benzo(a)pyrene	1	112	54	58	25	3	190	MGP-SB-3(1.5-2.0)080509	0.065	TP-3BORING(6-6.5)092909	10.38590741	-	3.8
Benzo(b)fluoranthene	1	101	53	48	27	3	160	MGP-SB-3(1.5-2.0)080509	0.041	MGP-MW-1015-081809	9.611264151	-	3.8
Benzo(b,k)fluoranthene	NL	11	1	10	0	0	1.44	SB-SA9-6-102004	1.44	SB-SA9-6-102004	1.44	0.64	0.72
Benzo(ghi)perylene	100	112	51	61	0	0	100	MGP-SB-3(1.5-2.0)080509	0.043	TP-3BORING(6-6.5)092909	6.255588235	-	6
Benzo(k)fluoranthene	0.8	101	47	54	18	7	44	MGP-SB-3(1.5-2.0)080509	0.039	MGP-MW-105S(5-6.5)090409	3.091276596	-	6
Chrysene	1	112	58	54	34	2	230	MGP-SB-3(1.5-2.0)080509	0.1	MGP-MW-105S(5-6.5)090409	11.70943103	-	3.8
Dibenz(a,h)anthracene	0.33	112	32	80	18	39	18	MGP-SB-3(1.5-2.0)080509	0.041	TP-3BORING(5-6)092909	1.9426875	-	6
Fluoranthene	100	112	61	51	5	0	560	MGP-SB-3(1.5-2.0)080509	0.055	MGP-SB-6(7-8)081209	25.15483607	-	3.8
Fluorene	30	112	42	70	9	0	610	MGP-SB-3(1.5-2.0)080509	0.058	MW13D(6-7.2)112008	33.85938095	-	7.8
Indeno(1,2,3-cd)pyrene	0.5	112	48	64	25	5	62	MGP-SB-3(1.5-2.0)080509	0.042	MGP-MW-105S(5-6.5)090409	4.5845	-	6
Naphthalene	12	112	52	60	18	0	5700	MGP-SB-3(1.5-2.0)080509	0.039	TP8(3.5-4.0)082009	253.6185	-	7.8
Phenanthrene	100	112	62	50	8	0	1500	MGP-SB-3(1.5-2.0)080509	0.045	TP-5(10.0-10.5)082409	65.90546774	-	7.8
Pyrene	100	112	69	43	6	0	750	MGP-SB-3(1.5-2.0)080509	0.038	TP-5(8.0-8.5)082409	29.77321739	-	3.7
Total PAH	*NL*	*112*	*74*	*38*	*0*	*0*	*13074*	*MGP-SB-3(1.5-2.0)080509*	*0.038*	*TP-5(8.0-8.5)082409*	*444.3877027*	-	-
SVOC (mg/Kg)													
1,1'-Biphenyl	NL	52	20	32	0	0	190	MGP-SB-3(1.5-2.0)080509	0.049	MGP-MW-105S(5-6.5)090409	24.6847	0.011	7.8
3+4-Methylphenol	NL	63	4	59	0	0	3.9	TP-4(5.5)-082709	0.046	TP-3BORING(6-6.5)092909	1.76125	0.012	43
Acetophenone	NL	52	2	50	0	0	0.96	MGPSB9(11-12.5)081509	0.051	MGP-SB-2(5-6)081309	0.5055	0.011	43
Benzaldehyde	NL	52	1	51	0	0	0.077	MGP-MW-1015-081809	0.077	MGP-MW-1015-081809	0.077	0.013	43
bis(2-Ethylhexyl) phthalate	NL	83	19	64	0	0	0.703	SB-HL-6-A-082306	0.038	MGP-MW-1015-081809	0.167	0.028	43
Butyl benzyl phthalate	NL	83	3	80	0	0	0.547	SB-HL-6-A-082306	0.237	SB-HL-1-BD-082306	0.425666667	0.024	43
Carbazole	NL	67	6	61	0	0	7.2	MGP-SB-3(1.5-2.0)080509	0.24	MGP-MW-108S(12-14)092809	2.401666667	0.029	7.8
Dibenzofuran	7	72	19	53	4	2	58	MGP-SB-3(1.5-2.0)080509	0.046	TP-3BORING(5-6)092909	6.824736842	0.012	7.8
Diethyl phthalate	NL	83	4	79	0	0	0.252	SB-HL-6-A-082306	0.074	MGP-MW-9DD(14-15)081909	0.1195	0.013	43
Dimethyl phthalate	NL	83	4	79	0	0	0.86	TP8(3.5-4.0)082009	0.34	TP-5(10.0-10.5)082409	0.6275	0.011	43
Di-n-butyl phthalate	NL	83	7	76	0	0	0.16	SB-HL-6-A-082306	0.043	MGP-MW-4DD(5-7)081909	0.103	0.018	43
Phenol	0.33	68	3	65	0	56	0.052	TP-3BORING(5-6)092909	0.038	TP8(3.5-4.0)082009	0.047333333	0.011	43
Total SVOC	NL	112	78	34	0	0	13329.2	MGP-SB-3(1.5-2.0)080509	0.038	TP-5(8.0-8.5)082409	429.9994615	-	-

Table 5-3
Subsurface Soil Analytical Data
Remedial Investigation
Rye Gas Works Former MGPSite, Rye, New York

AECOM

Sample ID Sample Date Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives	Samples	Detects	Non-Detects	Exceedances	DL Exceedances	Max Detected Concentration	ID for Max Concentration	Min Detected Concentration	ID for Min Concentration	Average Detected Concentration	Min DL for NonDetects	Max DL for NonDetects
Metals (mg/Kg)													
Aluminum	NL	48	48	0	0	0	16500	TP-4(5.5)-082709	3920	MGP-MW-108S(14-15)092809	8768.75	-	-
Antimony	NL	55	22	33	0	0	4.24	MGPSG5(1-2.2)072809	0.39	MGP-MW-108S(12-14)092809	1.141363636	-	3.17
Arsenic	13	55	43	12	8	0	537	MGPSG5(1-2.2)072809	0.27	TP-5(10.0-10.5)082409	22.87953488	0.75	1.13
Barium	350	48	48	0	0	0	202	MGPSB5(16-17)081609	24.5	MGP-SB-4(6-8)081309	75.39375	-	-
Beryllium	7.2	55	55	0	0	0	3.69	SB-2, S2(DRILL)080696	0.13	MGP-MW-108S(14-15)092809	0.601818182	-	-
Cadmium	2.5	55	25	30	0	0	2.38	TP-2(1.0-1.3)081209	0.08	TP-3(8.5-9.0)082509	0.7	-	0.36
Calcium	NL	48	48	0	0	0	65200	TP-2(1.0-1.3)081209	467	MGP-MW-1015-081809	6260.958333	-	-
Chromium	30	55	55	0	7	0	78.4	TP-4(5.5)-082709	8.16	MGP-SB-4(6-8)081309	21.05109091	-	-
Cobalt	NL	48	48	0	0	0	17	TP-4(5.5)-082709	2.8	MGP-MW-9DD(5-7)081909	7.162291667	-	-
Copper	50	55	55	0	6	0	86.6	MGPSG5(1-2.2)072809	7.6	MGP-MW-108S(14-15)092809	26.16418182	-	-
Iron	NL	48	48	0	0	0	29600	MGPSB5(10-11)081609	7030	MGP-SB-4(6-8)081309	16362.29167	-	-
Lead	63	83	83	0	19	0	100000000	SB-4, S1(HE)080696	2.01	MGP-SB-4(6-8)081309	4819328.199	-	-
Magnesium	NL	48	48	0	0	0	36700	TP-2(1.0-1.3)081209	1090	MGP-SB-4(6-8)081309	5305.416667	-	-
Manganese	1600	48	48	0	0	0	644	TP-4(5.5)-082709	108	MGP-MW-104S(9-11)082509	272.0208333	-	-
Mercury	0.18	55	43	12	8	0	4.3	TP-6(2.0-2.5)081409	0.003	MGP-SB-7(6-7.3)081309	0.268953488	-	0.012
Nickel	30	55	55	0	5	0	73	TP-4(5.5)-082709	6.26	MGP-MW-9DD(5-7)081909	20.10036364	-	-
Potassium	NL	48	48	0	0	0	11200	MGPSB5(16-17)081609	467	MGP-MW-9DD(5-7)081909	2169.395833	-	-
Selenium	3.9	48	14	34	2	0	7.21	MGP-TP-4(7-8.5)090409	0.28	TP-5(10.0-10.5)082409	1.579285714	0.63	1.21
Silver	2	55	2	53	0	0	0.47	MGP-TP-4(7-8.5)090409	0.39	MGP-SB-3(1.5-2.0)080509	0.43	-	0.63
Sodium	NL	48	48	0	0	0	1800	MGP-TP-4(7-8.5)090409	131	MGP-MW-1015-081809	516.125	-	-
Thallium	NL	55	9	46	0	0	2.3	MGP-TP-4(7-8.5)090409	0.27	TP-5(8.0-8.5)082409	1.092222222	-	2.62
Vanadium	NL	48	48	0	0	0	49.6	MGPSB5(16-17)081609	10.6	MGP-SB-4(6-8)081309	24.23958333	-	-
Zinc	109	55	55	0	11	0	939	TP-1(5-5.5)081109	15.2	TP-5(10.0-10.5)082409	89.17090909	-	-
Cyanide (mg/Kg)													
Cyanide, Total	27	48	10	38	0	0	20	TP-2(1.0-1.3)081209	0.706	TP-DUP-081409	3.999	0.545	0.641
Fuel Oil (mg/Kg)													
Gasoline Range Organics (GR	NL	11	4	7	0	0	4150	SB-SA9-7-102104	2520	SB-SA9-11-102204	3342.5	53.3	61.4
Petroleum Contaminant	NL	11	1	10	0	0	1270	SB-SA10-13 -102204	1270	SB-SA10-13 -102204	1270	53.3	61.4
TPH (SGT-HEM)	NL	1	1	0	0	0	642	TP-5-082109CON-082109	642	TP-5-082109CON-082109	642	-	-
PCBs (mg/Kg)													
Aroclor 1260	NL	24	2	22	0	0	0.065	MGP-MW-105S(2-4)081309	0.054	MGP-MW105S (1.5-2)081309	0.0595	-	0.023
Total PCB	0.1	24	2	22	0	0	0.065	MGP-MW-105S(2-4)081309	0.054	MGP-MW105S (1.5-2)081309	0.0595	-	-
Percent Solids													
Solids, percent	NL	9	9	0	0	0	93	MW-110D(1.5-2.2)010412	83	MW-113D(7-8.5)010612	87.55555556	-	-

Table 5-4
NAPL Well Gauging
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

Date Gauged	NAPL Thickness		
	MGP-TP-4	MGP-MW-108D	MGP-MW-104D
4/1/2012	none	none	none
4/4/2012	none	none	none
4/9/2012	none	none	smear
4/13/2012	none	none	smear
4/19/2012	none	none	smear
4/24/2012	none	none	smear
5/1/2012	none	none	0.6
5/14/2012	smear	none	2.5
5/31/2012	smear	none	3
12/7/2013	smear	none	6

Table 5-5
Overburden Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-01 8/7/1996 MW-1/SB-1-080796 ?-6	MW-01 5/11/2004 MW-1-051104 ?-6	MW-01 11/16/2004 MW-1-111604 ?-6	MW-01 3/29/2005 MW-1-032905 ?-6	MW-01 6/3/2005 MW-1-060305 ?-6	MW-01 12/22/2008 MW-1-122208 ?-6	MW-01 3/9/2010 MW-1-030910 ?-6	MW-02 8/7/1996 MW-2-080796 ?-5.25	MW-02 5/11/2004 MW-2-051104 ?-5.25	MW-02 11/16/2004 MW-2-111604 ?-5.25	MW-02 3/29/2005 MW-2-032905 ?-5.25	MW-02 6/3/2005 MW-2-060305 ?-5.25	MW-02 12/21/2005 MW-2-122105 ?-5.25	MW-02 3/10/2010 MW-2-031010 ?-5.25
BTEX (ug/L)						**OVERBURDEN**							**OVERBURDEN**			
Benzene	71-43-2	1	**5300**	**639**	**852**	**959**	**857**	**62.9**	**170**	ND	<0.7 U	<0.7 U	<1 U	<1.0 U	***<5.0 U***	**1.8**
Ethylbenzene	100-41-4	5	**450**	**19.6**	**26**	**21.9**	***<25 U***	**1.53**	**12**	**2200**	<5 U	<5 U	<1 U	**2.96**	**22.8**	**20**
m&p-Xylene	1330-20-7-m,p	NL	NS	**39.7**	**45.9**	**36.2**	**111**	**3.27**	**24**	NS	<10 U	<10 U	<1 U	<1.0 U	**20.2**	**13**
o-Xylene	95-47-6	NL	NS	**36.3**	**43.5**	**50**	**86.9**	**2.50**	**19**	NS	<5 U	<5 U	<1 U	<1.0 U	<5.0 U	**5.3**
Toluene	108-88-3	5	**2800**	**69.7**	**96.9**	**92.8**	**157**	**4.74**	**31**	ND	<5 U	<5 U	<1 U	<1.0 U	<5.0 U	**1.1**
Xylenes (total)	1330-20-7	5	**3900**	**76**	**89.4**	**86.2**	**197.9**	**5.77**	**43**	**7900**	ND	ND	ND	ND	**20.2**	**18.3**
Total BTEX	CALC-BTEX	NL	**12450**	**804.3**	**1064.3**	**1159.9**	**1211.9**	**74.94**	**256**	**10100**	ND	ND	ND	**2.96**	**43**	**41.2**
VOC (ug/L)																
1,1-Dichloroethane	75-34-3	5	ND	<5 U	<5 U	NS	NS	NS	<1.0 U	ND	<5 U	<5 U	NS	NS	NS	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	NS	<5 U	<5 U	**5.24**	***<25 U***	**1.36**	NS	NS	**11.1**	<5 U	<1 U	**2.94**	**10.9**	NS
1,3,5-Trimethylbenzene	108-67-8	5	NS	<5 U	<5 U	**1.33**	***<25 U***	<0.82 U	NS	NS	<5 U	<5 U	<1 U	<1.0 U	<5.0 U	NS
1,4-Dioxane	123-91-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	78-93-3	50	ND	<25 U	<25 U	NS	NS	NS	**4.7 J**	ND	<25 U	<25 U	NS	NS	NS	**8.8**
4-Isopropyltoluene	99-87-6	NL	NS	<5 U	<5 U	<1 U	<25 U	<0.81 U	NS	NS	<5 U	<5 U	<1 U	<1.0 U	<5.0 U	NS
Acetone	67-64-1	50	ND	<25 U	<25 U	NS	NS	NS	**12 J**	ND	<25 U	<25 U	NS	NS	NS	<5.0 UJ
Acrylonitrile	107-13-1	NL	ND	<25 U	<25 U	NS	NS	NS	NS	ND	<25 U	<25 U	NS	NS	NS	NS
Chloroethane	75-00-3	5	ND	<5 U	<5 U	NS	NS	NS	**2.2 J**	ND	<5 U	<5 U	NS	NS	NS	<1.0 U
Chloromethane	74-87-3	5	ND	<5 U	<5 U	NS	NS	NS	<1.0 U	ND	<5 U	<5 U	NS	NS	NS	<1.0 U
Cyclohexane	110-82-7	NL	NS	NS	NS	NS	NS	NS	**0.91 J**	NS	NS	NS	NS	NS	NS	**6.8**
Dichlorodifluoromethane	75-71-8	5	ND	<5 U	<5 U	NS	NS	NS	<1.0 U	ND	<5 U	<5 U	NS	NS	NS	<1.0 U
Isopropylbenzene	98-82-8	5	NS	<5 U	<5 U	<1 U	***<25 U***	<0.86 U	<1.0 U	NS	<5 U	<5 U	<1 U	<1.0 U	<5.0 U	**2.3**
Methyl tert-butyl ether	1634-04-4	10	ND	<5 U	<5 U	<1 U	***<25 U***	<0.88 U	<1.0 U	ND	<5 U	<5 U	<1 U	<1.0 U	<5.0 U	<1.0 U
Methylcyclohexane	108-87-2	NL	NS	NS	NS	NS	NS	NS	<1.0 U	NS	NS	NS	NS	NS	NS	**3.2**
Naphthalene	91-20-3	10	NS	**34.3**	**45.3**	**36**	**195**	**2.18**	**16 NJ**	NS	<5 U	<5 U	<2 U	<2.0 U	<5.0 U	**35 NJ**
n-Butylbenzene	104-51-8	5	NS	<5 U	<5 U	<1 U	***<25 U***	<0.83 U	NS	NS	<5 U	<5 U	<1 U	<1.0 U	<5.0 U	NS
n-Propylbenzene	103-65-1	5	NS	<5 U	<5 U	<1 U	***<25 U***	<0.81 U	NS	NS	<5 U	<5 U	<1 U	<1.0 U	<5.0 U	NS
sec-Butylbenzene	135-98-8	5	NS	<5 U	<5 U	<1 U	***<25 U***	<0.78 U	NS	NS	<5 U	<5 U	<1 U	<1.0 U	<5.0 U	NS
Styrene	100-42-5	5	ND	<5 U	<5 U	NS	NS	NS	<1.0 U	ND	<5 U	<5 U	NS	NS	NS	<1.0 U
Total VOC	CALC-VOC	NL	**12450**	**914.6**	**1199**	**1288.67**	**1604.8**	**78.48**	**318.81**	**10100**	**11.1**	ND	ND	**5.9**	**74.1**	**80.6**
PAH (ug/L)																
2-Methylnaphthalene	91-57-6	NL	NS	<5.8 U	<5 U	<12.5 U	<7.4 U	NS	<12 U	NS	<6.4 U	<5 U	<11.1 U	<5.6 U	<5.7 U	<10 U
Acenaphthene	83-32-9	20	ND	**8.05**	**8.79**	<12.5 U	<7.4 U	<1.02 U	**1.8 J**	ND	<6.4 U	<5 U	<11.1 U	<5.6 U	<5.7 U	<10 U
Acenaphthylene	208-96-8	NL	NS	**7.85**	<5 U	<12.5 U	<7.4 U	<0.93 U	<12 U	NS	<6.4 U	<5 U	<11.1 U	<5.6 U	<5.7 U	<10 U
Anthracene	120-12-7	50	ND	<5.8 U	<5 U	<12.5 U	<7.4 U	<0.84 U	<12 U	ND	<6.4 U	<5 U	<11.1 U	<5.6 U	<5.7 U	<10 U
Benzo(a)anthracene	56-55-3	0.002	ND	**4**	***<2 U***	***<12.5 U***	***<7.4 U***	***<1.03 U***	***<12 U***	ND	***<2.6 U***	***<2 U***	***<11.1 U***	***<5.6 U***	***<5.7 U***	***<10 U***
Benzo(a)pyrene	50-32-8	NL	ND	**8.4**	<2 U	<12.5 U	<7.4 U	<0.91 U	<12 U	ND	<2.6 U	<2 U	<11.1 U	<5.6 U	<5.7 U	<10 U
Benzo(b,k)fluoranthene	BENZOBK	NL	NS	**7.24**	<4 U	<12.5 U	NS	NS	NS	NS	<5.1 U	<4 U	<11.1 U	NS	NS	NS
Benzo(ghi)perylene	191-24-2	NL	ND	**6.64**	<2 U	<12.5 U	<7.4 U	<1.05 U	<12 U	ND	<2.6 U	<2 U	<11.1 U	<5.6 U	<5.7 U	<10 U
Chrysene	218-01-9	0.002	ND	**3.7**	***<1 U***	***<12.5 U***	***<7.4 U***	***<0.95 U***	***<12 U***	ND	***<1.3 U***	***<1 U***	***<11.1 U***	***<5.6 U***	***<5.7 U***	***<10 U***
Fluoranthene	206-44-0	50	ND	**12**	<5 U	<12.5 U	<7.4 U	<0.86 U	<12 U	ND	<6.4 U	<5 U	<11.1 U	<5.6 U	<5.7 U	<10 U
Fluorene	86-73-7	50	ND	**6.15**	**5.2**	<12.5 U	<7.4 U	<0.91 U	<12 U	ND	<6.4 U	<5 U	<11.1 U	<5.6 U	<5.7 U	<10 U
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	ND	**4.45**	***<2 U***	***<12.5 U***	***<7.4 U***	***<0.95 U***	***<12 U***	ND	***<2.6 U***	***<2 U***	***<11.1 U***	***<5.6 U***	***<5.7 U***	***<10 U***
Naphthalene	91-20-3	10	**700**	**27.1**	**50.7**	**23**	**15.4**	<0.87 U	**12 J**	**290**	<6.4 U	<5 U	***<11.1 U***	<5.6 U	<5.7 U	**1.7 J**
Phenanthrene	85-01-8	50	ND	**18.7**	**11.2**	<12.5 U	<7.4 U	<0.90 U	<12 U	ND	<6.4 U	<5 U	<11.1 U	<5.6 U	<5.7 U	<10 U
Pyrene	129-00-0	50	ND	**20.1**	<5 U	<12.5 U	<7.4 U	<1.01 U	<12 U	ND	<6.4 U	<5 U	<11.1 U	<5.6 U	<5.7 U	<10 U
Total PAH	CALC-PAH	NL	**700**	**134.38**	**75.89**	**23**	**15.4**	ND	**13.8**	**290**	ND	ND	ND	ND	ND	**1.7**
SVOC (ug/L)																
1,1'-Biphenyl	92-52-4	5	NS	NS	NS	NS	NS	NS	***<12 U***	NS	NS	NS	NS	NS	NS	***<10 U***
2,4-Dimethylphenol	105-67-9	50	NS	<12 U	<10 U	NS	NS	NS	<12 U	NS	<13 U	<10 U	NS	NS	NS	<10 U
3+4-Methylphenols	3&4 MPH	NL	NS	<23 U	<20 U	NS	NS	NS	<12 U	NS	<26 U	<20 U	NS	NS	NS	<10 U
Acetophenone	98-86-2	NL	NS	NS	NS	NS	NS	NS	<12 U	NS	NS	NS	NS	NS	NS	<10 U
Benzoic acid	65-85-0	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl) phthalate	117-81-7	5	NS	**10.6**	<5 U	NS	NS	NS	***<12 U***	NS	***<6.4 U***	<5 U	NS	NS	NS	***<10 U***
Carbazole	86-74-8	NL	NS	NS	NS	NS	NS	NS	<12 U	NS	NS	NS	NS	NS	NS	<10 U
Dibenzofuran	132-64-9	NL	NS	<5.8 U	<5 U	NS	NS	NS	<12 U	NS	<6.4 U	<5 U	NS	NS	NS	<10 U
Pentachlorophenol	87-86-5	1	NS	***<5.8 U***	***<5 U***	NS	NS	NS	***<12 U***	NS	***<6.4 U***	***<5 U***	NS	NS	NS	***<10 U***
Phenol	108-95-2	1	NS	**8.38**	**14.8**	NS	NS	NS	**5.2 J**	NS	***<6.4 U***	***<5 U***	NS	NS	NS	***<10 R***
Total SVOC	CALC-SVOC	NL	**700**	**153.36**	**90.69**	**23**	**15.4**	ND	**19**	**290**	ND	ND	ND	ND	ND	**1.7**

Table 5-5
Overburden Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-01 8/7/1996 MW-1/SB-1-080796 ?-6	MW-01 5/11/2004 MW-1-051104 ?-6	MW-01 11/16/2004 MW-1-111604 ?-6	MW-01 3/29/2005 MW-1-032905 ?-6	MW-01 6/3/2005 MW-1-060305 ?-6	MW-01 12/22/2008 MW-1-122208 ?-6	MW-01 3/9/2010 MW-1-030910 ?-6	MW-02 8/7/1996 MW-2-080796 ?-5.25	MW-02 5/11/2004 MW-2-051104 ?-5.25	MW-02 11/16/2004 MW-2-111604 ?-5.25	MW-02 3/29/2005 MW-2-032905 ?-5.25	MW-02 6/3/2005 MW-2-060305 ?-5.25	MW-02 12/21/2005 MW-2-122105 ?-5.25	MW-02 3/10/2010 MW-2-031010 ?-5.25
Metals (ug/L)																
Aluminum	7429-90-5	NL	NS	NS	NS	NS	NS	NS	**48.8 J**	NS	NS	NS	NS	NS	NS	**54.8 J**
Arsenic	7440-38-2	25	**20**	NS	NS	NS	NS	NS	**10.5**	ND	NS	NS	NS	NS	NS	<10.0 U
Barium	7440-39-3	1000	NS	NS	NS	NS	NS	NS	**263**	NS	NS	NS	NS	NS	NS	**310**
Beryllium	7440-41-7	3	ND	NS	NS	NS	NS	NS	<3.000 U	**4**	NS	NS	NS	NS	NS	<3.000 U
Cadmium	7440-43-9	5	ND	NS	NS	NS	NS	NS	**2.480 J**	ND	NS	NS	NS	NS	NS	<3.000 U
Calcium	7440-70-2	NL	NS	NS	NS	NS	NS	NS	**247000 J**	NS	NS	NS	NS	NS	NS	**163000 J**
Chromium	7440-47-3	50	**26**	NS	NS	NS	NS	NS	**5.070**	**82**	NS	NS	NS	NS	NS	<5.000 UJ
Cobalt	7440-48-4	NL	NS	NS	NS	NS	NS	NS	<15.0 U	NS	NS	NS	NS	NS	NS	<15.0 U
Copper	7440-50-8	200	**54**	NS	NS	NS	NS	NS	<10.0 UJ	**305**	NS	NS	NS	NS	NS	<10.0 UJ
Iron	7439-89-6	300	NS	NS	NS	NS	**15100**	NS	**33600 J-**	NS	NS	NS	NS	**5660**	**56700**	**12100 J-**
Lead	7439-92-1	25	**56**	NS	NS	NS	NS	**6.9**	**8.000**	**296**	NS	NS	NS	NS	NS	<6.000 U
Magnesium	7439-95-4	35000	NS	NS	NS	NS	NS	NS	**48100 J**	NS	NS	NS	NS	NS	NS	**10200 J**
Manganese	7439-96-5	300	NS	NS	NS	NS	NS	NS	**16200 J**	NS	NS	NS	NS	NS	NS	**1290 J**
Mercury	7439-97-6	0.7	ND	NS	NS	NS	NS	NS	<0.20 U	ND	NS	NS	NS	NS	NS	<0.20 U
Nickel	7440-02-0	100	**16**	NS	NS	NS	NS	NS	**8.610 J**	**101**	NS	NS	NS	NS	NS	<20.0 U
Potassium	7440-09-7	NL	NS	NS	NS	NS	NS	NS	**1650 J**	NS	NS	NS	NS	NS	NS	**14500 J**
Selenium	7482-49-2	NL	**10**	NS	NS	NS	NS	NS	NS	ND	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	NS	NS	NS	NS	NS	**11.3**	NS	NS	NS	NS	NS	NS	<10.0 U
Sodium	7440-23-5	20000	NS	NS	NS	NS	NS	NS	**673000**	NS	NS	NS	NS	NS	NS	**9360000**
Thallium	7440-28-0	0.5	ND	NS	NS	NS	NS	NS	***<20.0 U***	ND	NS	NS	NS	NS	NS	***<20.0 U***
Vanadium	7440-62-2	NL	NS	NS	NS	NS	NS	NS	<20.0 UJ	NS	NS	NS	NS	NS	NS	<20.0 UJ
Zinc	7440-66-6	2000	**110**	NS	NS	NS	NS	NS	**47.8 J**	**199**	NS	NS	NS	NS	NS	**50.8 J**
Cyanide (ug/L)																
Cyanide, Total	57-12-5	200	NS	NS	NS	NS	NS	NS	**148**	NS	NS	NS	NS	NS	NS	**62**
PCBs (ug/L)																
Total PCB	CALC-PCB	NL	ND	NS	NS	NS	NS	NS	NS	ND	NS	NS	NS	NS	NS	NS
Oxygen Demand (ug/L)																
Biochemical Oxygen Demand (BOD)	BOD	NL	NS	NS	NS	NS	<4000 U	NS	NS	NS	NS	NS	NS	<4000	**7800**	NS
Chemical Oxygen Demand (COD)	COD	NL	NS	NS	NS	NS	**185000**	NS	NS	NS	NS	NS	NS	**133000**	**1312000**	NS
TPH (ug/L)																
TPH (SGT-HEM)	TPH	NL	**4820**	NS	NS	NS	NS	NS	NS	**59800**	NS	NS	NS	NS	NS	NS
Gasoline (ug/L)																
Gasoline	GASOLINE	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Non calibrateduel type detected	NON CALIBRATED	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OIL & GREASE (ug/L)																
Oil and Grease	OIL & GREASE	NL	**10500**	NS	NS	NS	NS	NS	NS	**65000**	NS	NS	NS	NS	NS	NS
TSS	TSS	NL	**413000**	NS	NS	NS	NS	NS	NS	**6460000**	NS	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-5
Overburden Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-03 11/16/2004 MW-3-111604 5-10	MW-03 3/29/2005 MW-3-032905 5-10	MW-03 6/3/2005 MW-3-060305 5-10	MW-03 12/21/2005 MW-3-122105 5-10	MW-03 12/22/2008 MW-3-122208 5-10	MW-03 3/9/2010 MW-3-030910 5-10	MW-04 11/16/2004 MW-4-111604 3-7.3	MW-04 3/29/2005 MW-4-032905 3-7.3	MW-04 6/3/2005 MW-4-060305 3-7.3	MW-04 12/21/2005 MW-4-122105 3-7.3	MW-04 12/22/2008 MW-4-122208 3-7.3	MW-04 3/9/2010 MW-4S-030910 3-7.3	MW-05 12/21/2005 MW-5-122105 5-11	MW-05 2/3/2009 MW-5-020309 5-11	MW-05 3/9/2010 MW-5S-030910 5-11
BTEX (ug/L)					**OVERBURDEN**						**OVERBURDEN**					**OVERBURDEN**	
Benzene	71-43-2	1	**391**	**189**	**157**	**383**	**229**	**130**	***<40 U***	**158**	***<100 U***	**10.7**	<0.88 U	**16**	**445**	<0.43 U	<1.0 U
Ethylbenzene	100-41-4	5	**411**	**540**	**418**	**393**	**346**	**600**	**1060**	**457**	**656**	**61.4**	**2.92**	**130**	**449**	<0.41 U	<1.0 U
m&p-Xylene	1330-20-7-m,p	NL	**962**	**563**	**290**	**494**	**714**	**1300**	**2150**	**1220**	**1930**	**372**	**4.77**	**200**	**545**	<0.86 U	<2.0 U
o-Xylene	95-47-6	NL	**377**	**49.9**	**24.7**	**255**	**263**	**590**	**1150**	**905**	**1250**	**422**	**12.2**	**250**	**306**	<0.37 U	<1.0 U
Toluene	108-88-3	5	**559**	**80**	**29.6**	**516**	**174**	**690**	**252**	**266**	**165**	**49.8**	**1.49**	**34**	**582**	<0.45 U	<1.0 U
Xylenes (total)	1330-20-7	5	**1339**	**612.9**	**314.7**	**749**	**977**	**1890**	**3300**	**2125**	**3180**	**794**	**16.97**	**450**	**851**	<0.86	ND
Total BTEX	CALC-BTEX	NL	**2700**	**1421.9**	**919.3**	**2041**	**1726**	**3310**	**4612**	**3006**	**4001**	**915.9**	**21.38**	**630**	**2327**	ND	ND
VOC (ug/L)																	
1,1-Dichloroethane	75-34-3	5	<5 U	NS	NS	NS	NS	<1.0 U	***<250 U***	NS	NS	NS	NS	<1.0 U	NS	NS	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	**318**	**291**	**194**	**93.2**	**279**	NS	**1350**	**752**	**1070**	**210**	**2.93**	**100 NJ**	**96.5**	<0.44 U	NS
1,3,5-Trimethylbenzene	108-67-8	5	**100**	**182**	**51.6**	**17.5**	**31.7**	NS	**362**	**418**	***<100 U***	<5.0 U	<0.82 U	**18 NJ**	<5.0 U	<0.43 U	NS
1,4-Dioxane	123-91-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	78-93-3	50	<25 U	NS	NS	NS	NS	<5.0 U	***<1300 U***	NS	NS	NS	NS	<5.0 U	NS	NS	<5.0 U
4-Isopropyltoluene	99-87-6	NL	<5 U	<1 U	<10 U	<5.0 U	**3.38**	NS	<250 U	<50 U	<100 U	<5.0 U	<0.81 U	**1.9 NJ**	<5.0 U	<0.34 U	NS
Acetone	67-64-1	50	<25 U	NS	NS	NS	NS	<5.0 UJ	***<1300 U***	NS	NS	NS	NS	<5.0 UJ	NS	NS	<5.0 UJ
Acrylonitrile	107-13-1	NL	<25 U	NS	NS	NS	NS	NS	<1300 U	NS	NS	NS	NS	NS	NS	NS	NS
Chloroethane	75-00-3	5	<5 U	NS	NS	NS	NS	**11 J**	***<250 U***	NS	NS	NS	NS	**1.8 J**	NS	NS	<1.0 U
Chloromethane	74-87-3	5	<5 U	NS	NS	NS	NS	<1.0 U	***<250 U***	NS	NS	NS	NS	<1.0 U	NS	NS	<1.0 U
Cyclohexane	110-82-7	NL	NS	NS	NS	NS	NS	**69**	NS	NS	NS	NS	NS	**18**	NS	NS	<1.0 U
Dichlorodifluoromethane	75-71-8	5	<5 U	NS	NS	NS	NS	<1.0 U	***<250 U***	NS	NS	NS	NS	<1.0 U	NS	NS	<1.0 U
Isopropylbenzene	98-82-8	5	**32.4**	**51**	**27.3**	<5.0 U	**7.1**	**26**	***<250 U***	***<50 U***	***<100 U***	<5.0 U	<0.86 U	**20**	<5.0 U	<0.44 U	<1.0 U
Methyl tert-butyl ether	1634-04-4	10	<5 U	<1 U	<10 U	<5.0 U	<0.88 U	<1.0 U	***<250 U***	***<50 U***	***<100 U***	<5.0 U	<0.88 U	<1.0 U	<5.0 U	<0.50 U	<1.0 U
Methylcyclohexane	108-87-2	NL	NS	NS	NS	NS	NS	**35**	NS	NS	NS	NS	NS	**44**	NS	NS	<1.0 U
Naphthalene	91-20-3	10	**131**	**97.5**	**145**	**97.3**	**127**	**110 NJ**	**6930**	**3120**	**7750**	**934**	**18.8**	**610 NJ**	**44.1**	<0.33 U	**0.79 NJ**
n-Butylbenzene	104-51-8	5	<5 U	<1 U	***<10 U***	<5.0 U	<0.83 U	NS	***<250 U***	***<100 U***	***<100 U***	<5.0 U	<0.83 U	**0.78 NJ**	<5.0 U	<0.43 U	NS
n-Propylbenzene	103-65-1	5	**58.6**	**61.4**	**49.1**	**12.2**	**9.2**	NS	***<250 U***	***<50 U***	**473**	**98.2**	<0.81 U	**15 NJ**	**12.1**	<0.41 U	NS
sec-Butylbenzene	135-98-8	5	<5 U	<1 U	***<10 U***	<5.0 U	**1.54**	NS	***<250 U***	**91.6**	***<100 U***	**90.2**	<0.78 U	NS	<5.0 U	<0.36 U	NS
Styrene	100-42-5	5	<5 U	NS	NS	NS	NS	<1.0 U	***<250 U***	NS	NS	NS	NS	**3.2**	NS	NS	<1.0 U
Total VOC	CALC-VOC	NL	**4679**	**2717.7**	**1701**	**3010.2**	**2184.92**	**5341**	**16554**	**9512.6**	**16474**	**3042.3**	**43.11**	**1167**	**3330.7**	ND	ND
PAH (ug/L)																	
2-Methylnaphthalene	91-57-6	NL	**11.8**	**17.8**	**13.1**	**8.26**	NS	**5.4 J**	**138**	**280**	**202**	**26.8**	NS	**9.4 J**	**7.8**	NS	<10 U
Acenaphthene	83-32-9	20	<5.4 U	<10 U	<5.0 U	<5.6 U	<1.02 U	<10 U	***<110 U***	<10.5 U	<5.0 U	<5.6 U	<1.02 U	<10 U	<5.4 U	<1.02 U	<10 U
Acenaphthylene	208-96-8	NL	<5.4 U	<10 U	<5.0 U	<5.6 U	<0.93 U	<10 U	<110 U	**15.4**	**16.0**	<5.6 U	<0.93 U	<10 U	<5.4 U	<0.93 U	<10 U
Anthracene	120-12-7	50	<5.4 U	<10 U	<5.0 U	<5.6 U	<0.84 U	<10 U	***<110 U***	<10.5 U	<5.0 U	<5.6 U	<0.84 U	<10 U	<5.4 U	<0.84 U	<10 U
Benzo(a)anthracene	56-55-3	0.002	***<2.2 U***	***<10 U***	***<5.0 U***	***<5.6 U***	***<1.03 U***	***<10 U***	***<43 U***	***<10.5 U***	***<5.0 U***	***<5.6 U***	***<1.03 U***	***<10 U***	***<5.4 U***	***<1.03 U***	***<10 U***
Benzo(a)pyrene	50-32-8	NL	<2.2 U	<10 U	<5.0 U	<5.6 U	<0.91 U	<10 U	<43 U	<10.5 U	<5.0 U	<5.6 U	<0.91 U	<10 U	<5.4 U	<0.91 U	<10 U
Benzo(b,k)fluoranthene	BENZOBK	NL	<4.3 U	<10 U	NS	NS	NS	NS	<86 U	<10.5 U	NS	NS	NS	NS	NS	NS	NS
Benzo(ghi)perylene	191-24-2	NL	<2.2 U	<10 U	<5.0 U	<5.6 U	<1.05 U	<10 U	<43 U	<10.5 U	<5.0 U	<5.6 U	<1.05 U	<10 U	<5.4 U	<1.05 U	<10 U
Chrysene	218-01-9	0.002	***<1.1 U***	***<10 U***	***<5.0 U***	***<5.6 U***	***<0.95 U***	***<10 U***	***<22 U***	***<10.5 U***	***<5.0 U***	***<5.6 U***	***<0.95 U***	***<10 U***	***<5.4 U***	***<0.95 U***	***<10 U***
Fluoranthene	206-44-0	50	<5.4 U	<10 U	<5.0 U	<5.6 U	<0.86 U	<10 U	***<110 U***	<10.5 U	<5.0 U	<5.6 U	<0.86 U	<10 U	<5.4 U	<0.86 U	<10 U
Fluorene	86-73-7	50	<5.4 U	<10 U	<5.0 U	<5.6 U	<0.91 U	<10 U	***<110 U***	<10.5 U	**10.4**	<5.6 U	<0.91 U	<10 U	<5.4 U	<0.91 U	<10 U
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	***<2.2 U***	***<10 U***	***<5.0 U***	***<5.6 U***	***<0.95 U***	***<10 U***	***<43 U***	***<10.5 U***	***<5.0 U***	***<5.6 U***	***<0.95 U***	***<10 U***	***<5.4 U***	***<0.95 U***	***<10 U***
Naphthalene	91-20-3	10	**91.9**	**74.3**	**63.3**	**77**	**65.5**	**75**	**2410**	**3920**	**2350**	**599**	<0.87 U	NS	**72**	<0.87 U	<10 U
Phenanthrene	85-01-8	50	<5.4 U	<10 U	<5.0 U	<5.6 U	<0.90 U	<10 U	***<110 U***	<10.5 U	<5.0 U	<5.6 U	<0.90 U	<10 U	<5.4 U	<0.90 U	<10 U
Pyrene	129-00-0	50	<5.4 U	<10 U	<5.0 U	<5.6 U	<1.01 U	<10 U	***<110 U***	<10.5 U	<5.0 U	<5.6 U	<1.01 U	<10 U	<5.4 U	<1.01 U	<10 U
Total PAH	CALC-PAH	NL	**103.7**	**92.1**	**76.4**	**85.26**	**65.5**	**80.4**	**2548**	**4215.4**	**2578.4**	**625.8**	ND	**9.4**	**79.8**	ND	ND
SVOC (ug/L)																	
1,1'-Biphenyl	92-52-4	5	NS	NS	NS	NS	NS	***<10 U***	NS	NS	NS	NS	NS	***<10 U***	NS	NS	***<10 U***
2,4-Dimethylphenol	105-67-9	50	**27.5**	NS	NS	NS	NS	**2.3 J**	***<220 U***	NS	NS	NS	NS	**3.3 J**	NS	NS	<10 U
3+4-Methylphenols	3&4 MPH	NL	<21.6 U	NS	NS	NS	NS	<10 U	<432 U	NS	NS	NS	NS	<10 U	NS	NS	<10 U
Acetophenone	98-86-2	NL	NS	NS	NS	NS	NS	**17 J**	NS	NS	NS	NS	NS	<10 U	NS	NS	<10 U
Benzoic acid	65-85-0	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl) phthalate	117-81-7	5	***<5.4 U***	NS	NS	NS	NS	***<10 U***	***<110 U***	NS	NS	NS	NS	***<10 U***	NS	NS	***<10 U***
Carbazole	86-74-8	NL	NS	NS	NS	NS	NS	<10 U	NS	NS	NS	NS	NS	<10 U	NS	NS	<10 U
Dibenzofuran	132-64-9	NL	<5.4 U	NS	NS	NS	NS	<10 U	<110 U	NS	NS	NS	NS	<10 U	NS	NS	<10 U
Pentachlorophenol	87-86-5	1	***<5.4 U***	NS	NS	NS	NS	**8.9 J**	***<110 U***	NS	NS	NS	NS	***<10 U***	NS	NS	***<10 U***
Phenol	108-95-2	1	***<5.4 U***	NS	NS	NS	NS	***<10 U***	***<110 U***	NS	NS	NS	NS	***<10 U***	NS	NS	***<10 U***
Total SVOC	CALC-SVOC	NL	**131.2**	**92.1**	**76.4**	**85.26**	**65.5**	**108.6**	**2548**	**4215.4**	**2578.4**	**625.8**	ND	**12.7**	**79.8**	ND	ND

Table 5-5
Overburden Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-03 11/16/2004 MW-3-111604 5-10	MW-03 3/29/2005 MW-3-032905 5-10	MW-03 6/3/2005 MW-3-060305 5-10	MW-03 12/21/2005 MW-3-122105 5-10	MW-03 12/22/2008 MW-3-122208 5-10	MW-03 3/9/2010 MW-3-030910 5-10	MW-04 11/16/2004 MW-4-111604 3-7.3	MW-04 3/29/2005 MW-4-032905 3-7.3	MW-04 6/3/2005 MW-4-060305 3-7.3	MW-04 12/21/2005 MW-4-122105 3-7.3	MW-04 12/22/2008 MW-4-122208 3-7.3	MW-04 3/9/2010 MW-4S-030910 3-7.3	MW-05 12/21/2005 MW-5-122105 5-11	MW-05 2/3/2009 MW-5-020309 5-11	MW-05 3/9/2010 MW-5S-030910 5-11
Metals (ug/L)																	
Aluminum	7429-90-5	NL	NS	NS	NS	NS	NS	**30.9 J**	NS	NS	NS	NS	NS	<50.0 UJ	NS	NS	<50.0 UJ
Arsenic	7440-38-2	25	NS	NS	NS	NS	NS	<10.0 U	NS	NS	NS	NS	NS	<10.0 U	NS	NS	<10.0 R
Barium	7440-39-3	1000	NS	NS	NS	NS	NS	**867**	NS	NS	NS	NS	NS	**1360**	NS	NS	**1430 J**
Beryllium	7440-41-7	3	NS	NS	NS	NS	NS	<3.000 U	NS	NS	NS	NS	NS	<3.000 U	NS	NS	<3.000 R
Cadmium	7440-43-9	5	NS	NS	NS	NS	NS	**8.14**	NS	NS	NS	NS	NS	**21.5**	NS	NS	**22.1 J**
Calcium	7440-70-2	NL	NS	NS	NS	NS	NS	**163000 J**	NS	NS	NS	NS	NS	**577000 J**	NS	NS	**261000 J**
Chromium	7440-47-3	50	NS	NS	NS	NS	NS	<5.000 UJ	NS	NS	NS	NS	NS	**5.830 J-**	NS	NS	<5.000 R
Cobalt	7440-48-4	NL	NS	NS	NS	NS	NS	**5.950 J**	NS	NS	NS	NS	NS	**14.4 J**	NS	NS	<15.0 R
Copper	7440-50-8	200	NS	NS	NS	NS	NS	<10.0 UJ	NS	NS	NS	NS	NS	<10.0 UJ	NS	NS	<10.0 R
Iron	7439-89-6	300	NS	NS	**52200**	**90000**	NS	**20800 J-**	NS	NS	**41000**	**18200**	NS	**13700 J-**	**79500**	NS	**84.6 J-**
Lead	7439-92-1	25	NS	NS	NS	NS	**4.0**	**5.610 J**	NS	NS	NS	NS	**3.3**	**8.840**	NS	**9.7**	**17.6 J**
Magnesium	7439-95-4	35000	NS	NS	NS	NS	NS	**22500 J**	NS	NS	NS	NS	NS	**77800 J**	NS	NS	**47000 J**
Manganese	7439-96-5	300	NS	NS	NS	NS	NS	**7510 J**	NS	NS	NS	NS	NS	**30300 J**	NS	NS	**3.100 J**
Mercury	7439-97-6	0.7	NS	NS	NS	NS	NS	<0.20 U	NS	NS	NS	NS	NS	<0.20 U	NS	NS	<0.20 R
Nickel	7440-02-0	100	NS	NS	NS	NS	NS	**16.6 J**	NS	NS	NS	NS	NS	**14.3 J**	NS	NS	<20.0 R
Potassium	7440-09-7	NL	NS	NS	NS	NS	NS	**6790 J**	NS	NS	NS	NS	NS	**21000 J**	NS	NS	**9850 J**
Selenium	7482-49-2	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	NS	NS	NS	NS	**5.160 J**	NS	NS	NS	NS	NS	**12.6**	NS	NS	<10.0 R
Sodium	7440-23-5	20000	NS	NS	NS	NS	NS	**1710000**	NS	NS	NS	NS	NS	**2910000**	NS	NS	**3020000 J**
Thallium	7440-28-0	0.5	NS	NS	NS	NS	NS	***<20.0 U***	NS	NS	NS	NS	NS	***<20.0 U***	NS	NS	***<20.0 R***
Vanadium	7440-62-2	NL	NS	NS	NS	NS	NS	<20.0 UJ	NS	NS	NS	NS	NS	<20.0 UJ	NS	NS	<20.0 R
Zinc	7440-66-6	2000	NS	NS	NS	NS	NS	**52.6 J**	NS	NS	NS	NS	NS	**75.6 J**	NS	NS	**101 J**
Cyanide (ug/L)																	
Cyanide, Total	57-12-5	200	NS	NS	NS	NS	NS	**324**	NS	NS	NS	NS	NS	**42**	NS	NS	**42**
PCBs (ug/L)																	
Total PCB	CALC-PCB	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Oxygen Demand (ug/L)																	
Biochemical Oxygen Demand (BOD)	BOD	NL	NS	NS	**4900**	<4000 U	NS	NS	NS	NS	**11620**	<50000 U	NS	NS	**70500**	NS	NS
Chemical Oxygen Demand (COD)	COD	NL	NS	NS	**202000**	**480000**	NS	NS	NS	NS	**243000**	**106000**	NS	NS	**451000**	NS	NS
TPH (ug/L)																	
TPH (SGT-HEM)	TPH	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Gasoline (ug/L)																	
Gasoline	GASOLINE	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Non calibrateduel type detected	NON CALIBRATED	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OIL & GREASE (ug/L)																	
Oil and Grease	OIL & GREASE	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TSS	TSS	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-5
Overburden Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-06 2/3/2009 MW-6-020309 6.5-11	MW-06 3/9/2010 MW-6-030910 6.5-11	MW-07 2/3/2009 MW-7-020309 4.5-14.5	MW-07 3/10/2010 MW-7-031010 4.5-14.5	MW-09 12/22/2008 MW-9-122208 8-13	MW-09 3/10/2010 MW-9-031010 8-13	MW-10 2/3/2009 MW-10-020309 7-12	MW-10S 3/8/2010 MW-10S-030810 7-12	MW-12 11/20/2008 MW12-112008 4.5-12.5	MW-12 12/23/2008 MW-12-122308 4.5-12.5	MW-12 3/11/2010 MW-12-031110 4.5-12.5	MW-103S 3/8/2010 MW-103S-030810 5-10	MW-103S 3/8/2010 MW-DUP-030810 5-10	MW-104S 3/10/2010 MW-104S-031010 2-12	MW-108S 3/10/2010 MW-108S-031010 2-13	MW-113S 3/16/2012 MW-113S-031612 5-9	MW-113S 3/16/2012 DUP-7-031612 5-9
BTEX (ug/L)			OVERBURDEN		OVERBURDEN		OVERBURDEN		OVERBURDEN			OVERBURDEN		OVERBURDEN		OVERBURDEN	OVERBURDEN	OVERBURDEN	
Benzene	71-43-2	1	<0.43 U	**0.51 J**	<0.43 U	<1.0 U	**1.01**	**5.9**	<0.43 U	<1.0 U	NS	<0.88 U	<1.0 U	**29**	**31**	<1.0 U	**340**	<0.50 U	<0.50 U
Ethylbenzene	100-41-4	5	<0.41 U	**1.0 J**	<0.41 U	<1.0 U	**2.80**	**18**	<0.41 U	<1.0 U	NS	<0.89 U	<1.0 U	**7.6**	**7.6**	**1.3**	**690**	<1.0 U	<1.0 U
m&p-Xylene	1330-20-7-m,p	NL	<0.86 U	<2.0 U	<0.86 U	<2.0 U	**7.78**	**11**	<0.86 U	<2.0 U	NS	<1.74 U	<2.0 U	**2.7**	**2.7**	**1.6 J**	**1500**	<1.0 U	<1.0 U
o-Xylene	95-47-6	NL	<0.37 U	<1.0 U	<0.37 U	<1.0 U	**2.12**	**4.4**	<0.37 U	<1.0 U	NS	<0.85 U	<1.0 U	**4.6**	**4.6**	**0.88 J**	**930**	<1.0 U	<1.0 U
Toluene	108-88-3	5	<0.45 U	<1.0 U	<0.45 U	<1.0 U	**1.09**	**2.8**	<0.45 U	<1.0 U	NS	<1.08 U	<1.0 U	**1.5**	**1.7**	<1.0 U	**160**	<1.0 U	<1.0 U
Xylenes (total)	1330-20-7	5	<0.86	NS	<0.86	NS	**9.9**	**15.4**	<0.86	ND	ND	<1.74	ND	**7.3**	**7.3**	**2.48**	**2430**	<1.0	<1.0
Total BTEX	CALC-BTEX	NL	ND	**1.51**	ND	ND	**14.8**	**42.1**	ND	ND	ND	ND	ND	**45.4**	**47.6**	**3.78**	**3620**	ND	ND
VOC (ug/L)																			
1,1-Dichloroethane	75-34-3	5	NS	<1.0 U	NS	<1.0 U	NS	<1.0 U	NS	**1.3**	NS	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	<0.44 U	NS	<0.44 U	NS	**3.73**	**5.7 NJ**	<0.44 U	NS	NS	<0.84 U	NS	**4.1 NJ**	**4.0 NJ**	**0.51 NJ**	**190 NJ**	NS	NS
1,3,5-Trimethylbenzene	108-67-8	5	<0.43 U	NS	<0.43 U	NS	<0.82 U	**2.4 NJ**	<0.43 U	NS	NS	<0.82 U	NS	**1.0 NJ**	**1.0 NJ**	NS	**51 NJ**	NS	NS
1,4-Dioxane	123-91-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<50 UJ	**140 J**
2-Butanone	78-93-3	50	NS	<5.0 U	NS	<5.0 U	NS	**14**	NS	<5.0 U	NS	NS	<5.0 U	**8.0**	**8.0**	<5.0 U	<5.0 U	<1.0 U	<1.0 U
4-Isopropyltoluene	99-87-6	NL	<0.34 U	NS	<0.34 U	NS	<0.81 U	NS	<0.34 U	NS	NS	<0.81 U	NS	NS	NS	NS	**4.7 NJ**	NS	NS
Acetone	67-64-1	50	NS	<5.0 UJ	NS	<5.0 UJ	NS	<5.0 UJ	NS	<5.0 UJ	NS	NS	<5.0 UJ	**35 J**	**32 J**	<5.0 UJ	**49 J**	<10 U	<10 U
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chloroethane	75-00-3	5	NS	<1.0 U	NS	<1.0 U	NS	<1.0 U	NS	<1.0 U	NS	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**4.4 J**	<1.0 U	<1.0 U
Chloromethane	74-87-3	5	NS	<1.0 U	NS	<1.0 U	NS	<1.0 U	NS	<1.0 U	NS	NS	<1.0 U	**0.59 J**	**0.79 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Cyclohexane	110-82-7	NL	NS	<1.0 U	NS	<1.0 U	NS	**140**	NS	<1.0 U	NS	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**12**	<1.0 U	<1.0 U
Dichlorodifluoromethane	75-71-8	5	NS	**0.91 J**	NS	<1.0 U	NS	<1.0 U	NS	<1.0 U	NS	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ
Isopropylbenzene	98-82-8	5	<0.44 U	<1.0 U	<0.44 U	<1.0 U	<0.86 U	**3.5**	<0.44 U	<1.0 U	NS	<0.86 U	<1.0 U	**1.5**	**1.6**	<1.0 U	**66**	<1.0 U	<1.0 U
Methyl tert-butyl ether	1634-04-4	10	<0.50 U	<1.0 U	<0.50 U	<1.0 U	**2.67**	<1.0 U	<0.50 U	<1.0 U	NS	<0.88 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<0.50 U	<0.50 U
Methylcyclohexane	108-87-2	NL	NS	<1.0 U	NS	<1.0 U	NS	**54**	NS	<1.0 U	NS	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**17**	<1.0 U	<1.0 U
Naphthalene	91-20-3	10	<0.33 U	**0.86 NJ**	<0.33 U	**6.9 NJ**	**2.07**	**120 NJ**	<0.33 U	NS	NS	<0.61 U	**2.5 NJ**	**50 NJ**	**50 NJ**	**16 NJ**	**1100 NJ**	NS	NS
n-Butylbenzene	104-51-8	5	<0.43 U	NS	<0.43 U	NS	<0.83 U	NS	<0.43 U	NS	NS	<0.83 U	NS	NS	NS	NS	**3.8 NJ**	NS	NS
n-Propylbenzene	103-65-1	5	<0.41 U	NS	<0.41 U	NS	<0.81 U	**1.7 NJ**	<0.41 U	NS	NS	<0.81 U	NS	**0.62 NJ**	**0.54 NJ**	NS	**12 NJ**	NS	NS
sec-Butylbenzene	135-98-8	5	<0.36 U	NS	<0.36 U	NS	<0.78 U	NS	<0.36 U	NS	NS	<0.78 U	NS	NS	NS	NS	NS	NS	NS
Styrene	100-42-5	5	NS	<1.0 U	NS	<1.0 U	NS	<1.0 U	NS	<1.0 U	NS	NS	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOC	CALC-VOC	NL	ND	**2.42**	ND	ND	**23.27**	**269**	ND	**1.3**	ND	ND	ND	**97.79**	**97.29**	**6.26**	**6198.4**	ND	**140**
PAH (ug/L)																			
2-Methylnaphthalene	91-57-6	NL	NS	<10 U	NS	<10 U	NS	**7.6 J**	NS	<10 U	NS	NS	<10 U	**3.3 J**	**5.3 J**	<10 U	**590**	<2.0 U	<2.0 U
Acenaphthene	83-32-9	20	<1.02 U	<10 U	<1.02 U	<10 U	<1.02 U	**10**	<1.02 U	<10 U	NS	<0.81 U	<10 U	**13**	**19**	<10 U	**190**	<2.0 U	<2.0 U
Acenaphthylene	208-96-8	NL	<0.93 U	<10 U	<0.93 U	<10 U	<0.93 U	<10 U	<0.93 U	<10 U	NS	<0.72 U	<10 U	**1.5 J**	**1.5 J**	<10 U	**7.5 J**	<2.0 U	<2.0 U
Anthracene	120-12-7	50	<0.84 U	<10 U	<0.84 U	<10 U	<0.84 U	<10 U	<0.84 U	<10 U	NS	<0.85 U	<10 U	<11 U	**1.5 J**	<10 U	**12**	<2.0 U	<2.0 U
Benzo(a)anthracene	56-55-3	0.002	***<1.03 U***	***<10 U***	***<1.03 U***	***<10 U***	***<1.03 U***	***<10 U***	***<1.03 U***	***<10 U***	NS	***<0.92 U***	***<10 U***	***<11 U***	***<11 U***	***<10 U***	***<10 U***	***<2.0 U***	***<2.0 U***
Benzo(a)pyrene	50-32-8	NL	<0.91 U	<10 U	<0.91 U	<10 U	<0.91 U	<10 U	<0.91 U	<10 U	NS	<0.93 U	<10 U	<11 UJ	<11 U	<10 U	<10 U	<2.0 U	<2.0 U
Benzo(b,k)fluoranthene	BENZOBK	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(ghi)perylene	191-24-2	NL	<1.05 U	<10 U	<1.05 U	<10 U	<1.05 U	<10 U	<1.05 U	<10 U	NS	<1.02 U	<10 U	<11 UJ	<11 U	<10 U	<10 U	<2.0 U	<2.0 U
Chrysene	218-01-9	0.002	***<0.95 U***	***<10 U***	***<0.95 U***	***<10 U***	***<0.95 U***	***<10 U***	***<0.95 U***	***<10 U***	NS	***<1.12 U***	***<10 U***	***<11 U***	***<11 U***	***<10 U***	***<10 U***	***<2.0 U***	***<2.0 U***
Fluoranthene	206-44-0	50	<0.86 U	<10 U	<0.86 U	<10 U	<0.86 U	<10 U	<0.86 U	<10 U	NS	<0.97 U	<10 U	<11 U	<11 U	<10 U	**5.3 J**	<2.0 U	<2.0 U
Fluorene	86-73-7	50	<0.91 U	<10 U	<0.91 U	<10 U	<0.91 U	**2.7 J**	<0.91 U	<10 U	NS	<0.83 U	<10 U	**1.9 J**	**3.0 J**	<10 U	**54**	<2.0 U	<2.0 U
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	***<0.95 U***	***<10 U***	***<0.95 U***	***<10 U***	***<0.95 U***	***<10 U***	***<0.95 U***	***<10 U***	NS	***<1.02 U***	***<10 U***	***<11 UJ***	***<11 U***	***<10 U***	***<10 U***	***<2.0 U***	***<2.0 U***
Naphthalene	91-20-3	10	<0.87 U	<10 U	<0.87 U	<10 U	**2.32**	**74**	<0.87 U	<10 U	NS	<0.83 U	<10 U	**24**	**34**	**10 J**	**6900**	<0.50 U	<0.50 U
Phenanthrene	85-01-8	50	<0.90 U	<10 U	<0.90 U	<10 U	<0.90 U	**2.3 J**	<0.90 U	<10 U	NS	<0.94 U	<10 U	**6.2 J**	**8.7 J**	<10 U	**63**	<2.0 U	<2.0 U
Pyrene	129-00-0	50	<1.01 U	<10 U	<1.01 U	<10 U	<1.01 U	<10 U	<1.01 U	<10 U	NS	<0.84 U	<10 U	<11 U	<11 U	<10 U	**7.0 J**	<2.0 U	<2.0 U
Total PAH	CALC-PAH	NL	ND	ND	ND	ND	**2.32**	**96.6**	ND	ND	ND	ND	ND	**49.9**	**73**	**10**	**7828.8**	ND	ND
SVOC (ug/L)																			
1,1'-Biphenyl	92-52-4	5	NS	***<10 U***	NS	***<10 U***	NS	***<10 U***	NS	***<10 U***	NS	NS	***<10 U***	***<11 U***	***<11 U***	***<10 U***	**48**	NS	NS
2,4-Dimethylphenol	105-67-9	50	NS	<10 U	NS	<10 U	NS	<10 U	NS	<10 U	NS	NS	<10 U	<11 U	<11 U	<10 U	<10 UJ	NS	NS
3+4-Methylphenols	3&4 MPH	NL	NS	<10 U	NS	<10 U	NS	<10 U	NS	<10 U	NS	NS	<10 U	**1.7 J**	**2.0 J**	<10 U	<10 U	NS	NS
Acetophenone	98-86-2	NL	NS	<10 U	NS	<10 U	NS	<10 U	NS	<10 U	NS	NS	<10 U	<11 U	<11 U	<10 U	**44 J**	NS	NS
Benzoic acid	65-85-0	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl) phthalate	117-81-7	5	NS	***<10 U***	NS	***<10 U***	NS	***<10 U***	NS	***<10 U***	NS	NS	***<10 U***	***<11 U***	***<11 U***	***<10 U***	***<10 U***	NS	NS
Carbazole	86-74-8	NL	NS	<10 U	NS	<10 U	NS	<10 U	NS	<10 U	NS	NS	<10 U	<11 U	<11 U	<10 U	**6.7 J**	NS	NS
Dibenzofuran	132-64-9	NL	NS	<10 U	NS	<10 U	NS	<10 U	NS	<10 U	NS	NS	<10 U	<11 U	<11 U	<10 U	**5.6 J**	NS	NS
Pentachlorophenol	87-86-5	1	NS	***<10 U***	NS	***<10 U***	NS	***<10 U***	NS	***<10 U***	NS	NS	***<10 U***	***<11 U***	***<11 U***	***<10 U***	***<10 U***	NS	NS
Phenol	108-95-2	1	NS	***<10 U***	NS	***<10 U***	NS	***<10 U***	NS	***<10 U***	NS	NS	***<10 R***	***<11 U***	***<11 U***	***<10 U***	***<10 U***	NS	NS
Total SVOC	CALC-SVOC	NL	ND	ND	ND	ND	**2.32**	**96.6**	ND	ND	ND	ND	ND	**51.6**	**75**	**10**	**7933.1**	ND	ND

Table 5-5
Overburden Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-06 2/3/2009 MW-6-020309 6.5-11	MW-06 3/9/2010 MW-6-030910 6.5-11	MW-07 2/3/2009 MW-7-020309 4.5-14.5	MW-07 3/10/2010 MW-7-031010 4.5-14.5	MW-09 12/22/2008 MW-9-122208 8-13	MW-09 3/10/2010 MW-9-031010 8-13	MW-10 2/3/2009 MW-10-020309 7-12	MW-10S 3/8/2010 MW-10S-030810 7-12	MW-12 11/20/2008 MW12-112008 4.5-12.5	MW-12 12/23/2008 MW-12-122308 4.5-12.5	MW-12 3/11/2010 MW-12-031110 4.5-12.5	MW-103S 3/8/2010 MW-103S-030810 5-10	MW-103S 3/8/2010 MW-DUP-030810 5-10	MW-104S 3/10/2010 MW-104S-031010 2-12	MW-108S 3/10/2010 MW-108S-031010 2-13	MW-113S 3/16/2012 MW-113S-031612 5-9	MW-113S 3/16/2012 DUP-7-031612 5-9
Metals (ug/L)																			
Aluminum	7429-90-5	NL	NS	**77.9 J**	NS	**101 J**	NS	**39.7 J**	NS	**18.1 J**	NS	NS	**64.5 J**	**1200 J**	**131 J**	**36.3 J**	**120 J**	NS	NS
Arsenic	7440-38-2	25	NS	<10.0 U	NS	<10.0 U	NS	**8.760 J**	NS	**11.7**	NS	NS	<10.0 U	<10.0 U	<10.0 U	**20.0**	<10.0 U	NS	NS
Barium	7440-39-3	1000	NS	**330**	NS	**549**	NS	**476**	NS	**286**	NS	NS	**1150**	**1010**	**1070**	**421**	**351**	NS	NS
Beryllium	7440-41-7	3	NS	<3.000 U	NS	<3.000 U	NS	<3.000 U	NS	<3.000 U	NS	NS	<3.000 U	<3.000 U	<3.000 U	<3.000 U	<3.000 U	NS	NS
Cadmium	7440-43-9	5	NS	**2.290 J**	NS	**3.670**	NS	**2.310 J**	NS	**0.63 J**	NS	NS	<3.000 U	**6.28**	**5.2**	**1.530 J**	**0.73 J**	NS	NS
Calcium	7440-70-2	NL	NS	**272000 J**	NS	**209000 J**	NS	**345000 J**	NS	**281000**	NS	NS	**402000 J**	**505000 J**	**523000 J**	**261000 J**	**158000 J**	NS	NS
Chromium	7440-47-3	50	NS	<5.000 UJ	NS	<5.000 UJ	NS	**2.220 J-**	NS	<5.000 UJ	NS	NS	<5.000 UJ	<5.000 UJ	<5.000 UJ	<5.000 UJ	<5.000 UJ	NS	NS
Cobalt	7440-48-4	NL	NS	<15.0 U	NS	**5.880 J**	NS	**6.810 J**	NS	<15.0 U	NS	NS	**21.7**	**15.4**	**13.6 J**	**16.0**	<15.0 U	NS	NS
Copper	7440-50-8	200	NS	**7.640 J-**	NS	<10.0 UJ	NS	<10.0 UJ	NS	<10.0 UJ	NS	NS	<10.0 UJ	<10.0 UJ	<10.0 UJ	<10.0 UJ	<10.0 UJ	NS	NS
Iron	7439-89-6	300	NS	**2770 J-**	NS	**421 J-**	NS	**37000 J-**	NS	**2190 J-**	NS	NS	**64300 J-**	**4720 J-**	**3280 J-**	**63400 J-**	**44100 J-**	NS	NS
Lead	7439-92-1	25	**6**	**3.030 J**	**14**	**5.310 J**	**2.1**	**6.940**	**7.3**	**3.540 J**	NS	<1.7 U	<6.000 U	**8.520**	**3.150 J**	<6.000 U	**4.770 J**	NS	NS
Magnesium	7439-95-4	35000	NS	**27200 J**	NS	**50100 J**	NS	**80800 J**	NS	**30400 J**	NS	NS	**34400 J**	**47300 J**	**50700 J**	**29900 J**	**29600 J**	NS	NS
Manganese	7439-96-5	300	NS	**1590 J**	NS	**5990 J**	NS	**17200 J**	NS	**4280 J**	NS	NS	**12400 J**	**3030 J**	**3520 J**	**8380 J**	**12000 J**	NS	NS
Mercury	7439-97-6	0.7	NS	**0.13 J**	NS	**0.10 J**	NS	<0.20 U	NS	<0.20 U	NS	NS	<0.20 U	**0.10 J**	<0.20 U	<0.20 U	<0.20 U	NS	NS
Nickel	7440-02-0	100	NS	**11.8 J**	NS	**14.8 J**	NS	**16.0 J**	NS	<20.0 U	NS	NS	**15.5 J**	**19.8 J**	**18.5 J**	<20.0 U	**7.700 J**	NS	NS
Potassium	7440-09-7	NL	NS	**13300 J**	NS	**10200 J**	NS	**9960 J**	NS	**11400 J**	NS	NS	**41100 J**	**67500 J**	**69700 J**	**18900 J**	**6550 J**	NS	NS
Selenium	7482-49-2	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	<10.0 U	NS	<10.0 U	NS	**10.3**	NS	<10.0 U	NS	NS	**6.120 J+**	<10.0 U	<10.0 U	**11.4**	**9.570 J**	NS	NS
Sodium	7440-23-5	20000	NS	**1130000**	NS	**3110000**	NS	**2380000**	NS	**1090000**	NS	NS	**4290000**	**17700000**	**16700000**	**700000**	**463000**	NS	NS
Thallium	7440-28-0	0.5	NS	***<20.0 U***	NS	***<20.0 U***	NS	***<20.0 U***	NS	***<20.0 U***	NS	NS	***<20.0 U***	***<20.0 U***	***<20.0 U***	***<20.0 U***	***<20.0 U***	NS	NS
Vanadium	7440-62-2	NL	NS	<20.0 UJ	NS	<20.0 UJ	NS	<20.0 UJ	NS	<20.0 UJ	NS	NS	<20.0 UJ	<20.0 UJ	<20.0 UJ	<20.0 UJ	<20.0 UJ	NS	NS
Zinc	7440-66-6	2000	NS	**248 J**	NS	**87.1 J**	NS	**271 J**	NS	**27.5 J**	NS	NS	**48.4 J**	**1430 J**	**1250 J**	**33.3 J**	**34.0 J**	NS	NS
Cyanide (ug/L)																			
Cyanide, Total	57-12-5	200	NS	**63**	NS	**33**	NS	**311**	NS	**16**	NS	NS	**34**	**29**	**27**	**29**	**31**	<20 U	MGMGP-
PCBs (ug/L)																			
Total PCB	CALC-PCB	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Oxygen Demand (ug/L)																			
Biochemical Oxygen Demand (BOD)	BOD	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chemical Oxygen Demand (COD)	COD	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TPH (ug/L)																			
TPH (SGT-HEM)	TPH	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Gasoline (ug/L)																			
Gasoline	GASOLINE	NL	NS	NS	NS	NS	NS	NS	NS	NS	**0**	NS	NS	NS	NS	NS	NS	NS	NS
Non calibratedeuel type detected	NON CALIBRATED	NL	NS	NS	NS	NS	NS	NS	NS	NS	**0**	NS	NS	NS	NS	NS	NS	NS	NS
OIL & GREASE (ug/L)																			
Oil and Grease	OIL & GREASE	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TSS	TSS	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
ND = Non Detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Yellow highlighted values exceed NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
Bold = Detected
values bold and italics = nondetects above NYSDEC SubSurface Soil Standards
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 5-5
Overburden Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	Summary Statistics											
			Samples	Detects	Non-Detects	Exceedances	DL Exceedances	Max Detected Concentration	ID for Max Concentration	Min Detected Concentration	ID for Min Concentration	Average Detected Concentration	Min DL for NonDetects	Max DL for NonDetects
BTEX (ug/L)														
Benzene	71-43-2	1	45	24	21	23	3	5300	MW-1/SB-1-080796	0.51	MW-6-030910	473.2425	-	100
Ethylbenzene	100-41-4	5	45	30	15	24	1	2200	MW-2-080796	1	MW-6-030910	300.9803333	0.41	25
m&p-Xylene	1330-20-7-m,p	NL	43	27	16	0	0	2150	MW-4-111604	1.6	MW-104S-031010	465.3266667	0.86	10
o-Xylene	95-47-6	NL	43	26	17	0	0	1250	MW-4-060305	0.88	MW-104S-031010	270.9576923	0.37	5
Toluene	108-88-3	5	45	26	19	19	0	2800	MW-1/SB-1-080796	1.09	MW-9-122208	262.2776923	-	5
Xylenes (total)	1330-20-7	5	45	29	16	28	0	7900	MW-2-080796	2.48	MW-104S-031010	1086.848214	-	1.74
Total BTEX	CALC-BTEX	NL	45	31	14	0	0	12450	MW-1/SB-1-080796	1.51	MW-6-030910	1923.381935	-	-
VOC (ug/L)														
1,1-Dichloroethane	75-34-3	5	24	1	23	0	1	1.3	MW-10S-030810	1.3	MW-10S-030810	1.3	-	250
1,2,4-Trimethylbenzene	95-63-6	5	36	26	10	17	1	1350	MW-4-111604	0.51	MW-104S-031010	198.1619231	0.44	25
1,3,5-Trimethylbenzene	108-67-8	5	35	16	19	10	2	418	MW-4-032905	0.67	MW-2-031010	79.19	0.43	100
1,4-Dioxane	123-91-1	NL	2	1	1	0	0	140	DUP-7-031612	140	DUP-7-031612	140	50	50
2-Butanone	78-93-3	50	24	5	19	0	1	14	MW-9-031010	4.7	MW-1-030910	8.7	-	1300
4-Isopropyltoluene	99-87-6	NL	30	4	26	0	0	4.7	MW-108S-031010	0.75	MW-3-030910	2.6825	0.34	250
Acetone	67-64-1	50	24	4	20	0	1	49	MW-108S-031010	12	MW-1-030910	32	-	1300
Acrylonitrile	107-13-1	NL	9	1	8	0	0	51	MW-3-030910	51	MW-3-030910	51	-	1300
Chloroethane	75-00-3	5	24	4	20	1	1	11	MW-3-030910	1.8	MW-4S-030910	4.85	-	250
Chloromethane	74-87-3	5	24	2	22	0	1	0.79	MW-DUP-030810	0.59	MW-103S-030810	0.69	-	250
Cyclohexane	110-82-7	NL	16	6	10	0	0	140	MW-9-031010	0.91	MW-1-030910	41.11833333	1	1
Dichlorodifluoromethane	75-71-8	5	24	1	23	0	1	0.91	MW-6-030910	0.91	MW-6-030910	0.91	-	250
Isopropylbenzene	98-82-8	5	43	11	32	7	4	66	MW-108S-031010	1.5	MW-103S-030810	21.7	0.44	250
Methyl tert-butyl ether	1634-04-4	10	45	1	44	0	4	2.67	MW-9-122208	2.67	MW-9-122208	2.67	-	250
Methylcyclohexane	108-87-2	NL	16	5	11	0	0	54	MW-9-031010	3.2	MW-2-031010	30.64	1	1
Naphthalene	91-20-3	10	40	30	10	24	0	7750	MW-4-060305	0.79	MW-5S-030910	727.5866667	0.33	5
n-Butylbenzene	104-51-8	5	30	3	27	0	5	3.8	MW-108S-031010	0.78	MW-4S-030910	2.326666667	0.43	250
n-Propylbenzene	103-65-1	5	35	16	19	11	3	473	MW-4-060305	0.54	MW-103S-030810	52.83375	0.41	250
sec-Butylbenzene	135-98-8	5	28	4	24	2	4	91.6	MW-4-032905	1.54	MW-3-122208	46.31	0.36	250
Styrene	100-42-5	5	24	1	23	0	1	3.2	MW-4S-030910	3.2	MW-4S-030910	3.2	-	250
Total VOC	CALC-VOC	NL										1870.6	-	-
PAH (ug/L)														
2-Methylnaphthalene	91-57-6	NL	34	15	19	0	0	590	MW-108S-031010	3.3	MW-103S-030810	88.43733333	2	12.5
Acenaphthene	83-32-9	20	45	7	38	1	1	190	MW-108S-031010	1.8	MW-1-030910	35.80571429	-	110
Acenaphthylene	208-96-8	NL	43	6	37	0	0	16	MW-4-060305	1.5	MW-103S-030810	8.291666667	0.72	110
Anthracene	120-12-7	50	45	2	43	0	1	12	MW-108S-031010	1.5	MW-DUP-030810	6.75	-	110
Benzo(a)anthracene	56-55-3	0.002	45	1	44	1	42	4	MW-1-051104	4	MW-1-051104	4	-	43
Benzo(a)pyrene	50-32-8	NL	45	1	44	0	0	8.4	MW-1-051104	8.4	MW-1-051104	8.4	-	43
Benzo(b,k)fluoranthene	BENZOBK	NL	10	1	9	0	0	7.24	MW-1-051104	7.24	MW-1-051104	7.24	4	86
Benzo(ghi)perylene	191-24-2	NL	45	1	44	0	0	6.64	MW-1-051104	6.64	MW-1-051104	6.64	-	43
Chrysene	218-01-9	0.002	45	1	44	1	42	3.7	MW-1-051104	3.7	MW-1-051104	3.7	-	22
Fluoranthene	206-44-0	50	45	2	43	0	1	12	MW-1-051104	5.3	MW-108S-031010	8.65	-	110
Fluorene	86-73-7	50	45	7	38	1	1	54	MW-108S-031010	1.9	MW-103S-030810	11.90714286	-	110
Indeno(1,2,3-cd)pyrene	193-39-5	0.002	45	1	44	1	42	4.45	MW-1-051104	4.45	MW-1-051104	4.45	-	43
Naphthalene	91-20-3	10	45	26	19	23	1	6900	MW-108S-031010	1.7	MW-2-031010	706.2392308	0.5	11.1
Phenanthrene	85-01-8	50	45	6	39	1	1	63	MW-108S-031010	2.3	MW-9-031010	18.35	-	110
Pyrene	129-00-0	50	45	2	43	0	1	20.1	MW-1-051104	7	MW-108S-031010	13.55	-	110
Total PAH	CALC-PAH	NL	45	26	19	0	0	7828.8	MW-108S-031010	1.7	MW-2-031010	764.1426923	-	-
SVOC (ug/L)														
1,1'-Biphenyl	92-52-4	5	14	1	13	1	13	48	MW-108S-031010	48	MW-108S-031010	48	10	12
2,4-Dimethylphenol	105-67-9	50	20	3	17	0	1	27.5	MW-3-111604	2.3	MW-3-030910	11.03333333	10	220
3+4-Methylphenols	3&4 MPH	NL	20	2	18	0	0	2	MW-DUP-030810	1.7	MW-103S-030810	1.85	10	432
Acetophenone	98-86-2	NL	14	2	12	0	0	44	MW-108S-031010	17	MW-3-030910	30.5	10	12
Benzoic acid	65-85-0	NL	3	3	0	0	0	25	MW-DUP-030810	17	MW-3-030910	22	-	-
bis(2-Ethylhexyl) phthalate	117-81-7	5	20	1	19	1	17	10.6	MW-1-051104	10.6	MW-1-051104	10.6	5	110
Carbazole	86-74-8	NL	14	1	13	0	0	6.7	MW-108S-031010	6.7	MW-108S-031010	6.7	10	12
Dibenzofuran	132-64-9	NL	20	1	19	0	0	5.6	MW-108S-031010	5.6	MW-108S-031010	5.6	5	110
Pentachlorophenol	87-86-5	1	20	1	19	1	19	8.9	MW-3-030910	8.9	MW-3-030910	8.9	5	110
Phenol	108-95-2	1	20	3	17	3	17	14.8	MW-1-111604	5.2	MW-1-030910	9.46	5	110
Total SVOC	CALC-SVOC	NL	8	4	4	0	0	2548	MW-4-111604	90.69	MW-1-111604	729.0025	-	-

Table 5-5
Overburden Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	Summary Statistics											
			Samples	Detects	Non-Detects	Exceedances	DL Exceedances	Max Detected Concentration	ID for Max Concentration	Min Detected Concentration	ID for Min Concentration	Average Detected Concentration	Min DL for NonDetects	Max DL for NonDetects
Metals (ug/L)														
Aluminum	7429-90-5	NL	14	12	2	0	0	1200	MW-103S-030810	18.1	MW-10S-030810	160.25	50	50
Arsenic	7440-38-2	25	16	5	11	0	0	20	MW-104S-031010	8.76	MW-9-031010	14.192	-	10
Barium	7440-39-3	1000	14	14	0	5	0	1430	MW-5S-030910	263	MW-1-030910	705.2142857	-	-
Beryllium	7440-41-7	3	16	1	15	1	0	4	MW-2-080796	4	MW-2-080796	4	-	3
Cadmium	7440-43-9	5	16	12	4	5	0	22.1	MW-5S-030910	0.63	MW-10S-030810	6.405	-	3
Calcium	7440-70-2	NL	14	14	0	0	0	577000	MW-4S-030910	158000	MW-108S-031010	311928.5714	-	-
Chromium	7440-47-3	50	16	5	11	1	0	82	MW-2-080796	2.22	MW-9-031010	24.224	5	5
Cobalt	7440-48-4	NL	14	8	6	0	0	21.7	MW-12-031110	5.88	MW-7-031010	12.4675	15	15
Copper	7440-50-8	200	16	3	13	1	0	305	MW-2-080796	7.64	MW-6-030910	122.2133333	10	10
Iron	7439-89-6	300	22	22	0	21	0	90000	MW-3-122105	84.6	MW-5S-030910	30037.52727	-	-
Lead	7439-92-1	25	25	21	4	2	0	296	MW-2-080796	2.1	MW-9-122208	22.88619048	1.7	6
Magnesium	7439-95-4	35000	14	14	0	7	0	80800	MW-9-031010	10200	MW-2-031010	41857.14286	-	-
Manganese	7439-96-5	300	14	14	0	13	0	30300	MW-4S-030910	3.1	MW-5S-030910	8835.221429	-	-
Mercury	7439-97-6	0.7	16	3	13	0	0	0.13	MW-6-030910	0.1	MW-103S-030810	0.11	-	0.2
Nickel	7440-02-0	100	16	12	4	1	0	101	MW-2-080796	7.7	MW-108S-031010	21.7175	20	20
Potassium	7440-09-7	NL	14	14	0	0	0	69700	MW-DUP-030810	1650	MW-1-030910	21600	-	-
Selenium	7482-49-2	NL	2	1	1	0	0	10	MW-1/SB-1-080796	10	MW-1/SB-1-080796	10	-	-
Selenium	7782-49-2	10	14	7	7	4	0	12.6	MW-4S-030910	5.16	MW-3-030910	9.492857143	10	10
Sodium	7440-23-5	20000	14	14	0	14	0	17700000	MW-103S-030810	463000	MW-108S-031010	4659714.286	-	-
Thallium	7440-28-0	0.5	16	0	16	0	14	-	-	-	-	-	-	20
Vanadium	7440-62-2	NL	14	0	14	0	0	-	-	-	-	-	20	20
Zinc	7440-66-6	2000	16	16	0	0	0	1430	MW-103S-030810	27.5	MW-10S-030810	254.13125	-	-
Cyanide (ug/L)														
Cyanide, Total	57-12-5	200	16	14	2	2	0	324	MW-3-030910	16	MW-10S-030810	85.07142857	20	20
PCBs (ug/L)														
Total PCB	CALC-PCB	NL	2	0	2	0	0	-	-	-	-	-	-	-
Oxygen Demand (ug/L)														
Biochemical Oxygen Demand (BOD)	BOD	NL	8	4	4	0	0	70500	MW-5-122105	4900	MW-3-060305	23705	4000	50000
Chemical Oxygen Demand (COD)	COD	NL	8	8	0	0	0	1312000	MW-2-122105	106000	MW-4-122105	389000	-	-
TPH (ug/L)														
TPH (SGT-HEM)	TPH	NL	2	2	0	0	0	59800	MW-2-080796	4820	MW-1/SB-1-080796	32310	-	-
Gasoline (ug/L)														
Gasoline	GASOLINE	NL	1	1	0	0	0	-	MW12-112008	-	MW12-112008	-	-	-
Non calibrateduel type detected	NON CALIBRATED	NL	1	1	0	0	0	-	MW12-112008	-	MW12-112008	-	-	-
OIL & GREASE (ug/L)														
Oil and Grease	OIL & GREASE	NL	2	2	0	0	0	65000	MW-2-080796	10500	MW-1/SB-1-080796	37750	-	-
TSS	TSS	NL	2	2	0	0	0	6460000	MW-2-080796	413000	MW-1/SB-1-080796	3436500	-	-

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-0DD 10/1/2009 MGP-MW-0DD (17-20)100109 17-20	MW-0DD 10/2/2009 MGP-MW-0DD (37-40)100209 37-40	MW-0DD 10/5/2009 MGP-MW-0DD (57.5-60)100509 57.5-60	MW-0DD 10/5/2009 MGP-MW-0DD (60-65)100509 60-65	MW-0DD 10/6/2009 MGP-MW-0DD (76-80)1005609 76-80	MW-04D 4/11/2007 MW-4D-041107 21-30	MW-04D 12/22/2008 MW-4D-122208 21-30	MW-04D 3/9/2010 MW-4D-030910 21-30	MW-04DD 8/18/2009 MGP-MW-4DD (35-41.5)081809 35-41.5	MW-04DD 8/19/2009 MGP-MW-4DD (45-51.6)081909 45-51.5	MW-04DD 8/19/2009 MGP-MW-4DD (55-60.5)081909 55-60.5	MW-04DD 8/20/2009 MGP-MW-4DD (60-65.6)082009 60-65.6	MW-04DD 8/21/2009 MGP-MW-4DD (70-75.5)082109 70-75.5	MW-04DD 8/21/2009 MGP-MW-4DD (75.5-80)082109 75.5-80	MW-04DD 8/24/2009 MGP-MW-4DD (80-85.2)082409 80-85.2	MW-04DD 8/25/2009 MGP-MW-4DD (85-100.4)082509 87-100.4	MW-04DD 9/17/2009 MGP-MW-4DD (100-105.5)091709 100-105.5	MW-04DD 9/18/2009 MGP-MW-4DD (102-110.5)091809 102-110.5	MW-04DD 9/21/2009 MGP-MW-4DD (117-125.5)092109 117-125.5
BTEX (ug/L)					**BEDROCK**				**BEDROCK**									**BEDROCK**			
Benzene	71-43-2	1	**5.1**	**2.9**	**11**	**11**	**0.91 J**	**246**	**4.76**	**200**	**2.8**	<1.0 U	**1.2**	**13**	**9.1**	**6.1**	**11**	**85**	**79**	**250**	**400**
Ethylbenzene	100-41-4	5	**9.3**	**2.2**	**28**	**40**	**3.6**	**564**	**0.89**	**320**	**0.71 J**	**0.66 J**	**0.64 J**	**2.9**	**8.8**	**4.4**	**12**	**190**	**260**	**840**	**18**
m&p-Xylene	1330-20-7-m,p	NL	**2.4**	**1.1 J**	**51**	**30**	**4.4**	NS	**1.99**	**260**	**2.1**	**1.9 J**	**1.4 J**	**3.5**	**6.4**	**6.6**	**9.6**	**51**	**41**	**450**	**65**
o-Xylene	95-47-6	NL	**5.3**	**1.4**	**27**	**27**	**2.8**	NS	**2.29**	**92**	**0.67 J**	**0.55 J**	**0.49 J**	**2.8**	**3.2**	**2.1**	**5.4**	**61**	**77**	**440**	**39**
Toluene	108-88-3	5	**2.9**	**2.3**	**29**	**9.5**	**3.7**	**115**	<1.08 U	**90**	<1.0 U	<1.0 U	<1.0 U	**0.85 J**	**1.5**	**1.5**	**2.0**	**8.3**	**8.4**	**57**	**21**
Xylenes (total)	1330-20-7	5	NS	NS	NS	NS	NS	**873**	**4.28**	**352**	**2.77**	**2.45**	**1.89**	**6.3**	**9.6**	**8.7**	**15**	**112**	**118**	**890**	**104**
Total BTEX	CALC-BTEX	NL	**17.3**	**7.4**	**68**	**60.5**	**8.21**	**1798**	**9.93**	**962**	**6.28**	**3.11**	**3.73**	**23.05**	**29**	**20.7**	**40**	**395.3**	**465.4**	**2037**	**543**
VOC (ug/L)																					
1,2,3-Trichlorobenzene	87-61-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	120-82-1	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.45 U	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**1.4**	<1.0 U	***<10 U***	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	**17 NJ**	**1.3 NJ**	**24 NJ**	**42 NJ**	**4.0 NJ**	NS	**0.84**	NS	**0.80 NJ**	**0.90 NJ**	**0.56 NJ**	**1.8 NJ**	**1.4 NJ**	**1.6 NJ**	**4.0 NJ**	**41 NJ**	**48 NJ**	**420 NJ**	**31 NJ**
1,3,5-Trimethylbenzene	108-67-8	5	**0.55 NJ**	NS	**6.5 NJ**	**17 NJ**	**1.5 NJ**	NS	**2.48**	NS	NS	NS	NS	**0.69 NJ**	**0.62 NJ**	**0.67 NJ**	**1.1 NJ**	**11 NJ**	**14 NJ**	**140 NJ**	**7.2 NJ**
2-Butanone	78-93-3	50	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<2.95 U	NS	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<50 U	<5.0 U
4-Isopropyltoluene	99-87-6	NL	**0.87 NJ**	NS	NS	**3.6 NJ**	NS	NS	<0.81 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-Methyl-2-pentanone	108-10-1	NL	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<4.05 U	NS	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<50 U	<5.0 U
Acetone	67-64-1	50	<5.0 UJ	**6.8 J**	<5.0 UJ	<5.0 UJ	<5.0 UJ	<5.65 U	NS	<5.0 UJ	<5.0 UJ	<5.0 UJ	<5.0 UJ	**3.9 J**	<5.0 UJ	<5.0 UJ	<5.0 UJ	<5.0 U	<5.0 U	<50 U	**16 J**
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bromodichloromethane	75-27-4	50	**3.2**	**7.3**	**3.9**	**2.8**	**3.2**	NS	NS	<1.0 U	**3.7**	**1.8**	**5.0**	**4.8**	**0.72 J**	**13**	**10**	<1.0 U	**2.8**	<10 U	**4.4**
Chloroethane	75-00-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<3 U	NS	**6.1 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	***<10 U***	<1.0 U
Chloroform	67-66-3	7	**31**	**45**	**35**	**33**	**62**	<1.9 U	NS	<1.0 U	**14**	**32**	**21**	**20**	**15**	**48**	**52**	**26**	**28**	**14**	**31**
Chloromethane	74-87-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	NS	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	***<10 U***	<1.0 U
Cyclohexane	110-82-7	NL	**1.9**	<1.0 U	**5.3**	**12**	<1.0 U	NS	NS	**85**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**1.5**	**1.5**	**1.4**	**4.7**	**2.7**	**16**	**2.9**
Dibromochloromethane	124-48-1	5	<1.0 U	**1.4**	<1.0 U	<1.0 U	<1.0 U	<1.3 U	NS	<1.0 U	**0.65 J**	<1.0 U	**0.96 J**	**1.1**	<1.0 U	**2.8**	**2.0**	<1.0 U	<1.0 U	***<10 U***	<1.0 U
Isopropylbenzene	98-82-8	5	**11**	**1.4**	**3.6**	**15**	**0.81 J**	NS	<0.86 U	**45**	<1.0 U	<1.0 U	<1.0 U	**1.6**	**2.1**	**1.1**	**2.1**	**21**	**27**	**130**	**9.4**
Methyl tert-butyl ether	1634-04-4	10	**0.76 J**	**0.91 J**	<1.0 U	**2.4**	**0.70 J**	NS	<0.88 U	<1.0 U	<1.0 U	<1.0 U	**1.9**	**5.7**	**6.1**	**1.3**	**1.7**	**13**	**6.2**	**14**	**2.8 J**
Methylcyclohexane	108-87-2	NL	**9.9**	<1.0 U	**20**	**36**	<1.0 U	NS	NS	**85**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**1.6**	**1.5**	**1.6**	**6.2**	**3.5**	**18**	**3.6**
Methylene chloride	75-09-2	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	***<9.95 U***	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.46 J**	<1.0 U	<1.0 U	**0.66 J**	<1.0 U	<1.0 U	**8.7 J**	<1.0 U
Naphthalene	91-20-3	10	**27 NJ**	**31 NJ**	**490 NJ**	**480 NJ**	**240 NJ**	NS	**2.66**	**190 NJ**	**5.9 NJ**	**6.1 NJ**	**4.9 NJ**	**49 NJ**	**55 NJ**	**16 NJ**	**94 NJ**	**640 NJ**	**600 NJ**	**5300 NJ**	**440 NJ**
n-Butylbenzene	104-51-8	5	**1.8 NJ**	NS	NS	NS	NS	NS	<0.83 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Propylbenzene	103-65-1	5	**4.7 NJ**	NS	**3.3 NJ**	**6.9 NJ**	NS	NS	<0.81 U	NS	NS	NS	NS	**0.60 NJ**	**0.97 NJ**	**1.1 NJ**	**1.3 NJ**	**5.0 NJ**	**8.5 NJ**	**50 NJ**	**1.8 NJ**
sec-Butylbenzene	135-98-8	5	**0.75 NJ**	NS	NS	**1.0 NJ**	NS	NS	<0.78 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	100-42-5	5	<1.0 U	<1.0 U	**6.6**	**3.7**	<1.0 U	NS	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**9.5 J**	**4.6**
Tetrachloroethene	127-18-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.35 U	NS	<1.0 U	**6.5**	**9.7**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	***<10 U***	<1.0 U
Total VOC	CALC-VOC	NL	**82.76**	**72.71**	**220.4**	**222.4**	**82.12**	**1798**	**15.91**	**1535.1**	**33.9**	**49.06**	**34.48**	**66.91**	**65.62**	**98.6**	**126.46**	**579.6**	**653.6**	**3137.2**	**721.7**
PAH (ug/L)																					
2-Methylnaphthalene	91-57-6	NL	NS	NS	NS	NS	NS	**15.6**	NS	**7.8 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	83-32-9	20	NS	NS	NS	NS	NS	**0.646**	<1.02 U	**1.6 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthylene	208-96-8	NL	NS	NS	NS	NS	NS	**0.561**	<0.93 U	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Anthracene	120-12-7	50	NS	NS	NS	NS	NS	<0.428 U	<0.84 U	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoranthene	206-44-0	50	NS	NS	NS	NS	NS	<0.576 U	<0.86 U	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluorene	86-73-7	50	NS	NS	NS	NS	NS	**0.895**	<0.91 U	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	91-20-3	10	NS	NS	NS	NS	NS	**159**	<0.87 U	**120**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	85-01-8	50	NS	NS	NS	NS	NS	**1.47**	<0.90 U	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	129-00-0	50	NS	NS	NS	NS	NS	<0.288 U	<1.01 U	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PAH	CALC-PAH	NL	ND	ND	ND	ND	ND	**178.172**	ND	**129.4**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC (ug/L)																					
1,1'-Biphenyl	92-52-4	5	NS	NS	NS	NS	NS	NS	NS	***<10 U***	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbazole	86-74-8	NL	NS	NS	NS	NS	NS	NS	NS	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzofuran	132-64-9	NL	NS	NS	NS	NS	NS	<0.26 U	NS	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	CALC-SVOC	NL	ND	ND	ND	ND	ND	**178.172**	ND	**129.4**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-0DD 10/1/2009 MGP-MW-0DD (17-20)100109 17-20	MW-0DD 10/2/2009 MGP-MW-0DD (37-40)100209 37-40	MW-0DD 10/5/2009 MGP-MW-0DD (57.5-60)100509 57.5-60	MW-0DD 10/5/2009 MGP-MW-0DD (60-65)100509 60-65	MW-0DD 10/6/2009 MGP-MW-0DD (76-80)1005609 76-80	MW-04D 4/11/2007 MW-4D-041107 21-30	MW-04D 12/22/2008 MW-4D-122208 21-30	MW-04D 3/9/2010 MW-4D-030910 21-30	MW-04DD 8/18/2009 MGP-MW-4DD (35-41.5)081809 35-41.5	MW-04DD 8/19/2009 MGP-MW-4DD (45-51.6)081909 45-51.5	MW-04DD 8/19/2009 MGP-MW-4DD (55-60.5)081909 55-60.5	MW-04DD 8/20/2009 MGP-MW-4DD (60-65.6)082009 60-65.6	MW-04DD 8/21/2009 MGP-MW-4DD (70-75.5)082109 70-75.5	MW-04DD 8/21/2009 MGP-MW-4DD (75.5-80)082109 75.5-80	MW-04DD 8/24/2009 MGP-MW-4DD (80-85.2)082409 80-85.2	MW-04DD 8/25/2009 MGP-MW-4DD (85-100.4)082509 87-100.4	MW-04DD 9/17/2009 MGP-MW-4DD (100-105.5)091709 100-105.5	MW-04DD 9/18/2009 MGP-MW-4DD (102-110.5)091809 102-110.5	MW-04DD 9/21/2009 MGP-MW-4DD (117-125.5)092109 117-125.5
Metals (ug/L)																					
Aluminum	7429-90-5	NL	NS	NS	NS	NS	NS	NS	NS	**363 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	7440-38-2	25	NS	NS	NS	NS	NS	NS	NS	<10.0 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	7440-39-3	1000	NS	NS	NS	NS	NS	NS	NS	**826**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	7440-43-9	5	NS	NS	NS	NS	NS	NS	NS	**0.96 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	7440-70-2	NL	NS	NS	NS	NS	NS	NS	NS	**250000 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	7440-47-3	50	NS	NS	NS	NS	NS	NS	NS	**3.630 J-**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	7440-48-4	NL	NS	NS	NS	NS	NS	NS	NS	<15.0 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	7440-50-8	200	NS	NS	NS	NS	NS	NS	NS	<10.0 UJ	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	7439-89-6	300	NS	NS	NS	NS	NS	NS	NS	**39000 J-**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	7439-92-1	25	NS	NS	NS	NS	NS	NS	**3.4**	**7.200**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	7439-95-4	35000	NS	NS	NS	NS	NS	NS	NS	**48000 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	7439-96-5	300	NS	NS	NS	NS	NS	NS	NS	**20600 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	7439-97-6	0.7	NS	NS	NS	NS	NS	NS	NS	<0.20 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	7440-02-0	100	NS	NS	NS	NS	NS	NS	NS	<20.0 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	7440-09-7	NL	NS	NS	NS	NS	NS	NS	NS	**14500 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	NS	NS	NS	NS	NS	NS	**9.410 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	7440-22-4	50	NS	NS	NS	NS	NS	NS	NS	<5.000 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	7440-23-5	20000	NS	NS	NS	NS	NS	NS	NS	**1220000**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	7440-66-6	2000	NS	NS	NS	NS	NS	NS	NS	**38.2 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (ug/L)																					
Cyanide, Total	57-12-5	200	NS	NS	NS	NS	NS	NS	NS	**57**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
1 New York State Department of Environmental Conservation Divisiin of Water Technical and operation Guidance series (TOGS 1.1.1) Ambient water quality standards and groundwater effluent limitations
NL = No Limit
ND = Not Detect
NS= Not Sampled
ug/L = micrograms per Liter
Bold = Detected
Bold and Italcis= Not detect exceeds NYS Groundwater Standards
Yellow highlighted values exceed Groundwater Standards
1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run
* = Depth range was named incorrectly on the lab report. The correct depth is reported in the depth interval column
** = Sample was collected om 10/2/09, lab reported it as 10/1/09

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-05D 4/11/2007 MW-5D-041107 42-57	MW-05D 2/3/2009 MW-5D-020309 42-57	MW-05D 3/9/2010 MW-5D-030910 42-57	MW-06D 4/11/2007 MW-6D-041107 25-45	MW-06D 12/22/2008 MW-6D-122208 25-45	MW-06D 3/9/2010 MW-6D-030910 25-45	MW-09D 4/11/2007 MW-9D-041107 35-45	MW-09D 12/22/2008 MW-9D-122208 35-45	MW-09D 3/10/2010 MW-9D-031010 35-45	MW-09DD 8/27/2009 MGP-MW-9DD (23-30.5)082709 23-30.5	MW-09DD 8/31/2009 MGP-MW9DD (46-50.5)083109 46-50.5	MW-09DD 8/31/2009 MGP-MW9DD (52-55.4)083109 52-55.4	MW-09DD 9/1/2009 MGP-MW9DD (60-60.5)090109 60-65.5	MW-09DD 9/1/2009 MGP-MW9DD (73-80.5)090109 73-80.5	MW-09DD 9/2/2009 MGP-MW-9DD (87-97)090209 87-97	MW-09DD 9/23/2009 MGP-MW-9DD (100-105)092309 100-105	MW-11D 4/11/2007 DUPE-041107 15-25	MW-11D 4/11/2007 MW-11D-041107 15-25	MW-11D 12/22/2008 MW-11D-122208 15-25	MW-11D 3/9/2010 MW-11D-030910 15-25	MW-12D 12/23/2008 MW-12D-122308 41-49
BTEX (ug/L)				**BEDROCK**			**BEDROCK**			**BEDROCK**					**BEDROCK**					**BEDROCK**			**BEDROCK**
Benzene	71-43-2	1	<0.28 U	<0.43 U	<1.0 U	<0.28 U	<0.88 U	**1.1**	**277**	<0.88 U	**180**	**720**	**58**	**7.8**	<1.0 UJ	**0.70 J**	**140**	**280**	**26.7**	**27.9**	**5.36**	**3.8**	**6.05**
Ethylbenzene	100-41-4	5	<0.23 U	<0.41 U	<1.0 U	<0.23 U	<0.89 U	**0.78 J**	**58.4**	<0.89 U	**240**	**700**	**57**	**12**	<1.0 UJ	<1.0 U	**130**	**230**	**101**	**108**	<0.89 U	**3.6**	**18.1**
m&p-Xylene	1330-20-7-m,p	NL	NS	<0.86 U	<2.0 U	NS	<1.74 U	**1.4 J**	NS	**2.60**	**40**	**280**	**37**	**14**	<2.0 UJ	<2.0 U	**46**	**110**	NS	NS	<1.74 U	**2.8**	**7.77**
o-Xylene	95-47-6	NL	NS	<0.37 U	<1.0 U	NS	<0.85 U	**0.77 J**	NS	<0.85 U	**94**	**290**	**26**	**8.5**	<1.0 UJ	<1.0 U	**61**	**83**	NS	NS	<0.85 U	**1.1**	**6.81**
Toluene	108-88-3	5	<0.22 U	<0.45 U	<1.0 U	<0.22 U	<1.08 U	**1.0 J**	**33.2**	<1.08 U	**19**	**76**	**11**	**4.4**	**0.97 J**	**3.3**	**39**	**26**	**10.5**	**11**	<1.08 U	**1.4**	**6.8**
Xylenes (total)	1330-20-7	5	<0.85	<0.86	NS	<0.85	<1.74	**2.17**	**363**	**3.25**	NS	NS	NS	NS	NS	NS	NS	NS	**65.6**	**70.6**	<1.74	**3.9**	**14.58**
Total BTEX	CALC-BTEX	NL	ND	ND	ND	ND	ND	**5.05**	**731.6**	**3.25**	**439**	**1496**	**126**	**24.2**	**0.97**	**4**	**309**	**536**	**203.8**	**217.5**	**5.36**	**12.7**	**45.53**
VOC (ug/L)																							
1,2,3-Trichlorobenzene	87-61-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	**2.0 NJ**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	120-82-1	5	<0.29 U	NS	<1.0 U	<0.29 U	NS	<1.0 U	***<14.5 U***	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<0.29 U	<0.29 U	NS	<1.0 U	NS
1,2,4-Trimethylbenzene	95-63-6	5	NS	<0.44 U	NS	NS	<0.84 U	NS	NS	**1.38**	**110 NJ**	**260 NJ**	**29 NJ**	**11 NJ**	NS	NS	NS	NS	NS	NS	<0.84 U	**0.77 NJ**	**3.51**
1,3,5-Trimethylbenzene	108-67-8	5	NS	<0.43 U	NS	NS	<0.82 U	NS	NS	<0.82 U	**2.1 NJ**	**68 NJ**	**7.4 NJ**	**4.4 NJ**	NS	NS	NS	NS	NS	NS	<0.82 U	NS	**2.24**
2-Butanone	78-93-3	50	<0.59 U	NS	<5.0 U	<0.59 U	NS	<5.0 U	<29.5 U	NS	<5.0 U	**9.9**	<5.0 U	<5.0 U	<5.0 UJ	<5.0 U	<5.0 U	<5.0 U	<0.59 U	<0.59 U	NS	<5.0 U	NS
4-Isopropyltoluene	99-87-6	NL	NS	<0.34 U	NS	NS	<0.81 U	NS	NS	<0.81 U	**5.7 NJ**	**9.2 NJ**	NS	NS	NS	NS	NS	NS	NS	NS	<0.81 U	NS	<0.81 U
4-Methyl-2-pentanone	108-10-1	NL	<0.81 U	NS	<5.0 U	<0.81 U	NS	<5.0 U	<40.5 U	NS	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 UJ	<5.0 U	<5.0 U	<5.0 U	<0.81 U	<0.81 U	NS	<5.0 U	NS
Acetone	67-64-1	50	<1.13 U	NS	<5.0 UJ	<1.13 U	NS	<5.0 UJ	***<56.5 U***	NS	<5.0 UJ	<5.0 U	<5.0 U	**10**	**6.8 J**	**9.9**	**5.0**	<5.0 U	<1.13 U	<1.13 U	NS	<5.0 UJ	NS
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	**16 NJ**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bromodichloromethane	75-27-4	50	NS	NS	<1.0 U	NS	NS	<1.0 U	NS	NS	<1.0 U	<1.0 U	**3.7**	<1.0 U	**6.2 J**	**3.8**	**5.0**	<1.0 U	NS	NS	NS	<1.0 U	NS
Chloroethane	75-00-3	5	<0.6 U	NS	<1.0 U	<0.6 U	NS	<1.0 U	***<30 U***	NS	**1.7 J**	**3.8**	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<0.6 U	<0.6 U	NS	<1.0 U	NS
Chloroform	67-66-3	7	<0.38 U	NS	<1.0 U	<0.38 U	NS	<1.0 U	***<19 U***	NS	<1.0 U	<1.0 U	**29**	**27**	**30 J**	**33**	**23**	**8.9**	<0.38 U	<0.38 U	NS	<1.0 U	NS
Chloromethane	74-87-3	5	NS	NS	<1.0 U	NS	NS	<1.0 U	NS	NS	<1.0 U	**26**	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	NS	NS	NS	<1.0 U	NS
Cyclohexane	110-82-7	NL	NS	NS	<1.0 U	NS	NS	<1.0 U	NS	NS	**58**	**120**	**18**	**1.1**	<1.0 UJ	<1.0 U	**11**	**45**	NS	NS	NS	**1.9**	NS
Dibromochloromethane	124-48-1	5	<0.26 U	NS	<1.0 U	<0.26 U	NS	<1.0 U	***<13 U***	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**1.0 J**	<1.0 U	**1.0**	<1.0 U	<0.26 U	<0.26 U	NS	<1.0 U	NS
Isopropylbenzene	98-82-8	5	NS	<0.44 U	<1.0 U	NS	<0.86 U	<1.0 U	NS	<0.86 U	**46**	**87**	**11**	**2.4**	<1.0 UJ	<1.0 U	**6.5**	**27**	NS	NS	**3.49**	**1.1**	**1.47**
Methyl tert-butyl ether	1634-04-4	10	NS	<0.50 U	<1.0 U	NS	<0.88 U	<1.0 U	NS	<0.88 U	**12**	**14**	**1.8**	<1.0 U	<1.0 UJ	<1.0 U	**9.9**	**7.4**	NS	NS	<0.88 U	<1.0 U	<0.88 U
Methylcyclohexane	108-87-2	NL	NS	NS	<1.0 U	NS	NS	<1.0 U	NS	NS	**87**	**130**	**30**	**3.8**	<1.0 UJ	<1.0 U	**9.8**	**61**	NS	NS	NS	<1.0 U	NS
Methylene chloride	75-09-2	5	<1.99 U	NS	<1.0 U	<1.99 U	NS	<1.0 U	***<99.5 U***	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.99 U	<1.99 U	NS	<1.0 U	NS
Naphthalene	91-20-3	10	NS	<0.33 U	**1.7 NJ**	NS	<0.61 U	**1.5 NJ**	NS	<0.61 U	**690 NJ**	**1700 NJ**	**440 NJ**	**370 NJ**	**5.9 NJ**	**2.6 NJ**	**320 NJ**	**1100 NJ**	NS	NS	<0.61 U	**4.2 NJ**	**10.3**
n-Butylbenzene	104-51-8	5	NS	<0.43 U	NS	NS	<0.83 U	NS	NS	<0.83 U	**1.4 NJ**	**2.9 NJ**	NS	NS	NS	NS	NS	NS	NS	NS	<0.83 U	NS	<0.83 U
n-Propylbenzene	103-65-1	5	NS	<0.41 U	NS	NS	<0.81 U	NS	NS	<0.81 U	**30 NJ**	**53 NJ**	**5.9 NJ**	**1.2 NJ**	NS	NS	NS	NS	NS	NS	<0.81 U	**1.1 NJ**	<0.81 U
sec-Butylbenzene	135-98-8	5	NS	<0.36 U	NS	NS	<0.78 U	NS	NS	<0.78 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.78 U	NS	<0.78 U
Styrene	100-42-5	5	NS	NS	<1.0 U	NS	NS	<1.0 U	NS	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	**12**	**1.5**	NS	NS	NS	<1.0 U	NS
Tetrachloroethene	127-18-4	5	<0.27 U	NS	<1.0 U	<0.27 U	NS	<1.0 U	***<13.5 U***	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 UJ	<0.27 U	<0.27 U	NS	<1.0 U	NS
Total VOC	CALC-VOC	NL	ND	ND	ND	ND	ND	**7.22**	**731.6**	**4.63**	**777.7**	**2456.7**	**282.5**	**91**	**44.97**	**50.7**	**499.2**	**879.8**	**203.8**	**217.5**	**8.85**	**19.6**	**63.05**
PAH (ug/L)																							
2-Methylnaphthalene	91-57-6	NL	<0.264 U	NS	<11 U	<0.264 U	NS	<10 U	**226**	NS	**14**	NS	NS	NS	NS	NS	NS	NS	<0.132 U	<0.132 U	NS	<10 U	NS
Acenaphthene	83-32-9	20	<0.17 U	<1.02 U	<11 U	<0.17 U	<1.02 U	<10 U	**117**	<1.02 U	**240**	NS	NS	NS	NS	NS	NS	NS	<0.085 U	<0.085 U	<1.02 U	<10 U	**3.83**
Acenaphthylene	208-96-8	NL	<0.158 U	<0.93 U	<11 U	<0.158 U	<0.93 U	<10 U	**23.2**	<0.93 U	**6.1 J**	NS	NS	NS	NS	NS	NS	NS	<0.079 U	<0.079 U	<0.93 U	<10 U	<0.72 U
Anthracene	120-12-7	50	<0.428 U	<0.84 U	<11 U	<0.428 U	<0.84 U	<10 U	**6.02**	<0.84 U	**13**	NS	NS	NS	NS	NS	NS	NS	<0.214 U	<0.214 U	<0.84 U	<10 U	<0.85 U
Fluoranthene	206-44-0	50	<0.576 U	<0.86 U	<11 U	<0.576 U	<0.86 U	<10 U	<11.5 U	<0.86 U	**4.8 J**	NS	NS	NS	NS	NS	NS	NS	<0.288 U	<0.288 U	<0.86 U	<10 U	<0.97 U
Fluorene	86-73-7	50	<0.256 U	<0.91 U	<11 U	<0.256 U	<0.91 U	<10 U	**39**	<0.91 U	**61**	NS	NS	NS	NS	NS	NS	NS	<0.128 U	<0.128 U	<0.91 U	<10 U	<0.83 U
Naphthalene	91-20-3	10	<0.158 U	<0.87 U	**1.5 J**	<0.158 U	<0.87 U	<10 U	**2280**	<0.87 U	**980**	NS	NS	NS	NS	NS	NS	NS	**3.17**	**1.05**	<0.87 U	**1.6 J**	<0.83 U
Phenanthrene	85-01-8	50	<0.44 U	<0.90 U	<11 U	<0.44 U	<0.90 U	<10 U	**48.8**	<0.90 U	**85**	NS	NS	NS	NS	NS	NS	NS	<0.22 U	<0.22 U	<0.90 U	<10 U	<0.94 U
Pyrene	129-00-0	50	<0.288 U	<1.01 U	<11 U	<0.288 U	<1.01 U	<10 U	<5.76 U	<1.01 U	**5.8 J**	NS	NS	NS	NS	NS	NS	NS	<0.144 U	<0.144 U	<1.01 U	<10 U	<0.84 U
Total PAH	CALC-PAH	NL	ND	ND	**1.5**	ND	ND	ND	**2740.02**	ND	**1409.7**	ND	ND	ND	ND	ND	ND	ND	**3.17**	**1.05**	ND	**1.6**	**3.83**
SVOC (ug/L)																							
1,1'-Biphenyl	92-52-4	5	NS	NS	***<11 U***	NS	NS	***<10 U***	NS	NS	**41**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	***<10 U***	NS
Carbazole	86-74-8	NL	NS	NS	<11 U	NS	NS	<10 U	NS	NS	**2.3 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<10 U	NS
Dibenzofuran	132-64-9	NL	<0.26 U	NS	<11 U	<0.26 U	NS	<10 U	<5.2 U	NS	**7.4 J**	NS	NS	NS	NS	NS	NS	NS	<0.13 U	<0.13 U	NS	<10 U	NS
Total SVOC	CALC-SVOC	NL	ND	ND	**1.5**	ND	ND	ND	**2740.02**	ND	**1460.4**	ND	ND	ND	ND	ND	ND	ND	**3.17**	**1.05**	ND	**1.6**	**3.83**

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-05D 4/11/2007 MW-5D-041107 42-57	MW-05D 2/3/2009 MW-5D-020309 42-57	MW-05D 3/9/2010 MW-5D-030910 42-57	MW-06D 4/11/2007 MW-6D-041107 25-45	MW-06D 12/22/2008 MW-6D-122208 25-45	MW-06D 3/9/2010 MW-6D-030910 25-45	MW-09D 4/11/2007 MW-9D-041107 35-45	MW-09D 12/22/2008 MW-9D-122208 35-45	MW-09D 3/10/2010 MW-9D-031010 35-45	MW-09DD 8/27/2009 MGP-MW-9DD (23-30.5)082709 23-30.5	MW-09DD 8/31/2009 MGP-MW9DD (46-50.5)083109 46-50.5	MW-09DD 8/31/2009 MGP-MW9DD (52-55.4)083109 52-55.4	MW-09DD 9/1/2009 MGP-MW9DD (60-60.5)090109 60-65.5	MW-09DD 9/1/2009 MGP-MW9DD (73-80.5)090109 73-80.5	MW-09DD 9/2/2009 MGP-MW-9DD (87-97)090209 87-97	MW-09DD 9/23/2009 MGP-MW-9DD (100-105)092309 100-105	MW-11D 4/11/2007 DUPE-041107 15-25	MW-11D 4/11/2007 MW-11D-041107 15-25	MW-11D 12/22/2008 MW-11D-122208 15-25	MW-11D 3/9/2010 MW-11D-030910 15-25	MW-12D 12/23/2008 MW-12D-122308 41-49
Metals (ug/L)																						
Aluminum	7429-90-5	NL	NS	NS	**36.8 J**	NS	NS	**51.0 J**	NS	NS	**54.2 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	**59.3 J**	NS
Arsenic	7440-38-2	25	NS	NS	<10.0 U	NS	NS	<10.0 U	NS	NS	**9.060 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	<10.0 U	NS
Barium	7440-39-3	1000	NS	NS	**92.9**	NS	NS	**279**	NS	NS	**981**	NS	NS	NS	NS	NS	NS	NS	NS	NS	**85.6**	NS
Cadmium	7440-43-9	5	NS	NS	<3.000 U	NS	NS	<3.000 U	NS	NS	**1.370 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	<3.000 U	NS
Calcium	7440-70-2	NL	NS	NS	**46700 J**	NS	NS	**118000 J**	NS	NS	**299000 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	**61400 J**	NS
Chromium	7440-47-3	50	NS	NS	**2.550 J-**	NS	NS	**33.5 J-**	NS	NS	**4.290 J-**	NS	NS	NS	NS	NS	NS	NS	NS	NS	<5.000 UJ	NS
Cobalt	7440-48-4	NL	NS	NS	<15.0 U	NS	NS	<15.0 U	NS	NS	<15.0 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	<15.0 U	NS
Copper	7440-50-8	200	NS	NS	<10.0 UJ	NS	NS	<10.0 UJ	NS	NS	<10.0 UJ	NS	NS	NS	NS	NS	NS	NS	NS	NS	<10.0 UJ	NS
Iron	7439-89-6	300	NS	NS	**109 J-**	NS	NS	**45100 J-**	NS	NS	**41800 J-**	NS	NS	NS	NS	NS	NS	NS	NS	NS	**980 J-**	NS
Lead	7439-92-1	25	NS	<1.7 U	<6.000 U	NS	**3.7**	**4.580 J**	NS	<1.7 U	**9.150**	NS	NS	NS	NS	NS	NS	NS	NS	<1.7 U	<6.000 U	**5.9**
Magnesium	7439-95-4	35000	NS	NS	**8220 J**	NS	NS	**14600 J**	NS	NS	**74100 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	**7610 J**	NS
Manganese	7439-96-5	300	NS	NS	**15.4 J**	NS	NS	**10500 J**	NS	NS	**27700 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	**507 J**	NS
Mercury	7439-97-6	0.7	NS	NS	<0.20 U	NS	NS	**0.19 J**	NS	NS	<0.20 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.20 U	NS
Nickel	7440-02-0	100	NS	NS	<20.0 U	NS	NS	**15.5 J**	NS	NS	<20.0 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	<20.0 U	NS
Potassium	7440-09-7	NL	NS	NS	**5870 J**	NS	NS	**6860 J**	NS	NS	**12900 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	**6830 J**	NS
Selenium	7782-49-2	10	NS	NS	<10.0 U	NS	NS	**10.9**	NS	NS	**16.2**	NS	NS	NS	NS	NS	NS	NS	NS	NS	<10.0 U	NS
Silver	7440-22-4	50	NS	NS	<5.000 U	NS	NS	<5.000 U	NS	NS	<5.000 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	<5.000 U	NS
Sodium	7440-23-5	20000	NS	NS	**250000**	NS	NS	**417000**	NS	NS	**1060000**	NS	NS	NS	NS	NS	NS	NS	NS	NS	**417000**	NS
Zinc	7440-66-6	2000	NS	NS	**28.0 J**	NS	NS	**20.5 J**	NS	NS	**29.4 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	**19.0 J**	NS
Cyanide (ug/L)																						
Cyanide, Total	57-12-5	200	NS	NS	**28**	NS	NS	**145**	NS	NS	**94**	NS	NS	NS	NS	NS	NS	NS	NS	NS	**30**	NS

Notes:
1 New York State Department of Environmental Conservation Divisiin of Water Technical and operation Guidance series (TOGS 1.1.1) Ambient water quality standards and groundwater effluent limitations
NL = No Limit
ND = Not Detect
NS= Not Sampled
ug/L = micrograms per Liter
Bold = Detected
Bold and Italcis= Not detect exceeds NYS Groundwater Standards
Yellow highlighted values exceed Groundwater Standards
1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run
* = Depth range was named incorrectly on the lab report. The correct depth is reported in the depth interval column
** = Sample was collected om 10/2/09, lab reported it as 10/1/09

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-13D 2/3/2009 MW-13D-020309 43-53	MW-13D 3/10/2010 MW-13D-031010 43-53	MW-101D 2/4/2010 MGP-MW-101D (17-22) 17-22	MW-101D 2/4/2010 MGP-MW-101D (35-40) 35-40	MW-101D 2/4/2010 MGP-MW-101D (46-51) 46-51	MW-101D 2/5/2010 MGP-MW-101D (103-108) 103-108	MW-101D 2/5/2010 MGP-MW-101D (108-113) 108-113	MW-101D 2/5/2010 MGP-MW-101D (132-137) 132-137	MW-102D 2/8/2010 MGP-MW-102D (10-15)020810 10-15	MW-102D 2/8/2010 MGP-MW-102D (26-31)020810 26-31	MW-102D 2/8/2010 MGP-MW-102D (37-42)020810 37-42	MW-102D 2/8/2010 MGP-MW-102D (44-49)020810 44-49	MW-102D 2/8/2010 MGP-MW-102D (47-52)020810 47-52	MW-102D 2/8/2010 MGP-MW-102D (76-81)020810 76-81	MW-102D 2/8/2010 MGP-MW-102D (81-86)020810 81-86	MW-102D 2/8/2010 MGP-MW-102D (111-116)020810 111-116	MW-102D 2/8/2010 MGP-MW-102D (116-121)020810 116-121	MW-102D 2/8/2010 MGP-MW-102D (132-137)020810 132-137
BTEX (ug/L)			**BEDROCK**		**BEDROCK**						**BEDROCK**							**BEDROCK**		
Benzene	71-43-2	1	<0.43 U	**4.6**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**47**	**40**	**31**	**31**	**31**	**29**	**29**	**34**	**33**	**33**
Ethylbenzene	100-41-4	5	<0.41 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**52**	**40**	**39 J**	**38 J**	**34 J**	**33 J**	**35 J**	**32**	**30**	**30**
m&p-Xylene	1330-20-7-m,p	NL	<0.86 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	**59**	**43**	**50 J**	**49 J**	**45 J**	**42 J**	**43 J**	**35**	**30**	**34**
o-Xylene	95-47-6	NL	<0.37 U	**0.56 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**10**	**7.7**	**9.3 J**	**8.9 J**	**8.1 J**	**7.7 J**	**7.9 J**	**5.9**	**5.5**	**5.8**
Toluene	108-88-3	5	<0.45 U	<1.0 U	<1.0 U	<1.0 U	**0.82 J**	**1.1 J**	**1.2 J**	**1.2 J**	**40**	**31**	**23 J**	**23 J**	**23 J**	**22 J**	**21 J**	**26**	**25**	**27**
Xylenes (total)	1330-20-7	5	<0.86	**0.56**	ND	ND	ND	ND	ND	ND	**69**	**50.7**	**59.3**	**57.9**	**53.1**	**49.7**	**50.9**	**40.9**	**35.5**	**39.8**
Total BTEX	CALC-BTEX	NL	ND	**5.16**	ND	ND	**0.82**	**1.1**	**1.2**	**1.2**	**208**	**161.7**	**152.3**	**149.9**	**141.1**	**133.7**	**135.9**	**132.9**	**123.5**	**129.8**
VOC (ug/L)																				
1,2,3-Trichlorobenzene	87-61-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	120-82-1	5	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	<0.44 U	NS	NS	NS	NS	NS	NS	NS	**9.7 NJ**	**6.9 NJ**	**20 NJ**	**19 NJ**	**16 NJ**	**15 NJ**	**15 NJ**	**5.3 NJ**	**3.8 NJ**	**6.8 NJ**
1,3,5-Trimethylbenzene	108-67-8	5	<0.43 U	NS	NS	NS	NS	NS	NS	NS	**3.1 NJ**	**2.1 NJ**	**4.1 NJ**	**4.0 NJ**	**3.5 NJ**	**3.1 NJ**	**3.4 NJ**	**1.6 NJ**	**1.3 NJ**	**1.7 NJ**
2-Butanone	78-93-3	50	NS	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	**1.8 J**	<5.0 U	<5.0 U	<5.0 U	<5.0 U
4-Isopropyltoluene	99-87-6	NL	<0.34 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-Methyl-2-pentanone	108-10-1	NL	NS	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U
Acetone	67-64-1	50	NS	<5.0 UJ	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bromodichloromethane	75-27-4	50	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroethane	75-00-3	5	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroform	67-66-3	7	NS	<1.0 U	<1.0 U	<1.0 U	**0.52 J**	**0.44 J**	**0.45 J**	**0.41 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.55 J**	**0.82 J**	**1.1**	<1.0 U	<1.0 U	<1.0 U
Chloromethane	74-87-3	5	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Cyclohexane	110-82-7	NL	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**34**	**26**	**6.7**	**6.3**	**5.0**	**5.4**	**6.5**	**18**	**18**	**17**
Dibromochloromethane	124-48-1	5	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Isopropylbenzene	98-82-8	5	<0.44 U	**0.94 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**13**	**9.5**	**10**	**9.6**	**8.5**	**8**	**8.4**	**7.2**	**6.6**	**6.4**
Methyl tert-butyl ether	1634-04-4	10	**2.91**	**5.5**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methylcyclohexane	108-87-2	NL	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**28**	**21**	**12**	**12**	**8.4**	**9.0**	**12**	**14**	**13**	**13**
Methylene chloride	75-09-2	5	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Naphthalene	91-20-3	10	<0.33 U	**2.2 NJ**	NS	**2.0 NJ**	**1.1 NJ**	**0.93 NJ**	**0.94 NJ**	**0.97 NJ**	**18 NJ**	**15 NJ**	**14 NJ**	**13 NJ**	**11 NJ**	**11 NJ**	**11 NJ**	**10 NJ**	**9.6 NJ**	**9.6 NJ**
n-Butylbenzene	104-51-8	5	<0.43 U	NS	NS	NS	NS	NS	NS	NS	**3.7 NJ**	**2.6 NJ**	**5.7 NJ**	**5.2 NJ**	NS	NS	NS	**1.8 NJ**	**1.6 NJ**	NS
n-Propylbenzene	103-65-1	5	<0.41 U	NS	NS	NS	NS	NS	NS	NS	**22 NJ**	**16 NJ**	**17 NJ**	**17 NJ**	**14 NJ**	**13 NJ**	**14 NJ**	**11 NJ**	**10 NJ**	**10 NJ**
sec-Butylbenzene	135-98-8	5	<0.36 U	NS	NS	NS	NS	NS	NS	NS	**1.8 NJ**	**1.4 NJ**	**1.4 NJ**	**1.3 NJ**	**1.1 NJ**	**1.0 NJ**	**1.1 NJ**	**0.95 NJ**	**0.84 NJ**	**0.92 NJ**
Styrene	100-42-5	5	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Tetrachloroethene	127-18-4	5	NS	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOC	CALC-VOC	NL	**2.91**	**12.16**	ND	ND	**1.34**	**1.54**	**1.65**	**1.61**	**352**	**268.9**	**240.3**	**235.7**	**216.65**	**208.42**	**214.8**	**213**	**196.6**	**206**
PAH (ug/L)																				
2-Methylnaphthalene	91-57-6	NL	NS	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	83-32-9	20	<1.02 U	**1.6 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthylene	208-96-8	NL	<0.93 U	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Anthracene	120-12-7	50	<0.84 U	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoranthene	206-44-0	50	<0.86 U	**3.0 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluorene	86-73-7	50	<0.91 U	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	91-20-3	10	<0.87 U	**1.7 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	85-01-8	50	<0.90 U	**2.6 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	129-00-0	50	<1.01 U	**3.9 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PAH	CALC-PAH	NL	ND	**12.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC (ug/L)																				
1,1'-Biphenyl	92-52-4	5	NS	**2.7 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbazole	86-74-8	NL	NS	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzofuran	132-64-9	NL	NS	<10 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	CALC-SVOC	NL	ND	**15.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-13D 2/3/2009 MW-13D-020309 43-53	MW-13D 3/10/2010 MW-13D-031010 43-53	MW-101D 2/4/2010 MGP-MW-101D (17-22) 17-22	MW-101D 2/4/2010 MGP-MW-101D (35-40) 35-40	MW-101D 2/4/2010 MGP-MW-101D (46-51) 46-51	MW-101D 2/5/2010 MGP-MW-101D (103-108) 103-108	MW-101D 2/5/2010 MGP-MW-101D (108-113) 108-113	MW-101D 2/5/2010 MGP-MW-101D (132-137) 132-137	MW-102D 2/8/2010 MGP-MW-102D (10-15)020810 10-15	MW-102D 2/8/2010 MGP-MW-102D (26-31)020810 26-31	MW-102D 2/8/2010 MGP-MW-102D (37-42)020810 37-42	MW-102D 2/8/2010 MGP-MW-102D (44-49)020810 44-49	MW-102D 2/8/2010 MGP-MW-102D (47-52)020810 47-52	MW-102D 2/8/2010 MGP-MW-102D (76-81)020810 76-81	MW-102D 2/8/2010 MGP-MW-102D (81-86)020810 81-86	MW-102D 2/8/2010 MGP-MW-102D (111-116)020810 111-116	MW-102D 2/8/2010 MGP-MW-102D (116-121)020810 116-121	MW-102D 2/8/2010 MGP-MW-102D (132-137)020810 132-137
Metals (ug/L)																				
Aluminum	7429-90-5	NL	NS	**95.2 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	7440-38-2	25	NS	**16.2**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	7440-39-3	1000	NS	**722**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	7440-43-9	5	NS	**4.540**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	7440-70-2	NL	NS	**462000 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	7440-47-3	50	NS	**4.060 J-**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	7440-48-4	NL	NS	**12.4 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	7440-50-8	200	NS	**8.470 J-**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	7439-89-6	300	NS	**498 J-**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	7439-92-1	25	<1.7 U	**3.630 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	7439-95-4	35000	NS	**110000 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	7439-96-5	300	NS	**23000 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	7439-97-6	0.7	NS	<0.20 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	7440-02-0	100	NS	**20.8**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	7440-09-7	NL	NS	**21400 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	**15.1**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	7440-22-4	50	NS	**3.080 J+**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	7440-23-5	20000	NS	**1390000**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	7440-66-6	2000	NS	**81.7 J**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (ug/L)																				
Cyanide, Total	57-12-5	200	NS	**24**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
1 New York State Department of Environmental Conservation Divisiin of Water Technical and operation Guidance series (TOGS 1.1.1) Ambient water quality standards and groundwater effluent limitations
NL = No Limit
ND = Not Detect
NS= Not Sampled
ug/L = micrograms per Liter
Bold = Detected
Bold and Italcis= Not detect exceeds NYS Groundwater Standards
Yellow highlighted values exceed Groundwater Standards
1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run
* = Depth range was named incorrectly on the lab report. The correct depth is reported in the depth interval column
** = Sample was collected om 10/2/09, lab reported it as 10/1/09

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-103D 2/9/2010 MGP-MW-103D (24-29)020910 24-29	MW-103D 2/9/2010 MGP-MW-103D (30-35)020910 30-35	MW-103D 2/9/2010 MGP-MW-103D (33-38)020910 33-38	MW-103D 2/9/2010 MGP-MW-103D (38-43)020910 38-43	MW-103D 2/9/2010 MGP-MW-103D (45-50)020910 45-50	MW-103D 2/12/2010 MGP-MW-103D (51-56)021210 51-56	MW-103D 2/12/2010 MGP-MW-103D (55-60)021210 55-60	MW-103D 2/12/2010 MGP-MW-103D (63-68)021210 63-68	MW-103D 2/12/2010 MGP-MW-103D (70-75)021210 70-75	MW-103D 2/9/2010 MGP-MW-103D (82-87)020910 82-87	MW-103D 2/9/2010 MGP-MW-103D (88-93)020910 88-93	MW-103D 2/9/2010 MGP-MW-103D (94-99)020910 94-99	MW-103D 2/8/2010 MGP-MW-103D (107-112)020810 107-112	MW-104D 2/17/2010 MGP-MW-104D (23-28)021710 23-28	MW-104D 2/17/2010 MGP-MW-104D (33-38)021710 33-38	MW-104D 2/17/2010 MGP-MW-104D (66-71)021710 66-71	MW-104D 2/17/2010 MGP-MW-104D (71-76)021710 71-76	MW-104D 2/17/2010 MGP-MW-104D (91-96)021710 91-96	MW-104D 2/17/2010 MGP-MW-104D (102-107)021710 102-107
BTEX (ug/L)									BEDROCK										BEDROCK		
Benzene	71-43-2	1	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.70 J**	**6.1**	<1.0 U	**1.6**	**3.1**	**17**	**250**	**270**	**230**	**290**	**280**	**280**
Ethylbenzene	100-41-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**1000**	**1000**	**890**	**1000**	**980**	**880**
m&p-Xylene	1330-20-7-m,p	NL	**1.2 J**	**1.2 J**	**0.99 J**	**1.0 J**	<2.0 U	**1.1 J**	**1.0 J**	**1.5 J**	**1.1 J**	**1.3 J**	**1.2 J**	**1.2 J**	**0.96 J**	**700**	**690**	**620**	**700**	**690**	**620**
o-Xylene	95-47-6	NL	**0.67 J**	**0.82 J**	**0.59 J**	**0.65 J**	**0.58 J**	**0.80 J**	**0.74 J**	**0.94 J**	**1.1**	**0.70 J**	**0.81 J**	**1.0**	**2.2**	**500**	**490**	**450**	**510**	**510**	**440**
Toluene	108-88-3	5	**4.2**	**5.2**	**6.9**	**4.9**	**8.4**	**3.1**	**4.3**	**6.8**	**4.6**	**4.2**	**8.7**	**7**	**0.98 J**	**74**	**72**	**76**	**82**	**88**	**83**
Xylenes (total)	1330-20-7	5	**1.87**	**2.02**	**1.58**	**1.65**	**0.58**	**1.9**	**1.74**	**2.44**	**2.2**	**2**	**2.01**	**2.2**	**3.16**	**1200**	**1180**	**1070**	**1210**	**1200**	**1060**
Total BTEX	CALC-BTEX	NL	**6.07**	**7.22**	**8.48**	**6.55**	**8.98**	**5**	**6.04**	**9.94**	**12.9**	**6.2**	**12.31**	**12.3**	**21.14**	**2524**	**2522**	**2266**	**2582**	**2548**	**2303**
VOC (ug/L)																					
1,2,3-Trichlorobenzene	87-61-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	120-82-1	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**1.1 NJ**	**250 NJ**	**250 NJ**	**250 NJ**	**240 NJ**	**250 NJ**	**210 NJ**
1,3,5-Trimethylbenzene	108-67-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**87 NJ**	**89 NJ**	**94 NJ**	**91 NJ**	**91 NJ**	**78 NJ**
2-Butanone	78-93-3	50	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U
4-Isopropyltoluene	99-87-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**11 NJ**	**11 NJ**	**11 NJ**	**10 NJ**	**9.3 NJ**	**7.6 NJ**
4-Methyl-2-pentanone	108-10-1	NL	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U
Acetone	67-64-1	50	**13 J**	<5.0 U	<5.0 U	**11 J**	**10 J**	<5.0 U	**9.8 J**	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bromodichloromethane	75-27-4	50	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroethane	75-00-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**4.5**	**5.5**	**5.0**	**5.3**	**4.8**
Chloroform	67-66-3	7	**2.2**	**1.4**	**1.4**	**1.6**	**1.6**	**0.77 J**	**0.79 J**	**0.75 J**	**0.92 J**	**1.2**	**1.3**	**1.3**	**2.8**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloromethane	74-87-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Cyclohexane	110-82-7	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**98**	**96**	**92**	**88**	**92**	**78**
Dibromochloromethane	124-48-1	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Isopropylbenzene	98-82-8	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.71 J**	**100**	**100**	**100**	**100**	**100**	**86**
Methyl tert-butyl ether	1634-04-4	10	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.78 J**	<1.0 U	<1.0 U	<1.0 U	**2.3**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methylcyclohexane	108-87-2	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**140**	**140**	**120**	**120**	**120**	**100**
Methylene chloride	75-09-2	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Naphthalene	91-20-3	10	**1.4 NJ**	**1.4 NJ**	**1.3 NJ**	**1.3 NJ**	**1.6 NJ**	NS	**1.6 NJ**	**1.6 NJ**	**7.2 NJ**	**1.8 NJ**	**4.0 NJ**	**7.4 NJ**	**24 NJ**	**3400 NJ**	**2800 NJ**	**2900 NJ**	**2800 NJ**	**2900 NJ**	**3000 NJ**
n-Butylbenzene	104-51-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Propylbenzene	103-65-1	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**39 NJ**	**39 NJ**	**39 NJ**	**38 NJ**	**38 NJ**	**32 NJ**
sec-Butylbenzene	135-98-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	100-42-5	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**2.2**	**2.2**	**2.7**	**3.6**	**4.0**	**3.9**
Tetrachloroethene	127-18-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOC	CALC-VOC	NL	**23.14**	**10.64**	**11.46**	**20.8**	**21.16**	**7.67**	**18.37**	**13.13**	**16.8**	**9.4**	**15.62**	**15.8**	**30.11**	**4064.2**	**4044.7**	**3656.2**	**4108.6**	**4069.3**	**3635.7**
PAH (ug/L)																					
2-Methylnaphthalene	91-57-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	83-32-9	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthylene	208-96-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Anthracene	120-12-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoranthene	206-44-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluorene	86-73-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	91-20-3	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	85-01-8	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	129-00-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PAH	CALC-PAH	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC (ug/L)																					
1,1'-Biphenyl	92-52-4	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbazole	86-74-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzofuran	132-64-9	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	CALC-SVOC	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-103D 2/9/2010 MGP-MW-103D (24-29)020910 24-29	MW-103D 2/9/2010 MGP-MW-103D (30-35)020910 30-35	MW-103D 2/9/2010 MGP-MW-103D (33-38)020910 33-38	MW-103D 2/9/2010 MGP-MW-103D (38-43)020910 38-43	MW-103D 2/9/2010 MGP-MW-103D (45-50)020910 45-50	MW-103D 2/12/2010 MGP-MW-103D (51-56)021210 51-56	MW-103D 2/12/2010 MGP-MW-103D (55-60)021210 55-60	MW-103D 2/12/2010 MGP-MW-103D (63-68)021210 63-68	MW-103D 2/12/2010 MGP-MW-103D (70-75)021210 70-75	MW-103D 2/9/2010 MGP-MW-103D (82-87)020910 82-87	MW-103D 2/9/2010 MGP-MW-103D (88-93)020910 88-93	MW-103D 2/9/2010 MGP-MW-103D (94-99)020910 94-99	MW-103D 2/8/2010 MGP-MW-103D (107-112)020810 107-112	MW-104D 2/17/2010 MGP-MW-104D (23-28)021710 23-28	MW-104D 2/17/2010 MGP-MW-104D (33-38)021710 33-38	MW-104D 2/17/2010 MGP-MW-104D (66-71)021710 66-71	MW-104D 2/17/2010 MGP-MW-104D (71-76)021710 71-76	MW-104D 2/17/2010 MGP-MW-104D (91-96)021710 91-96	MW-104D 2/17/2010 MGP-MW-104D (102-107)021710 102-107
Metals (ug/L)																					
Aluminum	7429-90-5	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	7440-38-2	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	7440-39-3	1000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	7440-43-9	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	7440-70-2	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	7440-47-3	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	7440-48-4	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	7440-50-8	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	7439-89-6	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	7439-92-1	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	7439-95-4	35000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	7439-96-5	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	7439-97-6	0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	7440-02-0	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	7440-09-7	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	7440-22-4	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	7440-23-5	20000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	7440-66-6	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (ug/L)																					
Cyanide, Total	57-12-5	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
1 New York State Department of Environmental Conservation Divisiin of Water Technical and operation Guidance series (TOGS 1.1.1) Ambient water quality standards and groundwater effluent limitations
NL = No Limit
ND = Not Detect
NS= Not Sampled
ug/L = micrograms per Liter
Bold = Detected
Bold and Italcis= Not detect exceeds NYS Groundwater Standards
Yellow highlighted values exceed Groundwater Standards
1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run
* = Depth range was named incorrectly on the lab report. The correct depth is reported in the depth interval column
** = Sample was collected om 10/2/09, lab reported it as 10/1/09

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-105D 2/15/2010 MGP-MW-105D (21-26)021510 21-26	MW-105D 2/15/2010 MGP-MW-105D (26-31)021510 26-31	MW-105D 2/15/2010 MGP-MW-105D (32-37)021510 32-37	MW-105D 2/15/2010 MGP-MW-105D (51-56)021510 51-56	MW-105D 2/15/2010 MGP-MW-105D (68-73)021510 68-73	MW-105D 2/16/2010 MGP-MW-105D (80-85)021610 80-85	MW-105D 2/16/2010 MGP-MW-105D (99-104)021610 99-104	MW-105D 2/16/2010 MGP-MW-105D (114-119)021610 114-119	MW-105D 2/16/2010 MGP-MW-105D (120-125)021610 120-125	MW-106D 12/15/2009 MGP-MW-106D (8-13)121509 8-13	MW-106D 12/15/2009 MGP-MW-106D (20-25)121509 20-25	MW-106D 12/15/2009 MGP-MW-106D (25-30)121509 25-30	MW-106D 12/16/2009 MGP-MW-106D 43.5-48.5)121609 43.5-48.5	MW-106D 12/16/2009 MGP-MW-106D (51-56)121609 51-56	MW-106D 12/16/2009 MGP-MW-106D (63-68)121609 63-68	MW-106D 12/16/2009 MGP-MW-106D (88-93)121609 88-93	MW-106D 12/16/2009 MGP-MW-106D (104-109)121609 104-109	MW-106D 12/16/2009 MGP-MW-106D (136-141)121609 136-141	MW-106D 12/16/2009 MGP-MW-106D (143-148)121609 143-148
BTEX (ug/L)							**BEDROCK**							**BEDROCK**					**BEDROCK**		
Benzene	71-43-2	1	**15**	**35**	**20**	**21**	**23**	**23**	**91**	**110**	**62**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.82 J**
Ethylbenzene	100-41-4	5	**100**	**27**	**23**	**27**	**64**	**23**	**980**	**970**	**560**	<1.0 U	**0.70 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
m&p-Xylene	1330-20-7-m,p	NL	**85**	**8.8**	**6.5**	**7.9**	**35**	**6.8**	**730**	**760**	**400**	<2.0 U	**3.2**	**2.2**	**1.5 J**	**1.4 J**	**1.1 J**	<2.0 U	<2.0 U	<2.0 U	<2.0 U
o-Xylene	95-47-6	NL	**48**	**8.2**	**7.3**	**8.7**	**25**	**7.4**	**450**	**470**	**260**	<1.0 U	**1.1**	**0.64 J**	**0.50 J**	**0.46 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Toluene	108-88-3	5	**50**	**3.7**	**2.7**	**3.5**	**13**	**2.9**	**320**	**340**	**190**	**0.62 J**	**15**	**8.3**	**5.8**	**5.8**	**4.0**	**6**	**6.7**	**2.6**	**12**
Xylenes (total)	1330-20-7	5	**133**	**17**	**13.8**	**16.6**	**60**	**14.2**	**1180**	**1230**	**660**	ND	4.3	2.84	2	1.86	1.1	ND	ND	ND	ND
Total BTEX	CALC-BTEX	NL	**298**	**82.7**	**59.5**	**68.1**	**160**	**63.1**	**2571**	**2650**	**1472**	**0.62**	**20**	**11.14**	**7.8**	**7.66**	**5.1**	**6**	**6.7**	**2.6**	**12.82**
VOC (ug/L)																					
1,2,3-Trichlorobenzene	87-61-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	120-82-1	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	**76 NJ**	**14 NJ**	**11 NJ**	**12 NJ**	**27 NJ**	**8.9 NJ**	**270 NJ**	**320 NJ**	**150 NJ**	NS	**1.2 NJ**	**0.67 NJ**	**0.54 NJ**	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	108-67-8	5	**23 NJ**	**3.8 NJ**	**2.7 NJ**	**3.0 NJ**	**7.9 NJ**	**2.0 NJ**	**98 NJ**	**120 NJ**	**50 NJ**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	78-93-3	50	**19 J**	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	**9.0 J**	**11 J**	**5.6 J**	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U
4-Isopropyltoluene	99-87-6	NL	**4.5 NJ**	**0.91 NJ**	**0.68 NJ**	**0.60 NJ**	**1.2 NJ**	NS	**7.7 NJ**	**12 NJ**	**5.5 NJ**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-Methyl-2-pentanone	108-10-1	NL	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	**2.8 J**	<5.0 U	<5.0 U	<5.0 U	<5.0 U	**5.1**	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U
Acetone	67-64-1	50	**38 J**	**12 J**	<5.0 U	<5.0 U	<5.0 U	<5.0 U	**24 J**	**23 J**	**18 J**	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	**5.7**	<5.0 U
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bromodichloromethane	75-27-4	50	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroethane	75-00-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroform	67-66-3	7	**11**	**0.70 J**	**0.62 J**	**0.67 J**	**1.3**	<1.0 U	**5.4**	**6.1**	**2.9**	<1.0 U	**1.3**	**1.1**	**3.3**	**5.4**	**5.6**	**4.8**	**4.3**	**1.0**	**4.6**
Chloromethane	74-87-3	5	**0.67 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.76 J**	**0.71 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Cyclohexane	110-82-7	NL	**2.2**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**1.5**	**1.7**	**0.87 J**	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ
Dibromochloromethane	124-48-1	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Isopropylbenzene	98-82-8	5	**25**	**5.6**	**4.8**	**5.6**	**9.8**	**4.2**	**94**	**110**	**50**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methyl tert-butyl ether	1634-04-4	10	<1.0 U	**0.80 J**	**0.75 J**	**0.82 J**	**0.73 J**	**0.86 J**	**0.86 J**	**0.87 J**	**0.76 J**	<1.0 U	<1.0 U	<1.0 U	**1.3**	**1.7**	**2.3**	**1.6**	**1.8**	<1.0 U	**1.9**
Methylcyclohexane	108-87-2	NL	**8.9**	**0.98 J**	<1.0 U	<1.0 U	**1.2**	<1.0 U	**3.4**	**4.0**	**1.9**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methylene chloride	75-09-2	5	**0.69 J**	**0.57 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.86 J**	**0.76 J**	**0.58 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Naphthalene	91-20-3	10	**1200 NJ**	**350 NJ**	**270 NJ**	**300 NJ**	**570 NJ**	**210 NJ**	**2000 NJ**	**2300 NJ**	**1700 NJ**	NS	**4.3 NJ**	**3.5 NJ**	**6.4 NJ**	**6.6 NJ**	**5.1 NJ**	**5.3 NJ**	**5.7 NJ**	**1.3 NJ**	**5.0 NJ**
n-Butylbenzene	104-51-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Propylbenzene	103-65-1	5	**11 NJ**	**2.0 NJ**	**1.7 NJ**	**1.8 NJ**	**3.5 NJ**	**1.3 NJ**	**31 NJ**	**38 NJ**	**17 NJ**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	135-98-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	100-42-5	5	**15**	<1.0 U	<1.0 U	<1.0 U	**1.4**	<1.0 U	**92**	**110**	**46**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Tetrachloroethene	127-18-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOC	CALC-VOC	NL	**551.46**	**120.35**	**79.47**	**91.79**	**234.43**	**82.36**	**3985.58**	**4148.14**	**2258.61**	**0.62**	**25.6**	**20.18**	**14.4**	**16.62**	**14.1**	**12.4**	**12.8**	**9.3**	**19.32**
PAH (ug/L)																					
2-Methylnaphthalene	91-57-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	83-32-9	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthylene	208-96-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Anthracene	120-12-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoranthene	206-44-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluorene	86-73-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	91-20-3	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	85-01-8	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	129-00-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PAH	CALC-PAH	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC (ug/L)																					
1,1'-Biphenyl	92-52-4	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbazole	86-74-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzofuran	132-64-9	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	CALC-SVOC	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-105D 2/15/2010 MGP-MW-105D (21-26)021510 21-26	MW-105D 2/15/2010 MGP-MW-105D (26-31)021510 26-31	MW-105D 2/15/2010 MGP-MW-105D (32-37)021510 32-37	MW-105D 2/15/2010 MGP-MW-105D (51-56)021510 51-56	MW-105D 2/15/2010 MGP-MW-105D (68-73)021510 68-73	MW-105D 2/16/2010 MGP-MW-105D (80-85)021610 80-85	MW-105D 2/16/2010 MGP-MW-105D (99-104)021610 99-104	MW-105D 2/16/2010 MGP-MW-105D (114-119)021610 114-119	MW-105D 2/16/2010 MGP-MW-105D (120-125)021610 120-125	MW-106D 12/15/2009 MGP-MW-106D (8-13)121509 8-13	MW-106D 12/15/2009 MGP-MW-106D (20-25)121509 20-25	MW-106D 12/15/2009 MGP-MW-106D (25-30)121509 25-30	MW-106D 12/16/2009 MGP-MW-106D 43.5-48.5)121609 43.5-48.5	MW-106D 12/16/2009 MGP-MW-106D (51-56)121609 51-56	MW-106D 12/16/2009 MGP-MW-106D (63-68)121609 63-68	MW-106D 12/16/2009 MGP-MW-106D (88-93)121609 88-93	MW-106D 12/16/2009 MGP-MW-106D (104-109)121609 104-109	MW-106D 12/16/2009 MGP-MW-106D (136-141)121609 136-141	MW-106D 12/16/2009 MGP-MW-106D (143-148)121609 143-148
Metals (ug/L)																					
Aluminum	7429-90-5	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	7440-38-2	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	7440-39-3	1000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	7440-43-9	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	7440-70-2	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	7440-47-3	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	7440-48-4	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	7440-50-8	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	7439-89-6	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	7439-92-1	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	7439-95-4	35000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	7439-96-5	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	7439-97-6	0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	7440-02-0	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	7440-09-7	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	7440-22-4	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	7440-23-5	20000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	7440-66-6	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (ug/L)																					
Cyanide, Total	57-12-5	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
1 New York State Department of Environmental Conservation Divisiin of Water Technical and operation Guidance series (TOGS 1.1.1) Ambient water quality standards and groundwater effluent limitations
NL = No Limit
ND = Not Detect
NS= Not Sampled
ug/L = micrograms per Liter
Bold = Detected
Bold and Italcis= Not detect exceeds NYS Groundwater Standards
Yellow highlighted values exceed Groundwater Standards
1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run
* = Depth range was named incorrectly on the lab report. The correct depth is reported in the depth interval column
** = Sample was collected om 10/2/09, lab reported it as 10/1/09

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-109D 4/14/2012 MW-109D (30-35)041412 30-35	MW-109D 4/14/2012 MW-109D (35-40)041412 35-40	MW-109D 4/14/2012 DUP-8-041412 35-40	MW-109D 4/14/2012 MW-109D (43-48)041412 43-48	MW-109D 4/14/2012 MW-109D (54-59)041412 54-59	MW-109D 4/14/2012 MW-109D (66-71)041412 66-71	MW-109D 4/15/2012 MW-109D (74-79)041512 74-79	MW-109D 4/15/2012 MW-109D (89.5-94.5)041512 89.5-94.5	MW-109D 4/15/2012 MW-109D(107.5-112.5)041512 107.5-112.5	MW-109D 4/15/2012 MW-109D(149-154)041512 149-154	MW-109D 4/15/2012 MW-109D(163.5-168.5)041512 163.5-168.5	MW-109D 4/15/2012 MW-109D(168.5-173.5)041512 168.5-173.5	MW-109D 4/15/2012 MW-109D(184-189)041512 184-189	MW-109D 4/15/2012 MW-109D(189-194)041512 189-194	MW-110D 2/21/2012 MW-110D(15-20)022112 15-20	MW-110D 2/21/2012 MW-110D (23-28)022112 23-28	MW-110D 2/21/2012 MW-110D (28-33)022112 28-33	MW-110D 2/21/2012 MW-110D (33-38)022112 33-38	MW-110D 2/21/2012 MW-110D (39-44)022112 39-44	MW-110D 2/22/2012 MW-110D (48-53)022212 48-53	MW-110D 2/22/2012 MW-110D (54-59)022212 54-59
BTEX (ug/L)								**BEDROCK**															
Benzene	71-43-2	1	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Ethylbenzene	100-41-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
m&p-Xylene	1330-20-7-m,p	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
o-Xylene	95-47-6	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Toluene	108-88-3	5	**1.9**	**2.2**	**2.4**	<1.0 U	**5.6**	**1.4**	**2.3**	**1.7**	**7.0**	**19**	**36**	**34**	**14**	**32**	**4.2**	**9.2**	**9.6**	**8.2**	**8.4**	**3.6**	**5.6**
Xylenes (total)	1330-20-7	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total BTEX	CALC-BTEX	NL	**1.9**	**2.2**	**2.4**	ND	**5.6**	**1.4**	**2.3**	**1.7**	**7.0**	**19**	**36**	**34**	**14**	**32**	**4.2**	**9.2**	**9.6**	**8.2**	**8.4**	**3.6**	**5.6**
VOC (ug/L)																							
1,2,3-Trichlorobenzene	87-61-6	NL	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ
1,2,4-Trichlorobenzene	120-82-1	5	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	108-67-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	78-93-3	50	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
4-Isopropyltoluene	99-87-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-Methyl-2-pentanone	108-10-1	NL	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Acetone	67-64-1	50	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bromodichloromethane	75-27-4	50	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<0.50 U	<0.50 U	**1.0**	<0.50 U	<0.50 U	**1.3**	**1.1**
Chloroethane	75-00-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroform	67-66-3	7	**2.4**	<1.0 U	**2.0**	**4.2**	<1.0 U	<1.0 U	<1.0 U	**1.2**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**5.0**	**4.5**	**4.8**	**4.8**	**4.5**	**5.6**	**5.5**
Chloromethane	74-87-3	5	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Cyclohexane	110-82-7	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Dibromochloromethane	124-48-1	5	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U
Isopropylbenzene	98-82-8	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methyl tert-butyl ether	1634-04-4	10	**1.4 J**	**1.1 J**	**0.88 J**	**0.95 J**	**1.0 J**	**1.8 J**	**1.0 J**	**2.2 J**	**3.6 J**	**4.2 J**	**5.2 J**	**3.1**	**5.2 J**	**3.8**	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Methylcyclohexane	108-87-2	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methylene chloride	75-09-2	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Naphthalene	91-20-3	10	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ
n-Butylbenzene	104-51-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Propylbenzene	103-65-1	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	135-98-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	100-42-5	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Tetrachloroethene	127-18-4	5	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOC	CALC-VOC	NL	**5.7**	**3.3**	**5.28**	**5.15**	**6.6**	**3.2**	**3.3**	**5.1**	**10.6**	**23.2**	**41.2**	**37.1**	**19.2**	**35.8**	**9.2**	**13.7**	**15.4**	**13**	**12.9**	**10.5**	**12.2**
PAH (ug/L)																							
2-Methylnaphthalene	91-57-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	83-32-9	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthylene	208-96-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Anthracene	120-12-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoranthene	206-44-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluorene	86-73-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	91-20-3	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	85-01-8	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	129-00-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PAH	CALC-PAH	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC (ug/L)																							
1,1'-Biphenyl	92-52-4	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbazole	86-74-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzofuran	132-64-9	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	CALC-SVOC	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-109D 4/14/2012 MW-109D (30-35)041412 30-35	MW-109D 4/14/2012 MW-109D (35-40)041412 35-40	MW-109D 4/14/2012 DUP-8-041412 35-40	MW-109D 4/14/2012 MW-109D (43-48)041412 43-48	MW-109D 4/14/2012 MW-109D (54-59)041412 54-59	MW-109D 4/14/2012 MW-109D (66-71)041412 66-71	MW-109D 4/15/2012 MW-109D (74-79)041512 74-79	MW-109D 4/15/2012 MW-109D (89.5-94.5)041512 89.5-94.5	MW-109D 4/15/2012 MW-109D(107.5- 112.5)041512 107.5-112.5	MW-109D 4/15/2012 MW-109D(149- 154)041512 149-154	MW-109D 4/15/2012 MW-109D(163.5- 168.5)041512 163.5-168.5	MW-109D 4/15/2012 MW-109D(168.5- 173.5)041512 168.5-173.5	MW-109D 4/15/2012 MW-109D(184- 189)041512 184-189	MW-109D 4/15/2012 MW-109D(189- 194)041512 189-194	MW-110D 2/21/2012 MW-110D(15-20)022112 15-20	MW-110D 2/21/2012 MW-110D (23-28)022112 23-28	MW-110D 2/21/2012 MW-110D (28-33)022112 28-33	MW-110D 2/21/2012 MW-110D (33-38)022112 33-38	MW-110D 2/21/2012 MW-110D (39-44)022112 39-44	MW-110D 2/22/2012 MW-110D (48-53)022212 48-53	MW-110D 2/22/2012 MW-110D (54-59)022212 54-59
Metals (ug/L)																							
Aluminum	7429-90-5	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	7440-38-2	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	7440-39-3	1000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	7440-43-9	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	7440-70-2	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	7440-47-3	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	7440-48-4	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	7440-50-8	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	7439-89-6	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	7439-92-1	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	7439-95-4	35000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	7439-96-5	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	7439-97-6	0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	7440-02-0	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	7440-09-7	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	7440-22-4	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	7440-23-5	20000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	7440-66-6	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (ug/L)																							
Cyanide, Total	57-12-5	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
1 New York State Department of Environmental Conservation Divisiin of Water Technical and operation Guidance series (TOGS 1.1.1) Ambient water quality standards and groundwater effluent limitations
NL = No Limit
ND = Not Detect
NS= Not Sampled
ug/L = micrograms per Liter
Bold = Detected
Bold and Italcis= Not detect exceeds NYS Groundwater Standards
Yellow highlighted values exceed Groundwater Standards
1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run
* = Depth range was named incorrectly on the lab report. The correct depth is reported in the depth interval column
** = Sample was collected om 10/2/09, lab reported it as 10/1/09

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-110D 2/22/2012 DUP-3-022212 54-59	MW-110D 2/22/2012 MW-110D (73-78)022212 73-78	MW-110D 2/22/2012 MW-110D (81-86)022212 81-86	MW-110D 2/22/2012 MW-110D (94-99)022212 94-99	MW-110D 2/22/2012 MW-110D (103-108)022212 103-108	MW-110D 2/22/2012 MW-110D(108.5-113.5)022212 108.5-113.5	MW-110D 2/23/2012 MW-110D (114-119)022312 114-119	MW-110D 2/23/2012 MW-110D (121-126)022312 121-126	MW-110D 2/23/2012 MW-110D (145-150)022312 145-150	MW-110D 2/23/2012 MW-110D (165-170)022312 165-170	MW-110D 2/23/2012 MW-110D (170-175)022312 170-175	MW-112D 3/12/2012 MW-112D (20-25)031212 20-25	MW-112D 3/12/2012 DUP-6-031212 20-25	MW-112D 3/12/2012 MW-112D (23-28)031212 23-28	MW-112D 3/12/2012 MW-112D (28-33)031212 28-33	MW-112D 3/12/2012 MW-112D (33-38)031212 33-38	MW-112D 3/12/2012 MW-112D (44-49)031212 44-49	MW-112D 3/12/2012 MW-112D (50-55)031212 50-55	MW-112D 3/12/2012 MW-112D (57-62)031212 57-62
BTEX (ug/L)			**BEDROCK**																**BEDROCK**		
Benzene	71-43-2	1	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Ethylbenzene	100-41-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
m&p-Xylene	1330-20-7-m,p	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
o-Xylene	95-47-6	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Toluene	108-88-3	5	**5.9**	**8.1**	**7.6**	**8.8**	**6.1**	**7.6**	**2.6**	**2.7**	**3.6**	**2.6**	**1.8**	**4.5 J**	**2.0 J**	**1.9**	**1.1**	**3.9**	**5.0**	**7.2**	**8.9**
Xylenes (total)	1330-20-7	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total BTEX	CALC-BTEX	NL	**5.9**	**8.1**	**7.6**	**8.8**	**6.1**	**7.6**	**2.6**	**2.7**	**3.6**	**2.6**	**1.8**	**4.5**	**2.0**	**1.9**	**1.1**	**3.9**	**5.0**	**7.2**	**8.9**
VOC (ug/L)																					
1,2,3-Trichlorobenzene	87-61-6	NL	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trichlorobenzene	120-82-1	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	108-67-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	78-93-3	50	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
4-Isopropyltoluene	99-87-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-Methyl-2-pentanone	108-10-1	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Acetone	67-64-1	50	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 UJ	<10 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bromodichloromethane	75-27-4	50	**1.3**	**1.3**	**1.3**	**1.2**	**1.4**	**1.5**	**1.4**	**1.4**	**1.3**	**1.3**	**1.4**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroethane	75-00-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroform	67-66-3	7	**5.8**	**5.8**	**5.8**	**5.7**	**6.2**	**6.0**	**5.9**	**5.8**	**6.0**	**6.2**	**6.5**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloromethane	74-87-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 UJ
Cyclohexane	110-82-7	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Dibromochloromethane	124-48-1	5	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 UJ	<0.56 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Isopropylbenzene	98-82-8	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methyl tert-butyl ether	1634-04-4	10	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Methylcyclohexane	108-87-2	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methylene chloride	75-09-2	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Naphthalene	91-20-3	10	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
n-Butylbenzene	104-51-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Propylbenzene	103-65-1	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	135-98-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	100-42-5	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Tetrachloroethene	127-18-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOC	CALC-VOC	NL	**13**	**15.2**	**14.7**	**15.7**	**13.7**	**15.1**	**9.9**	**9.9**	**10.9**	**10.1**	**9.7**	**4.5**	**2**	**1.9**	**1.1**	**3.9**	**5**	**7.2**	**8.9**
PAH (ug/L)																					
2-Methylnaphthalene	91-57-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	83-32-9	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthylene	208-96-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Anthracene	120-12-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoranthene	206-44-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluorene	86-73-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	91-20-3	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	85-01-8	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	129-00-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PAH	CALC-PAH	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC (ug/L)																					
1,1'-Biphenyl	92-52-4	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbazole	86-74-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzofuran	132-64-9	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	CALC-SVOC	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-110D 2/22/2012 DUP-3-022212 54-59	MW-110D 2/22/2012 MW-110D (73-78)022212 73-78	MW-110D 2/22/2012 MW-110D (81-86)022212 81-86	MW-110D 2/22/2012 MW-110D (94-99)022212 94-99	MW-110D 2/22/2012 MW-110D (103-108)022212 103-108	MW-110D 2/22/2012 MW-110D(108.5-113.5)022212 108.5-113.5	MW-110D 2/23/2012 MW-110D (114-119)022312 114-119	MW-110D 2/23/2012 MW-110D (121-126)022312 121-126	MW-110D 2/23/2012 MW-110D (145-150)022312 145-150	MW-110D 2/23/2012 MW-110D (165-170)022312 165-170	MW-110D 2/23/2012 MW-110D (170-175)022312 170-175	MW-112D 3/12/2012 MW-112D (20-25)031212 20-25	MW-112D 3/12/2012 DUP-6-031212 20-25	MW-112D 3/12/2012 MW-112D (23-28)031212 23-28	MW-112D 3/12/2012 MW-112D (28-33)031212 28-33	MW-112D 3/12/2012 MW-112D (33-38)031212 33-38	MW-112D 3/12/2012 MW-112D (44-49)031212 44-49	MW-112D 3/12/2012 MW-112D (50-55)031212 50-55	MW-112D 3/12/2012 MW-112D (57-62)031212 57-62
Metals (ug/L)																					
Aluminum	7429-90-5	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	7440-38-2	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	7440-39-3	1000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	7440-43-9	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	7440-70-2	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	7440-47-3	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	7440-48-4	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	7440-50-8	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	7439-89-6	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	7439-92-1	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	7439-95-4	35000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	7439-96-5	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	7439-97-6	0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	7440-02-0	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	7440-09-7	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	7440-22-4	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	7440-23-5	20000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	7440-66-6	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (ug/L)																					
Cyanide, Total	57-12-5	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
1 New York State Department of Environmental Conservation Divisiin of Water Technical and operation Guidance series (TOGS 1.1.1) Ambient water quality standards and groundwater effluent limitations
NL = No Limit
ND = Not Detect
NS= Not Sampled
ug/L = micrograms per Liter
Bold = Detected
Bold and Italcis= Not detect exceeds NYS Groundwater Standards
Yellow highlighted values exceed Groundwater Standards
1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run
* = Depth range was named incorrectly on the lab report. The correct depth is reported in the depth interval column
** = Sample was collected om 10/2/09, lab reported it as 10/1/09

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-112D 3/12/2012 MW-112D (65-70)031212 65-70	MW-112D 3/13/2012 MW-112D (105-110)031312 105-110	MW-112D 3/13/2012 MW-112D (186-191)031312 186-191	MW-112D 3/13/2012 MW-112D (191-196)031312 191-196	MW-113D 2/14/2012 MW-113D (17-22)021412 17-22	MW-113D 2/14/2012 MW-113D (22-27)021412 22-27	MW-113D 2/14/2012 MW-113D (28-33)021412 28-33	MW-113D 2/14/2012 MW-113D (35-40)021412 35-40	MW-113D 2/14/2012 DUP-1-021412 35-40	MW-113D 2/14/2012 MW-113D (41-46)021412 41-46	MW-113D 2/14/2012 MW-113D (45-50)021412 45-50	MW-113D 2/14/2012 MW-113D (51-56)021412 51-56	MW-113D 2/14/2012 MW-113D (71-76)021412 71-76	MW-113D 2/14/2012 MW-113D (103-108)021412 103-108	MW-113D 2/15/2012 MW-113D(124.5-129.5)021512 124.5-129.5	MW-113D 2/15/2012 MW-113D(129.5-134.5)021512 129.5-134.5	MW-113D 2/15/2012 MW-113D(135-140)021512 135-140	MW-113D 2/15/2012 MW-113D(140-145)021512 140-145	MW-113D 2/15/2012 MW-113D(158-163)021512 158-163	MW-113D 2/15/2012 MW-113D(174-179)021512 174-179	MW-113D 2/15/2012 MW-113D(180-185)021512 180-185
BTEX (ug/L)								**BEDROCK**									**BEDROCK**						
Benzene	71-43-2	1	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Ethylbenzene	100-41-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
m&p-Xylene	1330-20-7,m,p	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
o-Xylene	95-47-6	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Toluene	108-88-3	5	**9.1**	**3.3**	**3.3**	**6.9**	**45**	**27**	**1.7**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**4.4**	**1.5**	**1.4**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Xylenes (total)	1330-20-7	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total BTEX	CALC-BTEX	NL	**9.1**	**3.3**	**3.3**	**6.9**	**45**	**27**	**1.7**	ND	ND	ND	ND	**4.4**	**1.5**	**1.4**	ND	ND	ND	ND	ND	ND	ND
VOC (ug/L)																							
1,2,3-Trichlorobenzene	87-61-6	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trichlorobenzene	120-82-1	5	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	108-67-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	78-93-3	50	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U
4-Isopropyltoluene	99-87-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-Methyl-2-pentanone	108-10-1	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U
Acetone	67-64-1	50	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bromodichloromethane	75-27-4	50	<1.0 U	<1.0 U	<1.0 U	<0.50 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroethane	75-00-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroform	67-66-3	7	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloromethane	74-87-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U
Cyclohexane	110-82-7	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U
Dibromochloromethane	124-48-1	5	<1.0 U	<1.0 U	<1.0 U	<0.56 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Isopropylbenzene	98-82-8	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methyl tert-butyl ether	1634-04-4	10	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 UJ	<0.50 UJ	<0.50 UJ	<0.50 UJ	<0.50 UJ	<0.50 U	<0.50 UJ	<0.50 UJ	<0.50 UJ	<0.50 UJ	<0.50 UJ	<0.50 UJ	<0.50 UJ	<0.50 UJ	<0.50 U	<0.50 UJ	<0.50 U
Methylcyclohexane	108-87-2	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methylene chloride	75-09-2	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 UJ
Naphthalene	91-20-3	10	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	**1.7 J**	**2.1 J**	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 UJ	**1.1**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
n-Butylbenzene	104-51-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Propylbenzene	103-65-1	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	135-98-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	100-42-5	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Tetrachloroethene	127-18-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOC	CALC-VOC	NL	**9.1**	**3.3**	**3.3**	**6.9**	**46.7**	**29.1**	**1.7**	ND	ND	ND	ND	**4.4**	**2.6**	**1.4**	ND	ND	ND	ND	ND	ND	ND
PAH (ug/L)																							
2-Methylnaphthalene	91-57-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	83-32-9	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthylene	208-96-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Anthracene	120-12-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoranthene	206-44-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluorene	86-73-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	91-20-3	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	85-01-8	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	129-00-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PAH	CALC-PAH	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC (ug/L)																							
1,1'-Biphenyl	92-52-4	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbazole	86-74-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzofuran	132-64-9	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	CALC-SVOC	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-112D 3/12/2012 MW-112D (65-70)031212 65-70	MW-112D 3/13/2012 MW-112D (105-110)031312 105-110	MW-112D 3/13/2012 MW-112D (186-191)031312 186-191	MW-112D 3/13/2012 MW-112D (191-196)031312 191-196	MW-113D 2/14/2012 MW-113D (17-22)021412 17-22	MW-113D 2/14/2012 MW-113D (22-27)021412 22-27	MW-113D 2/14/2012 MW-113D (28-33)021412 28-33	MW-113D 2/14/2012 MW-113D (35-40)021412 35-40	MW-113D 2/14/2012 DUP-1-021412 35-40	MW-113D 2/14/2012 MW-113D (41-46)021412 41-46	MW-113D 2/14/2012 MW-113D (45-50)021412 45-50	MW-113D 2/14/2012 MW-113D (51-56)021412 51-56	MW-113D 2/14/2012 MW-113D (71-76)021412 71-76	MW-113D 2/14/2012 MW-113D (103-108)021412 103-108	MW-113D 2/15/2012 MW-113D(124.5-129.5)021512 124.5-129.5	MW-113D 2/15/2012 MW-113D(129.5-134.5)021512 129.5-134.5	MW-113D 2/15/2012 MW-113D(135-140)021512 135-140	MW-113D 2/15/2012 MW-113D(140-145)021512 140-145	MW-113D 2/15/2012 MW-113D(158-163)021512 158-163	MW-113D 2/15/2012 MW-113D(174-179)021512 174-179	MW-113D 2/15/2012 MW-113D(180-185)021512 180-185
Metals (ug/L)																							
Aluminum	7429-90-5	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	7440-38-2	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	7440-39-3	1000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	7440-43-9	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	7440-70-2	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	7440-47-3	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	7440-48-4	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	7440-50-8	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	7439-89-6	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	7439-92-1	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	7439-95-4	35000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	7439-96-5	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	7439-97-6	0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	7440-02-0	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	7440-09-7	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	7440-22-4	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	7440-23-5	20000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	7440-66-6	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (ug/L)																							
Cyanide, Total	57-12-5	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
1 New York State Department of Environmental Conservation Divisiin of Water Technical and operation Guidance series (TOGS 1.1.1) Ambient water quality standards and groundwater effluent limitations
NL = No Limit
ND = Not Detect
NS= Not Sampled
ug/L = micrograms per Liter
Bold = Detected
Bold and Italcis= Not detect exceeds NYS Groundwater Standards
Yellow highlighted values exceed Groundwater Standards
1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run
* = Depth range was named incorrectly on the lab report. The correct depth is reported in the depth interval column
** = Sample was collected om 10/2/09, lab reported it as 10/1/09

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-114D 3/7/2012 MW-114D (24-29)030712 24-29	MW-114D 3/7/2012 MW-114D (40-45)030712 40-45	MW-114D 3/7/2012 DUP-4-030712 40-45	MW-114D 3/7/2012 MW-114D (48-53)030712 48-53	MW-114D 3/7/2012 MW-114D (67-72)030712 67-72	MW-114D 3/7/2012 MW-114D (72-77)030712 72-77	MW-114D 3/7/2012 MW-114D (79-84)030712 79-84	MW-114D 3/7/2012 MW-114D (91-96)030712 91-96	MW-114D 3/7/2012 MW-114D (103-108)030712 103-108	MW-114D 3/8/2012 MW-114D (136-141)030812 136-141	MW-114D 3/8/2012 MW-114D (141-146)030812 141-146	MW-114D 3/8/2012 MW-114D(147.5-152.5)030812 147.5-152.5	MW-114D 3/8/2012 MW-114D(153-158)030812 153-158	MW-114D 3/8/2012 MW-114D(163-168)030812 163-168	MW-114D 3/8/2012 MW-114D(168-173)030812 168-173	MW-114D 3/8/2012 MW-114D(179-184)030812 179-184
BTEX (ug/L)			**BEDROCK**						**BEDROCK**									
Benzene	71-43-2	1	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Ethylbenzene	100-41-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
m&p-Xylene	1330-20-7-m,p	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
o-Xylene	95-47-6	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Toluene	108-88-3	5	**2.1**	**4.0**	**4.3**	**7.5**	**5.0**	**10**	**7.5**	**8.5**	**10**	**8.3**	**8.9**	**8.9**	**9.2**	**8.9**	**10**	**8.5**
Xylenes (total)	1330-20-7	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total BTEX	CALC-BTEX	NL	**2.1**	**4**	**4.3**	**7.5**	**5**	**10**	**7.5**	**8.5**	**10**	**8.3**	**8.9**	**8.9**	**9.2**	**8.9**	**10**	**8.5**
VOC (ug/L)																		
1,2,3-Trichlorobenzene	87-61-6	NL	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trichlorobenzene	120-82-1	5	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trimethylbenzene	95-63-6	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	108-67-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	78-93-3	50	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
4-Isopropyltoluene	99-87-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-Methyl-2-pentanone	108-10-1	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Acetone	67-64-1	50	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bromodichloromethane	75-27-4	50	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Chloroethane	75-00-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroform	67-66-3	7	<1.0 U	<1.0 U	<1.0 U	**1.0**	**1.2**	**1.2**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloromethane	74-87-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 U
Cyclohexane	110-82-7	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Dibromochloromethane	124-48-1	5	<0.56 U	<0.56 UJ	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U	<0.56 U
Isopropylbenzene	98-82-8	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methyl tert-butyl ether	1634-04-4	10	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Methylcyclohexane	108-87-2	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methylene chloride	75-09-2	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Naphthalene	91-20-3	10	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
n-Butylbenzene	104-51-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Propylbenzene	103-65-1	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	135-98-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	100-42-5	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Tetrachloroethene	127-18-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOC	CALC-VOC	NL	**2.1**	**4**	**4.3**	**8.5**	**6.2**	**11.2**	**7.5**	**8.5**	**10**	**8.3**	**8.9**	**8.9**	**9.2**	**8.9**	**10**	**8.5**
PAH (ug/L)																		
2-Methylnaphthalene	91-57-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	83-32-9	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthylene	208-96-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Anthracene	120-12-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoranthene	206-44-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluorene	86-73-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	91-20-3	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	85-01-8	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	129-00-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PAH	CALC-PAH	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC (ug/L)																		
1,1'-Biphenyl	92-52-4	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbazole	86-74-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzofuran	132-64-9	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	CALC-SVOC	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-114D 3/7/2012 MW-114D (24-29)030712 24-29	MW-114D 3/7/2012 MW-114D (40-45)030712 40-45	MW-114D 3/7/2012 DUP-4-030712 40-45	MW-114D 3/7/2012 MW-114D (48-53)030712 48-53	MW-114D 3/7/2012 MW-114D (67-72)030712 67-72	MW-114D 3/7/2012 MW-114D (72-77)030712 72-77	MW-114D 3/7/2012 MW-114D (79-84)030712 79-84	MW-114D 3/7/2012 MW-114D (91-96)030712 91-96	MW-114D 3/7/2012 MW-114D (103-108)030712 103-108	MW-114D 3/8/2012 MW-114D (136-141)030812 136-141	MW-114D 3/8/2012 MW-114D (141-146)030812 141-146	MW-114D 3/8/2012 MW-114D(147.5-152.5)030812 147.5-152.5	MW-114D 3/8/2012 MW-114D(153-158)030812 153-158	MW-114D 3/8/2012 MW-114D(163-168)030812 163-168	MW-114D 3/8/2012 MW-114D(168-173)030812 168-173	MW-114D 3/8/2012 MW-114D(179-184)030812 179-184
Metals (ug/L)																		
Aluminum	7429-90-5	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	7440-38-2	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	7440-39-3	1000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	7440-43-9	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	7440-70-2	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	7440-47-3	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	7440-48-4	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	7440-50-8	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	7439-89-6	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	7439-92-1	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	7439-95-4	35000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	7439-96-5	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	7439-97-6	0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	7440-02-0	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	7440-09-7	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	7440-22-4	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	7440-23-5	20000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	7440-66-6	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (ug/L)																		
Cyanide, Total	57-12-5	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
1 New York State Department of Environmental Conservation Divisiin of Water Technical and operation Guidance series (TOGS 1.1.1) Ambient water quality standards and groundwater effluent limitations
NL = No Limit
ND = Not Detect
NS= Not Sampled
ug/L = micrograms per Liter
Bold = Detected
Bold and Italcis= Not detect exceeds NYS Groundwater Standards
Yellow highlighted values exceed Groundwater Standards
1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run
* = Depth range was named incorrectly on the lab report. The correct depth is reported in the depth interval column
** = Sample was collected om 10/2/09, lab reported it as 10/1/09

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	MW-116D 2/16/2012 MW-116D (24-29)021612 24-29	MW-116D 2/16/2012 MW-116D (30-35)021612 30-35	MW-116D 2/16/2012 MW-116D (37-42)021612 37-42	MW-116D 2/16/2012 MW-116D (44-49)021612 44-49	MW-116D 2/16/2012 MW-116D (48.5-53.5)021612 48.5-53.5	MW-116D 2/17/2012 MW-116D (53.5-58.5)021712 53.5-58.5	MW-116D 2/17/2012 DUP-2-021712 53.5-58.5	MW-116D 2/17/2012 MW-116D (68-73)021712 68-73	MW-116D 2/17/2012 MW-116D (73-78)021712 73-78	MW-116D 2/17/2012 MW-116D (81-86)021712 81-86	MW-116D 2/17/2012 MW-116D (94-99)021712 94-99	MW-116D 2/17/2012 MW-116D (99.5-104.5)021712 99.5-104.5	MW-116D 2/17/2012 MW-116D(128-133)021712 128-133	MW-116D 2/17/2012 MW-116D(141-146)021712 141-146	MW-116D 2/20/2012 MW-116D(167-172)022012 167-172	MW-116D 2/20/2012 MW-116D(172-177)022012 172-177	MW-116D 2/20/2012 MW-116D(176-181)022012 176-181	MW-116D 2/20/2012 MW-116D(180-185)022012 180-185
BTEX (ug/L)							**BEDROCK**									**BEDROCK**				
Benzene	71-43-2	1	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Ethylbenzene	100-41-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
m&p-Xylene	1330-20-7-m,p	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
o-Xylene	95-47-6	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Toluene	108-88-3	5	<1.0 U	<1.0 U	<1.0 U	**1.0**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**2.4**	**1.3**	<1.0 U	<1.0 U	<1.0 U	**2.8**	<1.0 U	<1.0 U	**1.0**	**1.8**
Xylenes (total)	1330-20-7	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total BTEX	CALC-BTEX	NL	ND	ND	ND	**1**	ND	ND	ND	ND	**2.4**	**1.3**	ND	ND	ND	**2.8**	ND	ND	**1.0**	**1.8**
VOC (ug/L)																				
1,2,3-Trichlorobenzene	87-61-6	NL	**1.2**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ
1,2,4-Trichlorobenzene	120-82-1	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ
1,2,4-Trimethylbenzene	95-63-6	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,3,5-Trimethylbenzene	108-67-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Butanone	78-93-3	50	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ
4-Isopropyltoluene	99-87-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-Methyl-2-pentanone	108-10-1	NL	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ
Acetone	67-64-1	50	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U
Acrylonitrile	107-13-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Bromodichloromethane	75-27-4	50	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroethane	75-00-3	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroform	67-66-3	7	<1.0 U	<1.0 U	<1.0 U	**1.5**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**3.6**	<1.0 U	**7.5**	**8.0**	<1.0 U	**3.2**	<1.0 U	**1.0**	<1.0 U	**1.0**
Chloromethane	74-87-3	5	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ
Cyclohexane	110-82-7	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Dibromochloromethane	124-48-1	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Isopropylbenzene	98-82-8	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methyl tert-butyl ether	1634-04-4	10	<0.50 U	<0.50 U	<0.50 U	<0.50 UJ	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Methylcyclohexane	108-87-2	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methylene chloride	75-09-2	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Naphthalene	91-20-3	10	**1.2 J**	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	**3.6 J**	**1.1 J**	<1.0 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ
n-Butylbenzene	104-51-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
n-Propylbenzene	103-65-1	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
sec-Butylbenzene	135-98-8	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	100-42-5	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Tetrachloroethene	127-18-4	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOC	CALC-VOC	NL	**2.4**	ND	ND	**2.5**	ND	ND	ND	ND	**6**	**1.3**	**7.5**	**8**	**3.6**	**7.1**	ND	**1**	**1**	**2.8**
PAH (ug/L)																				
2-Methylnaphthalene	91-57-6	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	83-32-9	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthylene	208-96-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Anthracene	120-12-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluoranthene	206-44-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Fluorene	86-73-7	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	91-20-3	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	85-01-8	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	129-00-0	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total PAH	CALC-PAH	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC (ug/L)																				
1,1'-Biphenyl	92-52-4	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbazole	86-74-8	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzofuran	132-64-9	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total SVOC	CALC-SVOC	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Metals (ug/L)																				
Aluminum	7429-90-5	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	7440-38-2	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	7440-39-3	1000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	7440-43-9	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	7440-70-2	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	7440-47-3	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	7440-48-4	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	7440-50-8	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	7439-89-6	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	7439-92-1	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	7439-95-4	35000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	7439-96-5	300	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	7439-97-6	0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	7440-02-0	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	7440-09-7	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	7782-49-2	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	7440-22-4	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	7440-23-5	20000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	7440-66-6	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (ug/L)																				
Cyanide, Total	57-12-5	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
1 New York State Department of Environmental Conservation Divisiin of Water Technical and operation Guidance series (TOGS 1.1.1) Ambient water quality standards and groundwater effluent limitations
NL = No Limit
ND = Not Detect
NS= Not Sampled
ug/L = micrograms per Liter
Bold = Detected
Bold and Italcis= Not detect exceeds NYS Groundwater Standards
Yellow highlighted values exceed Groundwater Standards
1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ = (Organics) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
D = Diluted run
* = Depth range was named incorrectly on the lab report. The correct depth is reported in the depth interval column
** = Sample was collected om 10/2/09, lab reported it as 10/1/09

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	Summary Statistics											
			Samples	Detects	Non-Detects	Exceedances	DL Exceedances	Max Detected Concentration	ID for Max Concentration	Min Detected Concentration	ID for Min Concentration	Average Detected Concentration	Min DL for NonDetects	Max DL for NonDetects
BTEX (ug/L)														
Benzene	71-43-2	1	191	64	127	60	0	720	MGP-MW-9DD(23-30.5)082709	0.7	MGP-MW-103D(63-68)021210	85.08125	0.28	1
Ethylbenzene	100-41-4	5	191	57	134	46	0	1000	MGP-MW-104D(71-76)021710	0.64	MGP-MW-4DD(55-60.5)081909	225.485614	0.23	1
m&p-Xylene	1330-20-7-m,p	NL	185	70	115	0	0	760	MGP-MW-105D(114-119)021610	0.96	MGP-MW-103D(107-112)020810	114.9158571	0.86	2
o-Xylene	95-47-6	NL	185	70	115	0	0	510	MGP-MW-104D(71-76)021710	0.46	MGP-MW-106D(51-56)121609	80.53485714	0.37	1
Toluene	108-88-3	5	191	152	39	87	0	340	MGP-MW-105D(114-119)021610	0.62	MGP-MW-106D(8-13)121509	19.30552632	0.22	1.08
Xylenes (total)	1330-20-7	5	191	69	105	49	0	1230	MGP-MW-105D(114-119)021610	0.56	MW-13D-031010	197.9723188	-	-
Total BTEX	CALC-BTEX	NL	191	157	34	0	0	2650	MGP-MW-105D(114-119)021610	0.62	MGP-MW-106D(8-13)121509	231.2496815	-	-
VOC (ug/L)														
1,2,3-Trichlorobenzene	87-61-6	NL	96	2	94	0	0	2	MGP-MW-9DD(23-30.5)082709	1.2	MW-116D(24-29)021612	1.6	1	1
1,2,4-Trichlorobenzene	120-82-1	5	184	1	183	0	2	1.4	MGP-MW-4DD(85-100.4)082509	1.4	MGP-MW-4DD(85-100.4)082509	1.4	0.29	14.5
1,2,4-Trimethylbenzene	95-63-6	5	60	56	4	38	0	420	MGP-MW-4DD(102-110.5)091809	0.54	MGP-MW-106D(43.5-48.5)121609	66.26375	0.44	0.84
1,3,5-Trimethylbenzene	108-67-8	5	51	46	5	22	0	140	MGP-MW-4DD(102-110.5)091809	0.55	MGP-MW-0DD(17-20)100109	25.98369565	0.43	0.82
2-Butanone	78-93-3	50	184	6	178	0	0	19	MGP-MW-105D(21-26)021510	1.8	MGP-MW-102D(76-81)020810	9.383333333	0.59	50
4-Isopropyltoluene	99-87-6	NL	32	25	7	0	0	23	MGP-MW-4DD(102-110.5)091809	0.5	MGP-MW-102D(37-42)020810	5.8536	0.34	0.81
4-Methyl-2-pentanone	108-10-1	NL	184	2	182	0	0	5.1	MGP-MW-106D(25-30)121509	2.8	MGP-MW-105D(99-104)021610	3.95	0.81	50
Acetone	67-64-1	50	184	17	167	0	1	38	MGP-MW-105D(21-26)021510	3.9	MGP-MW-4DD(60-65.6)082009	13.11176471	1.13	56.5
Acrylonitrile	107-13-1	NL	2	2	0	0	0	55	MW-4D-030910	16	MW-9D-031010	35.5	-	-
Bromodichloromethane	75-27-4	50	178	32	146	0	0	13	MGP-MW-4DD(75.5-80)082109	0.72	MGP-MW-4DD(70-75.5)082109	3.235	0.5	10
Chloroethane	75-00-3	5	184	8	176	3	2	6.1	MW-4D-030910	1.7	MW-9D-031010	4.5875	0.6	30
Chloroform	67-66-3	7	184	91	93	25	1	62	MGP-MW-0DD(76-80)1005609	0.41	MGP-MW-101D(132-137)	9.667142857	0.38	19
Chloromethane	74-87-3	5	178	4	174	1	1	26	MGP-MW-9DD(23-30.5)082709	0.67	MGP-MW-105D(21-26)021510	7.035	1	10
Cyclohexane	110-82-7	NL	178	38	140	0	0	120	MGP-MW-9DD(23-30.5)082709	0.87	MGP-MW-105D(120-125)021610	28.50184211	1	1
Dibromochloromethane	124-48-1	5	184	8	176	0	2	2.8	MGP-MW-4DD(75.5-80)082109	0.65	MGP-MW-4DD(35-41.5)081809	1.36375	0.26	13
Isopropylbenzene	98-82-8	5	185	50	135	35	0	130	MGP-MW-4DD(102-110.5)091809	0.71	MGP-MW-103D(107-112)020810	28.8184	0.44	1
Methyl tert-butyl ether	1634-04-4	10	185	50	135	4	0	14	MGP-MW-9DD(23-30.5)082709	0.7	MGP-MW-0DD(76-80)1005609	3.3308	0.5	1
Methylcyclohexane	108-87-2	NL	178	39	139	0	0	140	MGP-MW-104D(33-38)021710	0.98	MGP-MW-105D(26-31)021510	36.18666667	1	1
Methylene chloride	75-09-2	5	184	8	176	1	2	8.7	MGP-MW-4DD(102-110.5)091809	0.46	MGP-MW-4DD(60-65.6)082009	1.66	1	99.5
Naphthalene	91-20-3	10	182	88	94	44	0	5300	MGP-MW-4DD(102-110.5)091809	0.93	MGP-MW-101D(103-108)	457.4625	0.33	1
n-Butylbenzene	104-51-8	5	19	12	7	3	0	16	MGP-MW-4DD(102-110.5)091809	1.4	MW-9D-031010	4	0.43	0.83
n-Propylbenzene	103-65-1	5	51	44	7	28	0	58	MW-4D-030910	0.6	MGP-MW-4DD(60-65.6)082009	16.50386364	0.41	0.81
sec-Butylbenzene	135-98-8	5	21	14	7	0	0	2.6	MW-4D-030910	0.75	MGP-MW-0DD(17-20)100109	1.24	0.36	0.78
Styrene	100-42-5	5	178	17	161	7	0	110	MGP-MW-105D(114-119)021610	1.4	MGP-MW-105D(68-73)021510	18.87647059	1	1
Tetrachloroethene	127-18-4	5	184	2	182	2	2	9.7	MGP-MW-4DD(45-51.6)081909	6.5	MGP-MW-4DD(35-41.5)081809	8.1	0.27	13.5
Total VOC	CALC-VOC	NL	100	79	21	0	0	1800	MW-4D-041107	1.1	MW-112D(28-33)031212	46.74341772	-	-
PAH (ug/L)														
2-Methylnaphthalene	91-57-6	NL	12	4	8	0	0	226	MW-9D-041107	7.8	MW-4D-030910	65.85	0.132	11
Acenaphthene	83-32-9	20	19	6	13	2	0	240	MW-9D-031010	0.646	MW-4D-041107	60.77933333	0.085	11
Acenaphthylene	208-96-8	NL	19	3	16	0	0	23.2	MW-9D-041107	0.561	MW-4D-041107	9.953666667	0.079	11
Anthracene	120-12-7	50	19	2	17	0	0	13	MW-9D-031010	6.02	MW-9D-041107	9.51	0.214	11
Fluoranthene	206-44-0	50	19	2	17	0	0	4.8	MW-9D-031010	3	MW-13D-031010	3.9	0.288	11.5
Fluorene	86-73-7	50	19	3	16	1	0	61	MW-9D-031010	0.895	MW-4D-041107	33.63166667	0.128	11
Naphthalene	91-20-3	10	19	9	10	4	0	2280	MW-9D-041107	1.05	MW-11D-041107	394.2244444	0.158	10
Phenanthrene	85-01-8	50	19	4	15	1	0	85	MW-9D-031010	1.47	MW-4D-041107	34.4675	0.22	11
Pyrene	129-00-0	50	19	2	17	0	0	5.8	MW-9D-031010	3.9	MW-13D-031010	4.85	0.144	11
Total PAH	CALC-PAH	NL	19	10	9	0	0	2740.02	MW-9D-041107	1.05	MW-11D-041107	448.1242	-	-
SVOC (ug/L)														
1,1'-Biphenyl	92-52-4	5	6	2	4	1	4	41	MW-9D-031010	2.7	MW-13D-031010	21.85	10	11
Carbazole	86-74-8	NL	6	1	5	0	0	2.3	MW-9D-031010	2.3	MW-9D-031010	2.3	10	11
Dibenzofuran	132-64-9	NL	12	1	11	0	0	7.4	MW-9D-031010	7.4	MW-9D-031010	7.4	0.13	11
Total SVOC	CALC-SVOC	NL	6	4	2	0	0	2740.02	MW-9D-041107	1.05	MW-11D-041107	730.603	-	-

Table 5-6
Bedrock Groundwater Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Location Sample Date Sample ID Screened Interval	CAS Number	NYSDEC Groundwater Guidance or Standard Value (Note 1)	Summary Statistics											
			Samples	Detects	Non-Detects	Exceedances	DL Exceedances	Max Detected Concentration	ID for Max Concentration	Min Detected Concentration	ID for Min Concentration	Average Detected Concentration	Min DL for NonDetects	Max DL for NonDetects
Metals (ug/L)														
Aluminum	7429-90-5	NL	6	6	0	0	0	363	MW-4D-030910	36.8	MW-5D-030910	109.9166667	-	-
Arsenic	7440-38-2	25	6	2	4	0	0	16.2	MW-13D-031010	9.06	MW-9D-031010	12.63	10	10
Barium	7440-39-3	1000	6	6	0	0	0	981	MW-9D-031010	85.6	MW-11D-030910	497.75	-	-
Cadmium	7440-43-9	5	6	3	3	0	0	4.54	MW-13D-031010	0.96	MW-4D-030910	2.29	3	3
Calcium	7440-70-2	NL	6	6	0	0	0	462000	MW-13D-031010	46700	MW-5D-030910	206183.3333	-	-
Chromium	7440-47-3	50	6	5	1	0	0	33.5	MW-6D-030910	2.55	MW-5D-030910	9.606	5	5
Cobalt	7440-48-4	NL	6	1	5	0	0	12.4	MW-13D-031010	12.4	MW-13D-031010	12.4	15	15
Copper	7440-50-8	200	6	1	5	0	0	8.47	MW-13D-031010	8.47	MW-13D-031010	8.47	10	10
Iron	7439-89-6	300	6	6	0	5	0	45100	MW-6D-030910	109	MW-5D-030910	21247.83333	-	-
Lead	7439-92-1	25	13	7	6	0	0	9.15	MW-9D-031010	3.4	MW-4D-122208	5.365714286	1.7	6
Magnesium	7439-95-4	35000	6	6	0	3	0	110000	MW-13D-031010	7610	MW-11D-030910	43755	-	-
Manganese	7439-96-5	300	6	6	0	5	0	27700	MW-9D-031010	15.4	MW-5D-030910	13720.4	-	-
Mercury	7439-97-6	0.7	6	1	5	0	0	0.19	MW-6D-030910	0.19	MW-6D-030910	0.19	0.2	0.2
Nickel	7440-02-0	100	6	2	4	0	0	20.8	MW-13D-031010	15.5	MW-6D-030910	18.15	20	20
Potassium	7440-09-7	NL	6	6	0	0	0	21400	MW-13D-031010	5870	MW-5D-030910	11393.33333	-	-
Selenium	7782-49-2	10	6	4	2	3	0	16.2	MW-9D-031010	9.41	MW-4D-030910	12.9025	10	10
Silver	7440-22-4	50	6	1	5	0	0	3.08	MW-13D-031010	3.08	MW-13D-031010	3.08	5	5
Sodium	7440-23-5	20000	6	6	0	6	0	1390000	MW-13D-031010	250000	MW-5D-030910	792333.3333	-	-
Zinc	7440-66-6	2000	6	6	0	0	0	81.7	MW-13D-031010	19	MW-11D-030910	36.13333333	-	-
Cyanide (ug/L)														
Cyanide, Total	57-12-5	200	6	6	0	0	0	145	MW-6D-030910	24	MW-13D-031010	63	-	-

Table 5-7
Indoor Air and Soil Gas Analytical Data
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

Type of Sample	CAS No.	NYSDOH Background Indoor Air Values[3]		Soilgas	Soilgas	Crawl Space	Soilgas	Soilgas	Soilgas	Soilgas	Indoor Air	Indoor Air	Indoor Air	Soilgas	Outdoor Air
Sample ID				MGP-SG-1	MGP-SG-2	MGP-SG-3	MGP-SG-4	MGP-SG-5	MGP-SG-6	MGP-SG-7	AMB-1	AMB-1 Duplicate	AMB-2	MGP-SG-8	AMB-1
Sampling Date		75th Percentile	90th Percentile	8/2/2009	8/2/2009	8/2/2009	8/2/2009	8/2/2009	8/2/2009	8/2/2009	8/2/2009	8/2/2009	8/2/2009	2/25/2012	2/25/2012
Compound (µg/m³)															
Possibly MGP Related or Other Sources [1]															
1,2,4-Trimethylbenzene	95-63-6	4.3	9.5	**56**	**49**	*0.79 U*	**110**	**60**	**59**	**210**	**1.1**	**1.2**	**2.2**	**18**	*0.92 U*
1,3,5-Trimethylbenzene	108-67-8	1.7	3.6	**16**	**14**	*0.79 U*	**29**	**18**	**18**	**66**	*0.78 U*	*0.81 U*	*0.79 U*	*14 U*	*0.92 U*
2,2,4-Trimethylpentane	540-84-1	NL	NL	**58**	**50**	*3.8 U*	**17**	**25**	**130**	**570**	*3.7 U*	*3.8 U*	*3.8 U*	*68 U*	*4.4 U*
2,3-Dimethylpentane	565-59-3	2.2	7.5	**44**	**30**	*3.3 U*	*5.3 U*	**38**	*11 U*	*66 U*	*3.2 U*	*3.4 U*	*3.3 U*	*60 U*	*3.8 U*
2-Methylpentane	107-83-5	NL	NL	**80**	**80**	*2.8 U*	**52**	**31**	**81**	**520**	**4.6**	**4.3**	**4.2**	*51 U*	*3.3 U*
4-Ethyltoluene	622-96-8	NL	NL	**48**	**41**	*4.0 U*	**100**	**55**	**60**	**290**	*3.9 U*	*4.0 U*	*4.0 U*	*72 U*	*4.6 U*
Benzene	71-43-2	5.9	15	**110**	**77**	*0.51 U*	**20**	**22**	**25**	**320**	**1.0**	**1.0**	**2.5**	*9.3 U*	*0.60 U*
Carbon Disulfide	75-15-0	NL	NL	**18**	**51**	*2.5 U*	*4.0 U*	**18**	**50**	**250**	*2.5 U*	*2.6 U*	*2.5 U*	*45 U*	*2.9 U*
Cyclohexane	110-82-7	2.6	8.1	**22**	**20**	*2.8 U*	**12**	**13**	**35**	**120**	*2.7 U*	*2.8 U*	*2.8 U*	*50 U*	*3.2 U*
Ethylbenzene	100-41-4	2.8	7.4	**53**	**72**	*0.70 U*	**74**	**51**	**120**	**500**	**1.1**	**1.1**	**2.0**	**16**	*0.81 U*
Heptane	142-82-5	7.6	19	**77**	**62**	*3.3 U*	**36**	**22**	**120**	**600**	*3.2 U*	*3.4 U*	*3.3 U*	*60 U*	*3.8 U*
Hexane	110-54-3	6	18	**67**	**44**	*2.8 U*	**34**	**27**	**51**	**460**	**3.1 J**	*2.9 UJ*	**3.8**	*51 U*	*3.3 U*
Indan	496-11-7	NL	NL	*17 UJ*	*15 UJ*	*3.9 UJ*	**16 J**	**8.0 J**	*14 UJ*	*78 U*	*3.8 UJ*	*4.0 U*	*3.9 UJ*	*70 U*	*4.4 U*
Indene	95-13-6	NL	NL	*17 U*	*15 U*	*3.8 U*	*6.1 U*	*5.2 U*	*13 U*	*76 U*	*3.8 U*	*3.9 U*	*3.8 U*	*69 U*	*4.5 U*
Isopentane	78-784	NL	NL	**44**	**57**	**5.4**	**36**	**36**	**56**	**280**	**7.7**	**6.1**	**9.6**	*43 U*	*2.8 U*
Naphthalene	91-20-3	NL	NL	*19 U*	*16 U*	*4.2 U*	**12 J**	**9.7 J**	15 U	84 UJ	*4.1 U*	*4.3 UJ*	*4.2 U*	*76 U*	*4.9 U*
Styrene	100-42-5	0.64	1.3	*3.0 U*	*2.6 U*	*0.68 U*	*1.1 U*	*0.92 U*	*2.4 U*	*14 U*	*0.67 U*	*0.70 U*	*0.68 U*	*12 U*	*0.80 U*
Thiophene	110-02-1	NL	NL	*12 UJ*	*11 UJ*	*2.8 UJ*	*4.4 UJ*	*3.7 UJ*	*9.6 UJ*	*55 U*	*2.7 UJ*	*2.8 U*	*2.8 UJ*	*50 U*	*3.2 U*
Toluene	108-88-3	24.8	58	**830**	**750**	**2.0**	**310**	**180**	**470**	**3400**	**7.7**	**7.4**	**14**	**3200**	*0.70 U*
m/p-Xylenes	136777-61-2	4.6	12	**170**	**190**	**0.75**	**280**	**150**	**240**	**1400**	**3.4**	**3.2**	**6.6**	**61**	*0.81 U*
o-Xylene	95-47-6	3.1	7.6	**69**	**78**	*0.70 U*	**110**	**72**	**110**	**460**	**1.2**	**1.2**	**2.4**	**18**	*0.81 U*
Not MGP Related [2]															
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	1.1	3.1	**5.3**	**23**	0.88 U	*1.4 U*	**1.6**	**380**	*18 U*	0.86 U	0.89 U	0.88 U	*16 U*	*1.0 U*
1,1,2,2-Tetrachloroethane	79-34-5	<0.25	<0.25	*4.9 U*	*4.2 U*	*1.1 U*	*1.8 U*	*1.5 U*	*3.8 U*	*22 U*	*1.1 U*	*1.1 U*	*1.1 U*	*20 U*	*1.3 U*
1,1,2-Trichloroethane	79-00-5	<0.25	<0.25	*3.9 U*	*3.4 U*	*0.88 U*	*1.4 U*	*1.2 U*	*3.0 U*	*18 U*	*0.86 U*	*0.89 U*	*0.88 U*	*16 U*	*1.0 U*
1,1-Dichloroethane	75-34-3	<0.25	<0.25	*2.9 U*	*2.5 U*	*0.65 U*	*1.0 U*	*0.88 U*	**11**	*13 U*	*0.64 U*	*0.66 U*	*0.65 U*	*12 U*	*0.76 U*
1,1-Dichloroethene	75-35-4	<0.25	<0.25	*2.8 U*	*2.4 U*	*0.64 U*	*1.0 U*	*0.86 U*	*2.2 U*	*13 U*	*0.63 U*	*0.65 U*	*0.64 U*	*12 U*	*0.74 U*
1,2,4-Trichlorobenzene	120-82-1	<0.25	3.4	*26 U*	*23 U*	*6.0 U*	*9.6 U*	*8.0 U*	*21 U*	*120 UJ*	*5.9 U*	*6.1 UJ*	*6.0 U*	*110 U*	*6.9 U*
1,2-Dibromoethane (EDB)	106-93-4	<0.25	<0.25	*5.5 U*	*4.8 U*	*1.2 U*	*2.0 U*	*1.7 U*	*4.3 U*	*25 U*	*1.2 U*	*1.3 U*	*1.2 U*	*22 U*	*1.4 U*
1,2-Dichlorobenzene	95-50-1	<0.25	0.72	*4.3 U*	*3.7 U*	*0.97 U*	*1.6 U*	*1.3 U*	*3.4 U*	*19 U*	*0.95 U*	*0.99 U*	*0.97 U*	*18 U*	*1.1 U*
1,2-Dichloroethane	107-06-2	<0.25	<0.25	*2.9 U*	*2.5 U*	*0.65 U*	*1.0 U*	*0.88 U*	*2.3 U*	*13 U*	*0.64 U*	*0.66 U*	*0.65 U*	*12 U*	*0.76 U*
1,2-Dichloropropane	78-87-5	<0.25	<0.25	*3.3 U*	*2.9 U*	*0.74 U*	*1.2 U*	*1.0 U*	*2.6 U*	*15 U*	*0.73 U*	*0.76 U*	*0.74 U*	*13 U*	*0.86 U*
1,3-Butadiene	106-99-0	NL	NL	*7.9 U*	*6.8 U*	*1.8 U*	*2.8 U*	*2.4 U*	*6.2 U*	*36 U*	*1.7 U*	*1.8 U*	*1.8 U*	*32 U*	*2.1 U*
1,3-Dichlorobenzene	541-73-1	<0.25	0.6	*4.3 U*	*3.7 U*	*0.97 U*	*1.6 U*	*1.3 U*	*3.4 U*	*19 U*	*0.95 U*	*0.99 U*	*0.97 U*	*18 U*	*1.1 U*
1,4-Dichlorobenzene	106-46-7	0.54	1.3	*4.3 U*	*3.7 U*	*0.97 U*	*1.6 U*	*1.3 U*	*3.4 U*	*19 U*	*0.95 U*	*0.99 U*	**7.7**	*18 U*	*1.1 U*
1,4-Dioxane	123-91-1	NL	NL	*13 U*	*11 U*	*2.9 U*	*4.6 U*	*3.9 U*	*10 U*	*58 U*	*2.8 U*	*3.0 U*	*2.9 U*	*53 UJ*	*3.4 UJ*
2-Butanone (MEK)	78-93-3	7.3	16	**11**	**13**	**3.7**	**10**	**51**	**15**	*47 U*	**2.6**	**2.4**	*2.4 U*	*43 UJ*	*2.8 UJ*
2-Hexanone	591-78-6	NL	NL	*15 U*	*13 U*	*3.3 U*	*5.3 U*	**7.8**	*11 U*	*66 U*	*3.2 U*	*3.4 U*	*3.3 U*	*60 UJ*	*3.8 UJ*
4-Methyl-2-pentanone	108-10-1	0.86	2.2	*15 U*	*13 U*	*3.3 U*	*5.3 U*	**6.9**	*11 U*	*66 U*	*3.2 U*	*3.4 U*	*3.3 U*	*60 UJ*	*3.8 UJ*
Acetone	67-64-1	52	110	**30**	**52**	**9.5**	**14**	**160**	**34**	**50**	**8.4**	**7.7**	**13**	**59 J**	**2.8 J**
Benzyl chloride	100-44-7	NL	NL	*3.7 U*	*3.2 U*	*0.83 U*	*1.3 U*	*1.1 U*	*2.9 U*	*17 U*	*0.82 U*	*0.85 U*	*0.83 U*	*15 U*	*0.97 U*
Bromodichloromethane	75-27-4	NL	NL	*24 U*	*21 U*	*5.4 U*	*8.6 U*	*7.3 U*	*19 U*	*110 U*	*5.3 U*	*5.5 U*	*5.4 U*	*98 U*	*6.3 U*
Bromoform	75-25-2	NL	NL	*37 U*	*32 U*	*8.3 U*	*13 U*	*11 U*	*29 U*	*170 U*	*8.2 U*	*8.5 U*	*8.3 U*	*150 U*	*9.7 U*
Bromomethane	74-83-9	<0.25	0.6	*2.8 U*	*2.4 U*	*0.62 U*	*1.0 U*	*0.84 U*	*2.2 U*	*12 U*	*0.61 U*	*0.64 U*	*0.62 U*	*11 U*	*0.73 U*
Carbon Tetrachloride	56-23-5	0.59	0.81	*4.5 U*	*3.9 U*	*1.0 U*	*1.6 U*	*1.4 U*	*3.5 U*	*20 U*	*0.99 U*	*1.0 U*	*1.0 U*	*18 U*	*1.2 U*
Chlorobenzene	108-90-7	<0.25	<0.25	*3.3 U*	*2.8 U*	*0.74 U*	*1.2 U*	*1.0 U*	*2.6 U*	*15 U*	*0.73 U*	*0.76 U*	*0.74 U*	*13 U*	*0.86 U*
Chloroethane	75-00-3	<0.25	<0.25	*1.9 U*	*1.6 U*	*0.42 U*	*0.68 U*	*0.57 U*	*1.5 U*	*8.5 U*	*0.42 U*	*0.43 U*	*0.42 U*	*38 U*	*2.5 U*
Chloroform	67-66-3	0.54	1.4	**33**	**26**	*0.79 U*	**2.4**	**17**	**26**	**170**	*0.77 U*	*0.80 U*	*0.79 U*	*14 U*	*0.91 U*
Chloromethane	74-87-3	1.8	3.3	*1.5 U*	*1.3 U*	**0.57**	*0.53 U*	**1.6**	*1.2 U*	**11**	**1.2**	**1.2**	**1.1**	*6.0 U*	*0.39 U*
cis-1,2-Dichloroethene	156-59-2	<0.25	<0.25	*2.8 U*	*2.4 U*	*0.64 U*	*1.0 U*	*0.86 U*	*2.2 U*	*13 U*	*0.63 U*	*0.65 U*	*0.64 U*	*12 U*	*0.74 U*
cis-1,3-Dichloropropene	10061-01-5	<0.25	<0.25	*3.2 U*	*2.8 U*	*0.73 U*	*1.2 U*	*0.98 U*	*2.5 U*	*15 U*	*0.72 U*	*0.74 U*	*0.73 U*	*13 U*	*0.85 U*
Dibromochloromethane	124-48-1	NL	NL	*30 U*	*26 U*	*6.8 U*	*11 U*	*9.2 U*	*24 U*	*140 U*	*6.7 U*	*7.0 U*	*6.8 U*	*120 U*	*8.0 U*
Ethanol	64-17-5	540	1400	**15**	**8.8**	**2.7**	2.4 U	**17**	5.3 U	30 UJ	**7.0 J**	**4.6 J**	**18**	*28 UJ*	*1.8 UJ*
Trichlorofluoromethane (Freon 11)	75-69-4	5.4	17	4.0 U	**12**	**1.2**	1.4 U	1.2 U	3.1 U	*18 U*	**1.0**	**0.93**	**1.2**	*16 U*	**1.2**
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	1.1	1.8	*5.5 U*	*4.8 U*	*1.2 U*	*2.0 U*	*1.7 U*	*4.3 U*	*25 U*	*1.2 U*	*1.2 U*	*1.2 U*	*22 U*	*1.4 U*
1,2-Dichlorotetrafluoroethane	76-14-2	<0.25	0.52	*5.0 U*	*4.3 U*	*1.1 U*	*1.8 U*	*1.5 U*	*3.9 U*	*22 U*	*1.1 U*	*1.1 U*	*1.1 U*	*20 U*	*1.3 U*
Dichlorodifluoromethane (Freon 12)	75-71-8	4.1	15	3.5 U	**7.9**	**2.2**	**1.6**	**2.3**	2.8 U	*16 U*	**2.0**	**2.0**	**2.2**	*14 U*	**2.4**
Hexachlorobutadiene (C-46)	87-68-3	<0.25	4.6	*38 U*	*33 U*	*8.6 U*	*14 U*	*12 U*	*30 U*	*170 UJ*	*8.4 U*	*8.7 UJ*	*8.6 U*	*160 U*	*10 U*
Methyl tert-Butyl Ether (MTBE)	1634-04-4	5.6	27	*13 U*	*11 U*	*2.9 U*	*4.6 U*	*3.9 U*	*10 U*	*58 U*	*2.8 U*	*3.0 U*	*2.9 U*	*53 UJ*	*3.4 U*
Methylene Chloride (Dichloromethane)	75-09-2	6.6	22	*2.5 U*	*2.2 U*	*0.56 U*	*0.90 U*	*0.75 U*	*1.9 U*	*11 U*	**0.61**	**0.58**	**0.77**	*10 UJ*	*0.65 UJ*
2-Propanol	67-63-0	NL	NL	*8.8 U*	*7.6 U*	*2.0 U*	*3.2 U*	*2.7 U*	*6.9 U*	*40 U*	**6.1 J**	2.0 UJ	**12**	*36 UJ*	*2.3 UJ*
Propene	115-07-1	NL	NL	**6.4**	**8.0**	*1.4 U*	*2.2 U*	**18**	**75**	**350**	*1.4 U*	*1.4 U*	*1.4 U*	*25 U*	*1.6 U*
Tetrachloroethene (PCE)	127-18-4	1.1	2.9	**11**	**31**	*1.1 U*	**13**	**24**	**60**	**360**	*1.1 U*	*1.1 U*	*1.1 U*	**57**	*1.3 U*
Tetrahydrofuran	109-99-9	0.35	3.3	*10 U*	*9.1 U*	*2.4 U*	*3.8 U*	*3.2 U*	*8.2 U*	*47 U*	*2.3 U*	*2.4 U*	*2.4 U*	*43 UJ*	*2.8 UJ*
trans-1,2-Dichloroethene	156-60-5	NA	NA	*14 U*	*12 U*	*3.2 U*	*5.1 U*	*4.3 U*	*11 U*	*64 U*	*3.1 U*	*3.2 U*	*3.2 U*	*58 U*	*3.7 U*
trans-1,3-Dichloropropene	10061-02-6	<0.25	<0.25	*3.2 U*	*2.8 U*	*0.73 U*	*1.2 U*	*0.98 U*	*2.5 U*	*15 U*	*0.72 U*	*0.74 U*	*0.73 U*	*13 U*	*0.85 U*
Trichloroethene (TCE)	79-01-6	<0.25	0.48	*3.8 U*	*3.3 U*	*0.86 U*	*1.4 U*	**3.0**	**8.1**	**48**	*0.85 U*	*0.88 U*	*0.86 U*	*16 U*	*1.0 U*
Vinyl Chloride	75-01-4	<0.25	<0.25	*1.8 U*	*1.6 U*	*0.41 U*	*0.66 U*	*0.55 U*	*1.4 U*	*8.2 U*	*0.40 U*	*0.42 U*	*0.41 U*	*7.5 U*	*0.48 U*

Notes:
All units in micrograms per cubic meter (µg/m³)
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, November 14, 2005.
Bold - Compound detected in a concentration greater than the method reporting limits.
Italic - Compound not detected, but reporting limit exceeds the NYSDOH Background Indoor Air Values 75th or 90th Percentile.
Exceeds NYSDOH Bakground Indoor Air Values 75th Percentile
Exceeds NYSDOH Bakground Indoor Air Values 90th Percentile
Dup - As suffix on Sample ID indicates that the sample is a field duplicate.
NL - Not listed - data not available for background concentrations for these compounds.
U - The compound was analyzed for, but was not detected above the method reporting limit.
R - The data are unusable. The sample results are rejected due to serious deficiencies in the ability to meet quality control criteria. The presence or absence of the analyte cannot be verified.
N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ - The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.
J - The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
UJ - The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be UJ - inaccurate or imprecise.

Table 6-1
Exposure Pathway Analysis - Potential On-site Receptors
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

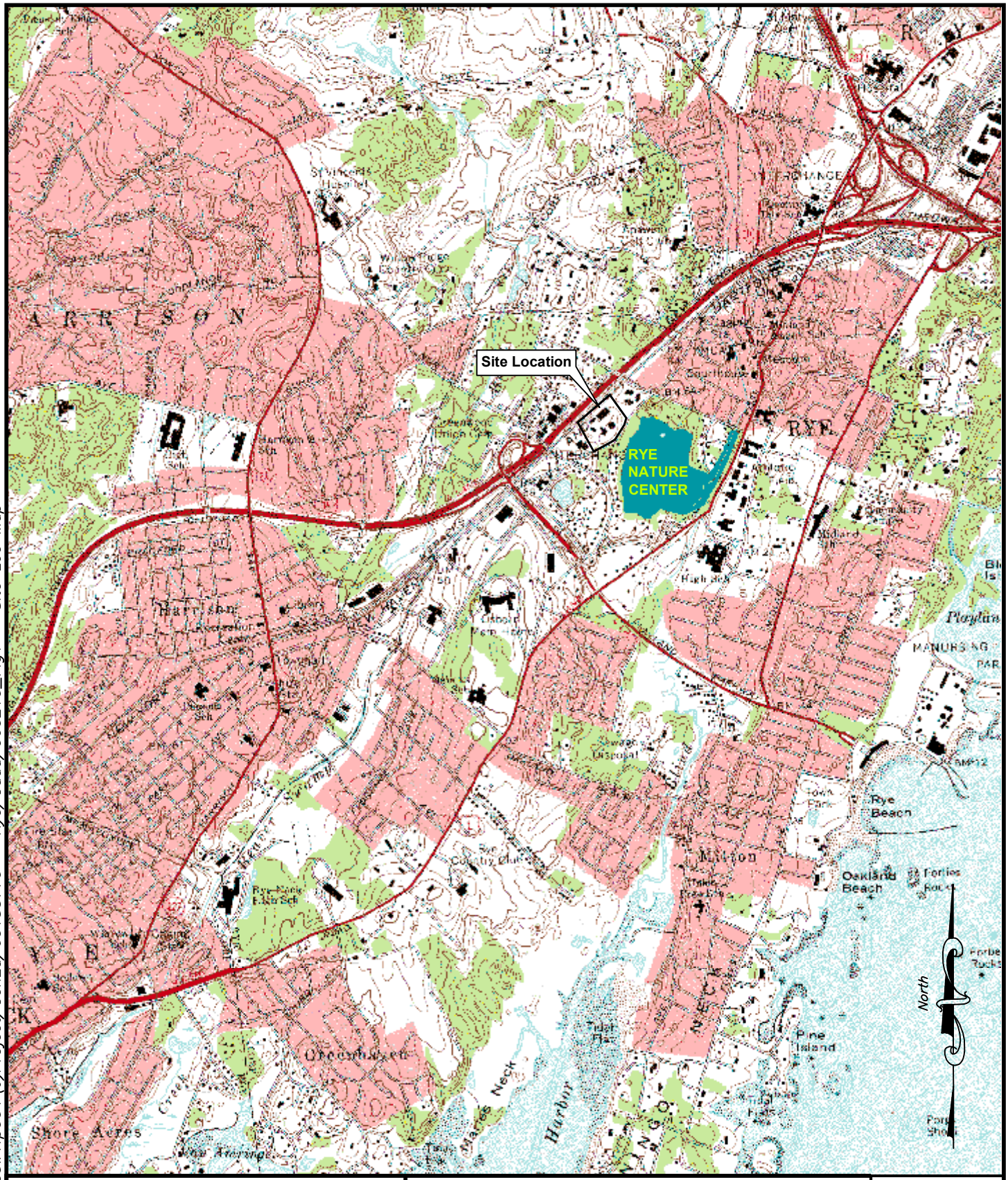
Receptor	Exposure Medium	Exposure Pathway	Pathway Not Considered Complete	Pathway Considered Potentially Complete, But Not Likely to Result in Exposure	Pathway Potentially Complete and Will Be Addressed in the Alternatives Analysis Report for the Site	Rationale for Inclusion or Exclusion
Facility Building Worker						
Facility Building Worker	**Surface Soil (0-2 inches)**	Ingestion	X	---	---	Surface soil is not impacted above typical urban background concentrations at the site.
		Dermal Contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	---	X	---	A facility building workert may be exposed to VOCs emanating from on-site residual materials; however, SVI evaluation sampling performed in the building indicated that the concentrations of possibly MGP-related COC were low or attributable to non-MGP sources, therefore, exposure is not likely.
		Inhalation of Volatiles in Indoor Air	---	X	---	
	Subsurface Soil (>2 inches)	Ingestion	X	---	---	A facility building worker is not likely to contact subsurface soils. However, if planned or emergency work involves cutting or drilling through the concrete slabs in the basements of site buildings, there is the possibility that VOCs could be released into the air. Therefore, the inhalation of VOCs in indoor air pathway is considered potentiall complete and will be addressed in the alternatives analysis report.
		Dermal Contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	---	---	X	
	Groundwater	Ingestion	X	---	---	A facility building worker is not likely to contact groundwater. However, if planned or emergency work involves cutting or drilling through the concrete slabs in the basements of site buildings, there is the possibility that VOCs could be released into the air. Therefore, the inhalation of VOCs in indoor air pathway is considered potentiall complete and will be addressed in the alternatives analysis report.
		Dermal contact	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 the Site.
		Dermal contact	X	---	---	
Maintainence Worker - Indoor/Outdoor						
Maintainence Worker - Indoor	**Surface Soil (0-2 inches)**	Ingestion	X	---	---	An indoor maintenance worker would not contact surface soil.
		Dermal Contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	---	X	---	SVI evaluation sampling performed in all site buildings indicates that the concentrations of possibly MGP-related COC were low or attributable to non-MGP sources.
		Inhalation of Volatiles in Indoor Air	---	X	---	
	Subsurface Soil (>2 inches)	Ingestion	X	---	---	An indoor maintenance worker would not contact subsurface surface soil. However, if planned or emergency work involves cutting or drilling through the concrete slabs in the basements of site buildings, there is the possibility that VOCs could be released into the air. Therefore, the inhalation of VOCs in indoor air pathway is considered potentiall complete and will be addressed in the alternatives analysis report.
		Dermal Contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	---	---	X	
	Groundwater	Ingestion	X	---	---	Sumps with groundwater are not present in the buildings. However, if planned or emergency work involves cutting or drilling through the concrete slabs in the basements of site buildings, there is the possibility that VOCs could be released into the air. Therefore, the inhalation of VOCs in indoor air pathway is considered potentiall complete and will be addressed in the alternatives analysis report.
		Dermal contact	X	---	---	
		Inhalation of Volatiles in Ambient Air	X	---	---	
		Inhalation of Volatiles in Indoor Air	X	---	X	
	Surface Water	Ingestion	X	---	---	Surface water is not present at the Site.
		Dermal contact	X	---	---	

Table 6-1
Exposure Pathway Analysis - Potential On-site Receptors
Remedial Investigation
Rye Gas Works Former MGP Site, Rye, New York

AECOM

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 Alternatives Analysis Report for the Site	Rationale for Inclusion or Exclusion
Outdoor Subsurface Maintenance or Utility Worker						
Outdoor Subsurface Maintenance or Utility Worker	**Surface Soil (0-2 inches)**	Ingestion	---	X	---	Outdoor subsurface maintenance or 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 concentrations of COC in surface soil is low, 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	---	
	Subsurface Soil (>2 inches)	Ingestion	---	X	---	Outdoor subsurface maintenance or utility workers may be exposed to NAPL or other 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 alternatives analysis 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 maintenance or utility workers may be exposed to residuals in groundwater and VOCs in ambient air while completing excavation work to repair or replace pipes or other equipment that is present at the Site. Therefore, the pathway will be addressed in the alternatives analysis 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 at the site other than in the drainage swale along and within the fenced in portion of the the northeast property boundary, therefore, subsurface utility repair work is unlikely to involve contact with this media.
		Dermal contact	---	X	---	
Visitor or Trespasser						
Site Visitor or Trespasser	**Surface Soil (0-2 inches)**	Ingestion	---	X	---	Visitors and trespassers may be exposed to residuals in surface soil and VOCs in ambient air while visiting the site; however, the concentrations of COC in surface soil is low, the site is covered with buildings, grass or pavement, the visitors or trespassers 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	---	
	Subsurface Soil (>2 inches)	Ingestion	X	---	---	Visitors or trespassers would not be exposed to subsurface soil while visiting the Site.
		Dermal contact	X	---	---	
		Inhalation of Particulates	X	---	---	
		Inhalation of Volatiles in Ambient Air	---	---	---	
	Groundwater	Ingestion	X	---	---	Visitors or trespassers would not be exposed to groundwater while visiting the Site.
		Dermal contact	X	---	---	
		Inhalation of Volatiles in Ambient Air	---	---	---	
	Surface Water	Ingestion	X	---	---	Visitors or trespassers may potentially be exposed to surface water during rain events while visiting the site; however, surface water does not pool on the site, other than in the drainage swale within the fenced in portin of the northeast property boundary, and any contact would be likely to be for only a brief period of time, therefore, exposure is not likely.
		Dermal contact	X	---	---	
Adjacent Metro North Rail Line and Interstate I95 Area						
Adjacent Metro North Rail Line and Interstate I95 Area	**Surface Soil (0-2 inches)**	Ingestion	X	---	---	Surface soil covered by gravel and rail lines or pavement 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	---	Outdoor subsurface maintenance or utility workers may be exposed to NAPL or other 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 alternatives analysis 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 maintenance or utility workers may be exposed to residuals in groundwater and VOCs in ambient air while completing excavation work to repair or replace pipes or other equipment that is present at the Site. Therefore, the pathway will be addressed in the alternatives analysis of potential remedial actions for the Site.
		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	---	---	

Figures



SOURCE:
USGS 7.5' TOPOGRAPHIC QUADRANGLE FOR MAMARONECK, NEW YORK – CONNECTICUT, 7.5 MINUTE SERIES (TOPOGRAPHY), 1967, PHOTOINSPECTED 1975.

2000 1000 0 2000

Scale in Feet

SITE LOCATION MAP

REMEDIAL INVESTIGATION
RYE GAS WORKS SITE
178 THEODORE FREMD AVE
RYE, NEW YORK

SCALE:	DATE:	PROJECT NUMBER:
1:24,000	06–2013	60281931.810

AECOM

FIGURE NUMBER:

2-1

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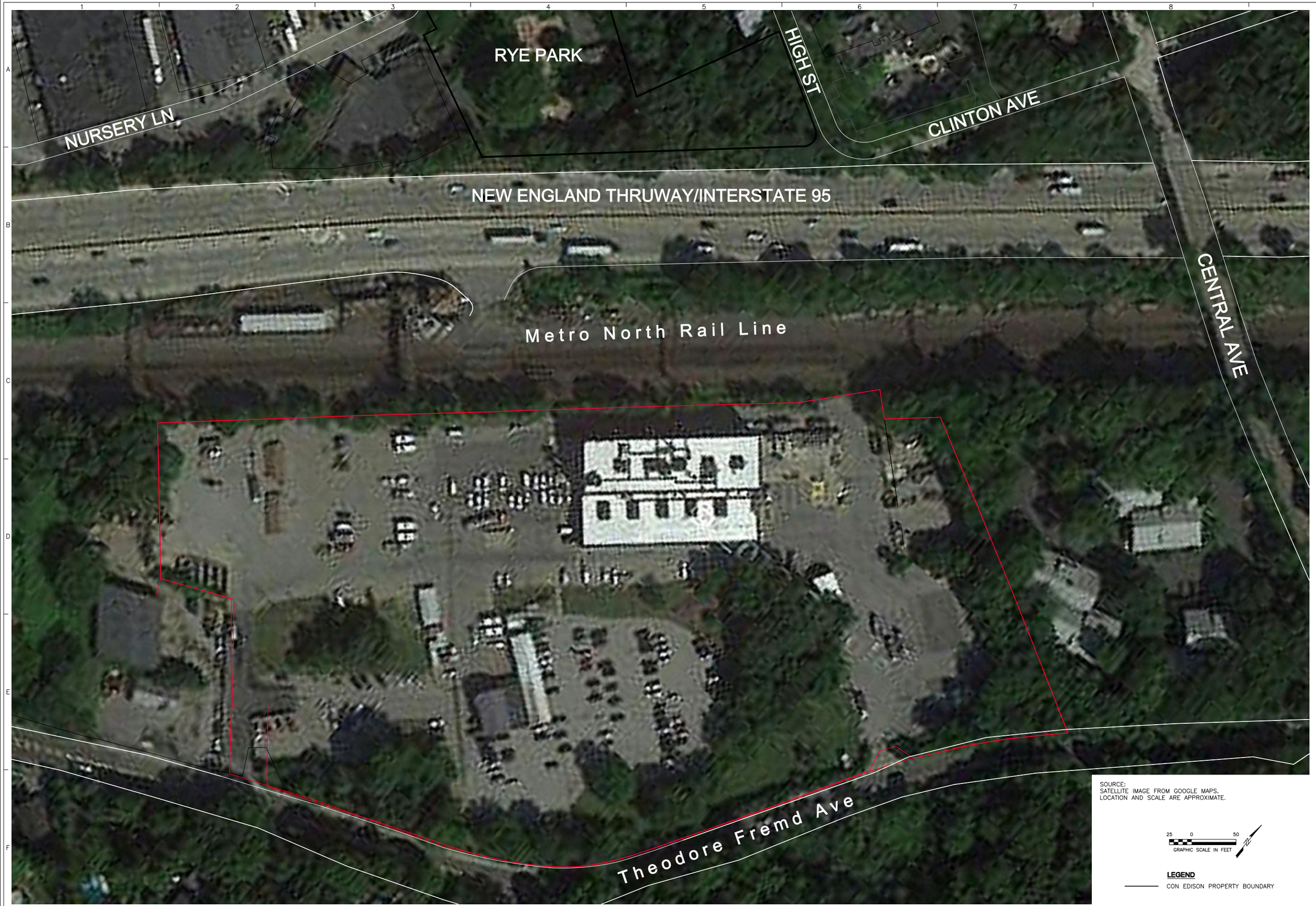
Piscataway on 'uspsw1fp004'(J)Project/ConEd/60155779 – Rye/Cadd/060210_Fig1 – Site Loc Map



NO.	DRWN	DATE	REVISION	CHKD	DATE	APPV'D	DATE
7							
6							
5							
4							
3							
2							
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CONSOLIDATED EDISON
RYE GAS WORKS SITE
178 THEODORE FREMD AVE. RYE, NY

PROJ. NO.: 60281931.810
DATE: 06/2013

CURRENT SITE CONFIGURATION

REMEDIAL INVESTIGATION

DRAWING NUMBER:
2-2

SHEET NUMBER:

REVISION

File: J:\Rem_Eng\Project Files\Con Edison\Rye\2013\60281931\0-710_C-02.dwg Layout: Fig 2-2 - Current Site User: VERDUNJD Plotted: Jun 27, 2013 - 10:17am Xref's:

SOURCE:
ONLINE ZONING MAPS FROM TOWN OF RYE, NY www.ryeny.gov

NO.	DRWN	DATE	REVISION	CHKD	DATE	APPV'D	DATE
7							
6							
5							
4							
3							
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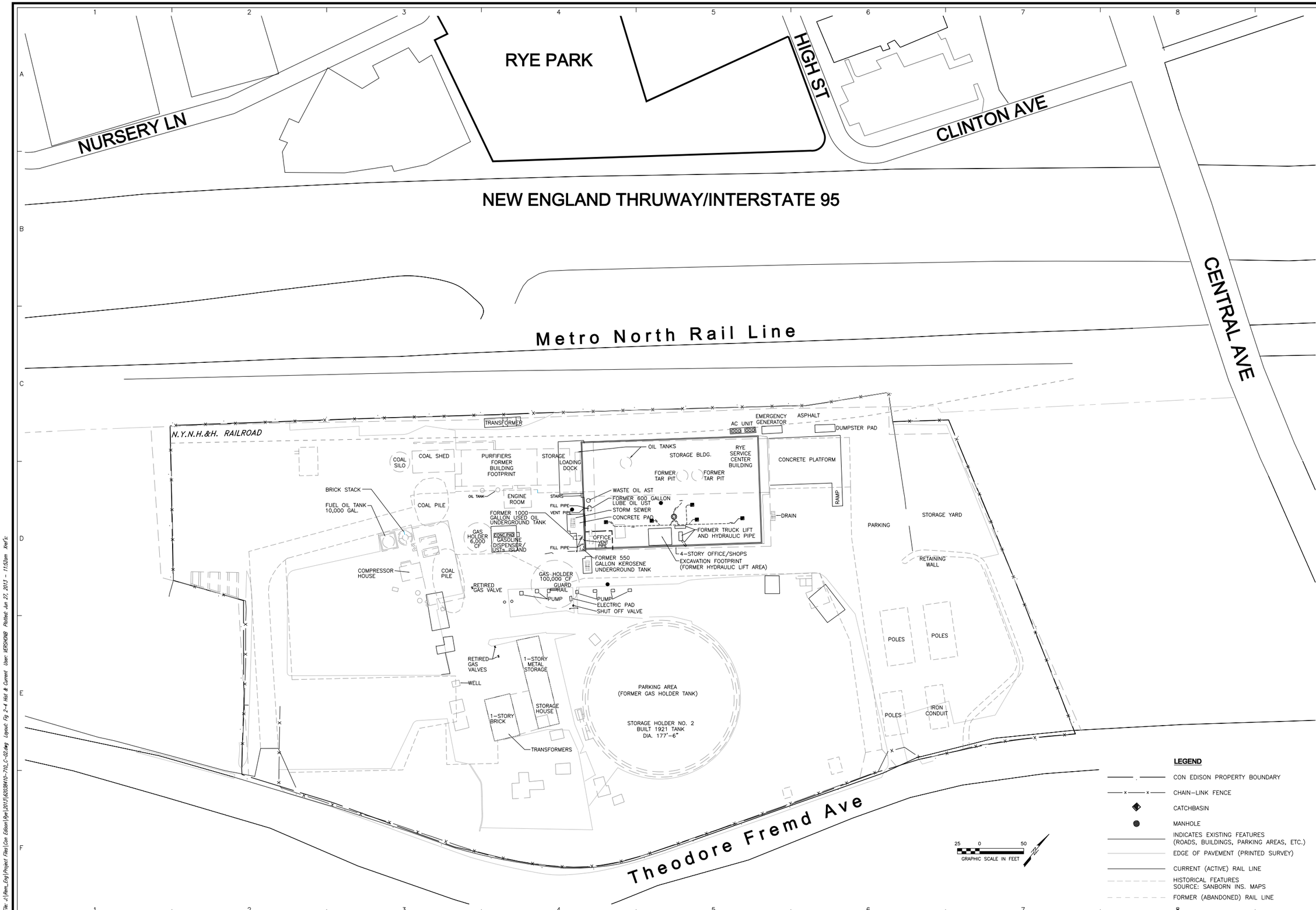
DATE: 06/2013

SITE ZONING

REMEDIAL INVESTIGATION

DRAWING NUMBER:
2-3
SHEET NUMBER:
REVISION



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HISTORIC AND CURRENT SITE FEATURES

REMEDIAL INVESTIGATION

DRAWING NUMBER:
2-4

SHEET NUMBER:

REVISION 0

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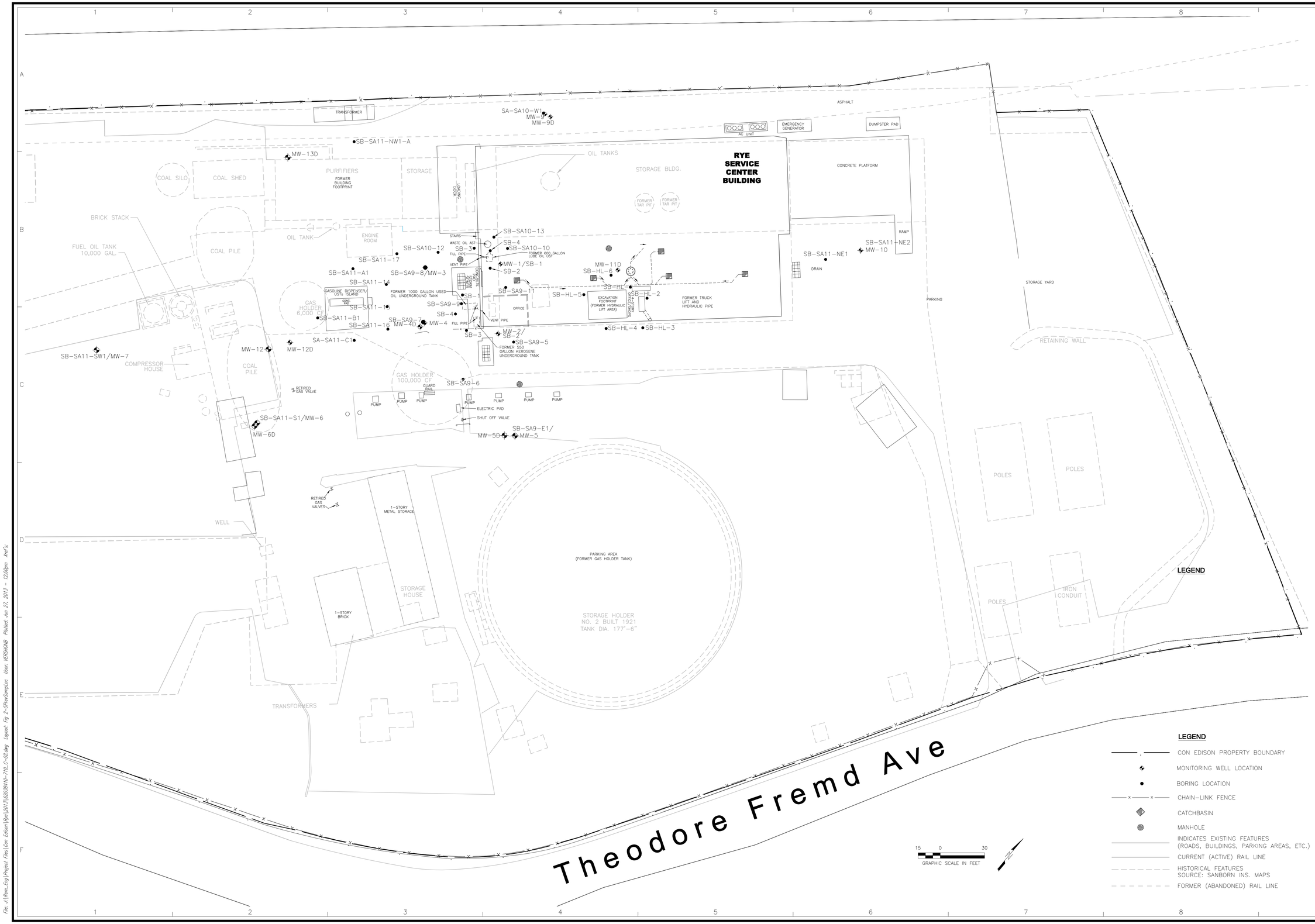

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DATE: 06/2013

PREVIOUS INVESTIGATION LOCATIONS

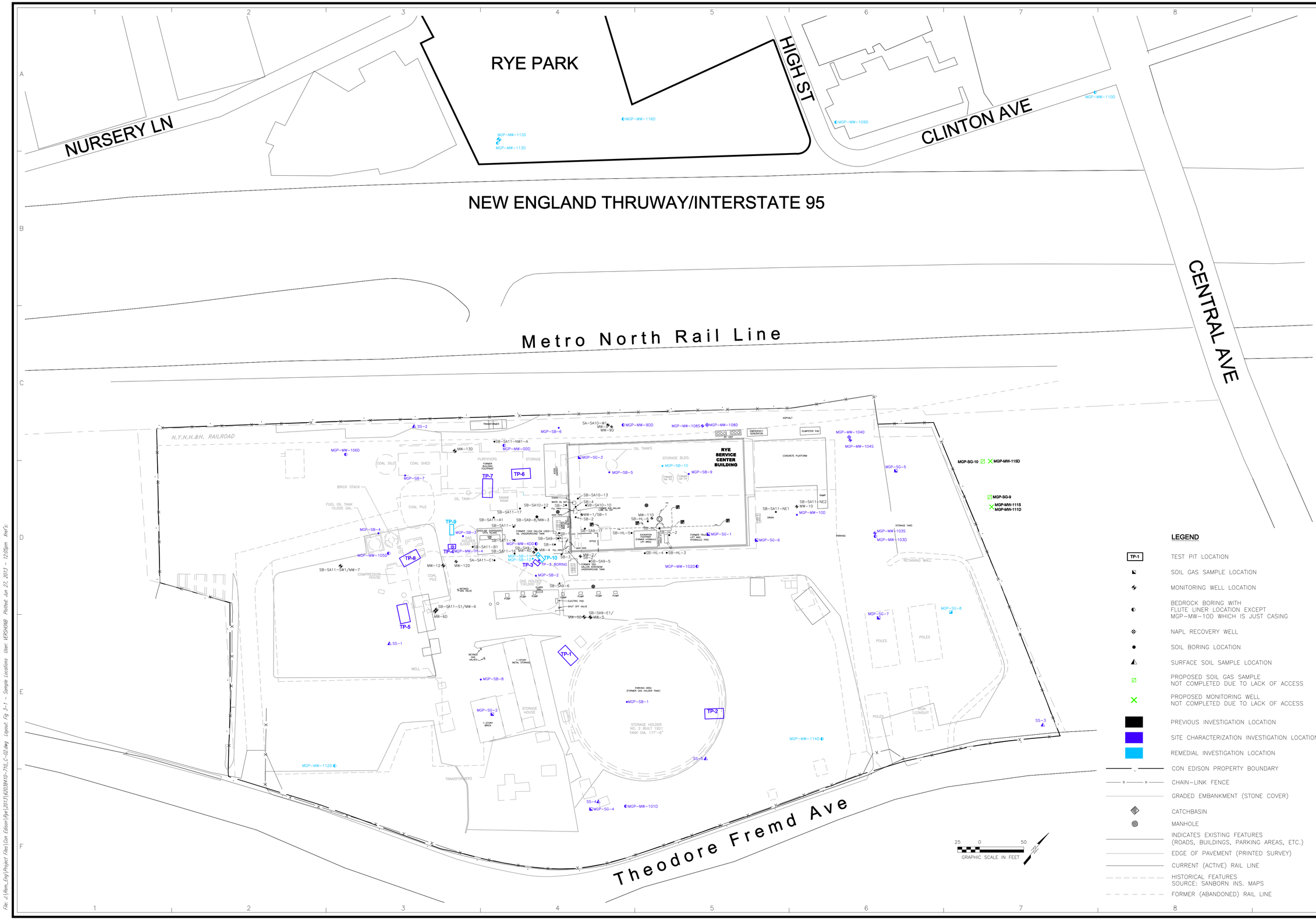
REMEDIAL INVESTIGATION

DRAWING NUMBER:
2-5

SHEET NUMBER:

REVISION 0

File: J:\Rem_Eng\Project Files\Con Edison\Rye\2011\60138410-710_C-02.dwg Layout: Fig 2-5PrevSampLoc User: WEISHUNB Plotted: Jun 27, 2013 - 12:00pm Ref's:



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SITE CHARACTERIZATION AND REMEDIAL INVESTIGATION SAMPLE LOCATIONS

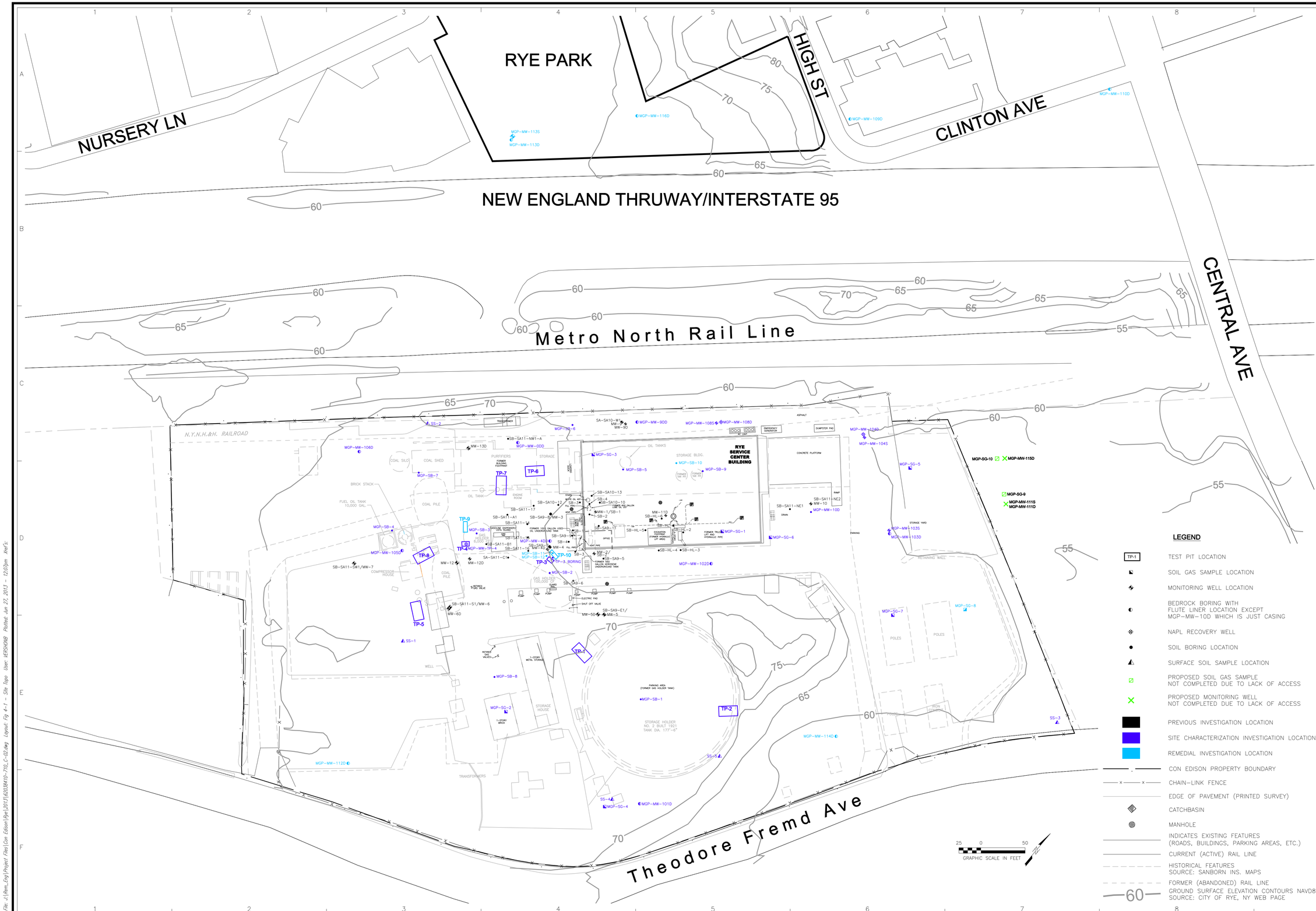
REMEDIAL INVESTIGATION

DRAWING NUMBER:
3-1

SHEET NUMBER:

REVISION 0

File: J:\Rem_Eng\Project Files\Con Edison\Rye\2011\60281410-710_C-02.dwg Layout: Fig 3-1 - Sample Locations User: VERSHUND Plotted: Jun 27, 2013 - 12:05pm Xref's:



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DATE: 06/2013

SITE TOPOGRAPHY

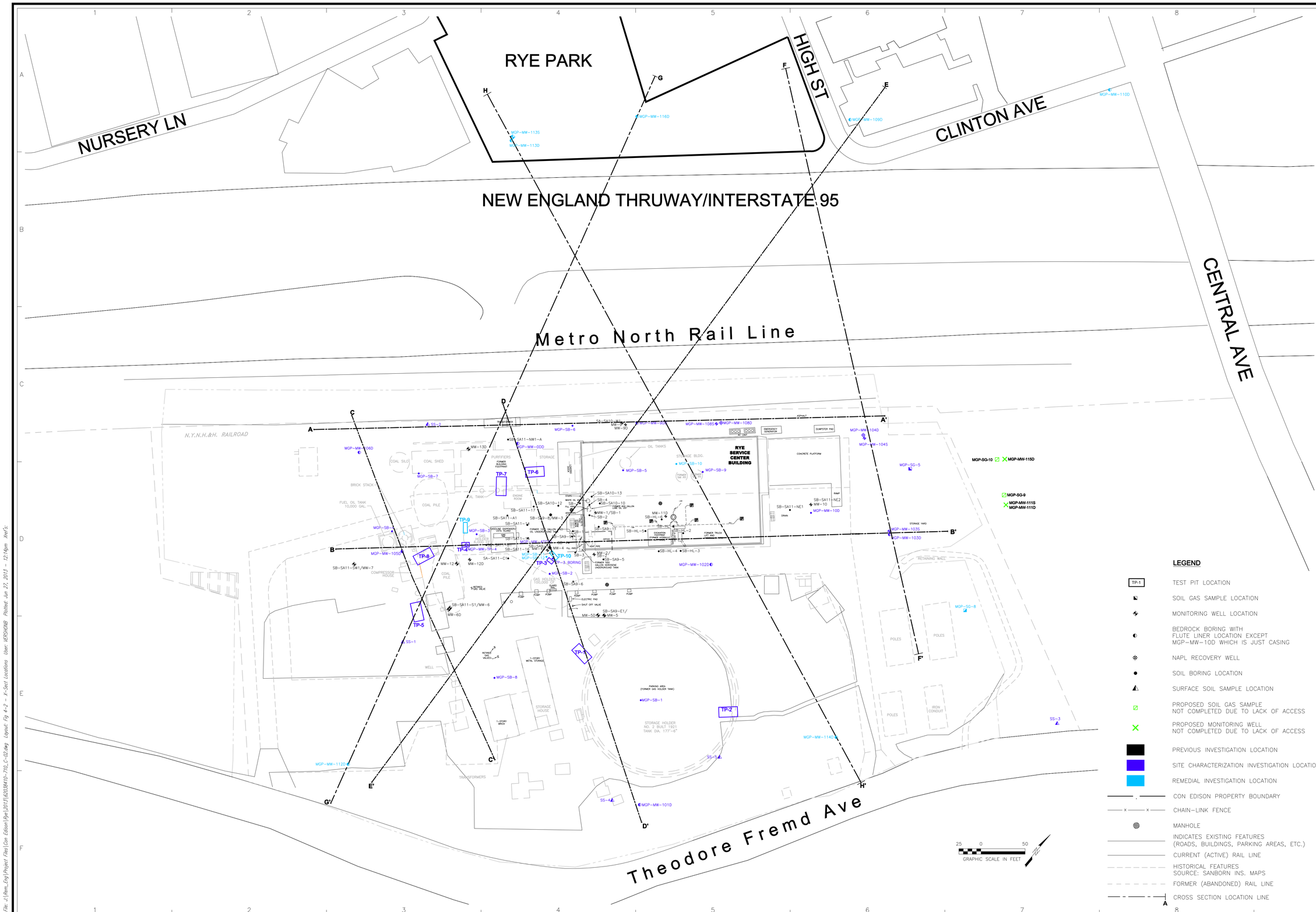
REMEDIAL INVESTIGATION

DRAWING NUMBER: 4-1

SHEET NUMBER:

REVISION 0

File: J:\Rem_Eng\Project Files\Con Edison\Rye\2013\60281410-710_C-02.dwg Layout: Fig 4-1 - Site Topo User: MERCADNB Plotted: Jun 27, 2013 - 12:07pm Xref's:



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DATE: 06/2013

CROSS SECTION LOCATION MAP

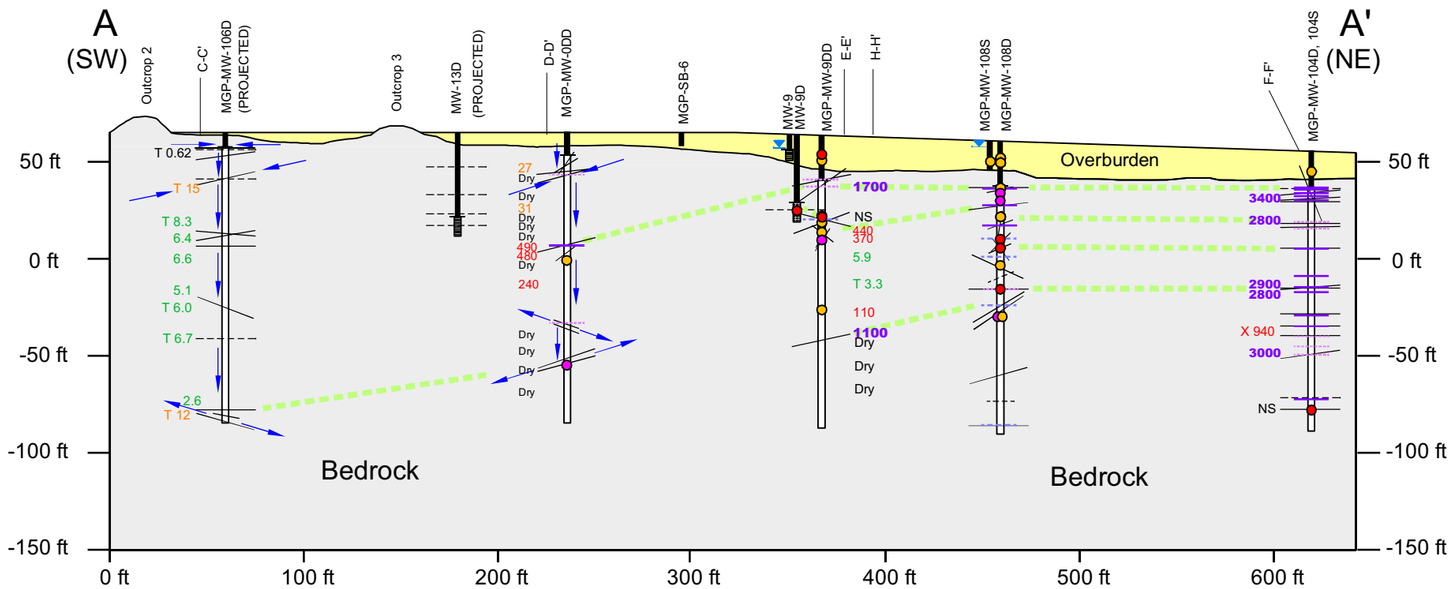
REMEDIAL INVESTIGATION

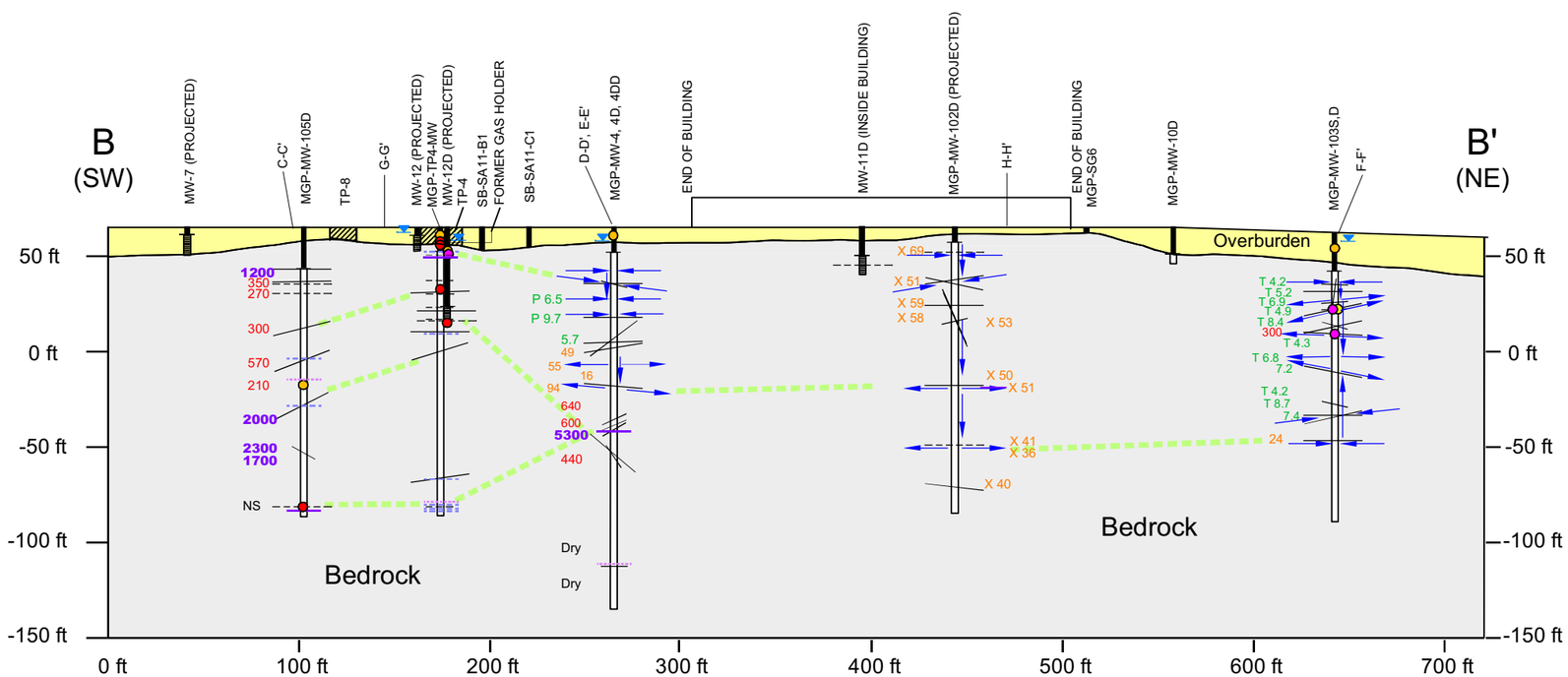
DRAWING NUMBER:
4-2

SHEET NUMBER:

REVISION 0

File: J:\Rem_Eng\Project Files\Con Edison\Rye\2013\60281931-710_C-02.dwg Layout: Fig 4-2 - X-Sect Locations User: VERSAUNB Plotted: Jun 27, 2013 - 12:14pm Xref's:





No Vertical Exaggeration

Legend:

- Piezometric surface in overburden
- Casing
- Well screen
- Open hole in bedrock
- Fracture (dashed where uncertain; see notes and Bedrock Fracture Mapping Memo)
- Flow direction from heat-pulse flowmeter
- Potential fracture connection (see notes)
- Top of bedrock

Visible Impacts from Logs:

- Blebs, globs, sheen
- Staining, odor
- Coated material, lenses
- Petroleum impacts, staining, odors
- Tar saturated

Note: No impacts observed where color absent

Visible Impacts from FLUTe liner (see note below for explanation):

- Heavy
- Medium
- Light

Packer sample results; assume maximum concentration is for naphthalene, unless otherwise noted: T = toluene; P = PCE; X = total xylenes

0.5	Maximum concentration <1ug/l
6.5	Maximum concentration >1ug/l, <10ug/l
49	Maximum concentration >10ug/l, <100ug/l
370	Maximum concentration >100ug/l, <1000ug/l
3000	Maximum concentration >1000ug/l
NS	No sample analyzed due to OLM in the sample
Dry	No sample collected due to insufficient yield

Notes:
1. Fracture length based on outcrop fracture observations; NE-trending fractures assigned length of 31 ft; NW-trending fractures assigned length of 14ft; low-angle or unknown fractures assigned a length based on a variety of factors. See bedrock fracture mapping memo for details.
2. Potential fracture connections based on fracture orientations, visible impacts, packer results, and flowmeter data.
3. Visible impacts from FLUTe liner defined as follows:
Heavy: tar splotches > 4 inches in diameter and/or horizontal tar bands > 2 inches thick and generally extend across the FLUTe liner; may or may not have vertical fingers of tar extending down hole from horizontal bands;
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Light: individual OLM/TLM blebs < 0.5 inches in diameter and/or discontinuous horizontal line of individual OLM/TLM blebs < 0.5 inches in diameter.

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DATE: 04—2013

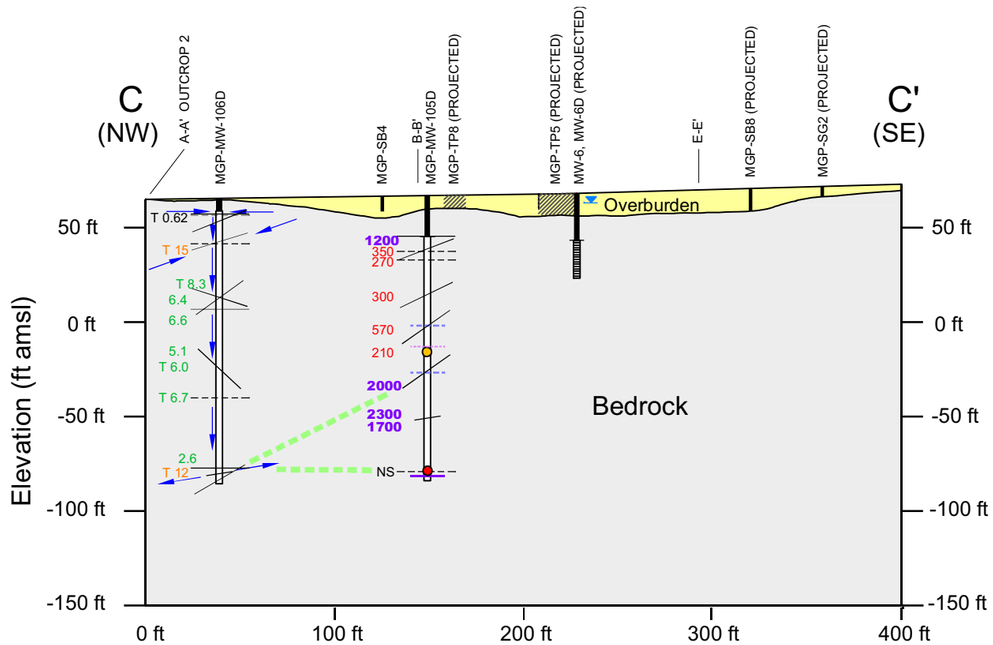
PROJ. NO.: 60281931.810

CROSS SECTIONS A-A' & B-B'

DRAWING NUMBER:
4-3

SHEET NUMBER:

REVISION 0



Legend:

- Piezometric surface in overburden (spring 2012)
- BR Piezometric surface in bedrock (spring 2012)
- Casing
- Well screen
- Open hole in bedrock
- Fracture (dashed where uncertain; see notes and Bedrock Fracture Mapping Memo)
- Flow direction from heat-pulse flowmeter
- Potential fracture connection (see notes)
- Top of bedrock

Visible Impacts from Logs:

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- Staining, odor
- Coated material, lenses
- Petroleum impacts, staining, odors
- Tar saturated

Note: no impacts observed where color absent

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- Medium
- Light

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NS	No sample analyzed due to OLM in the sample
ND	Not detected
Dry	No sample collected due to insufficient yield

Notes:
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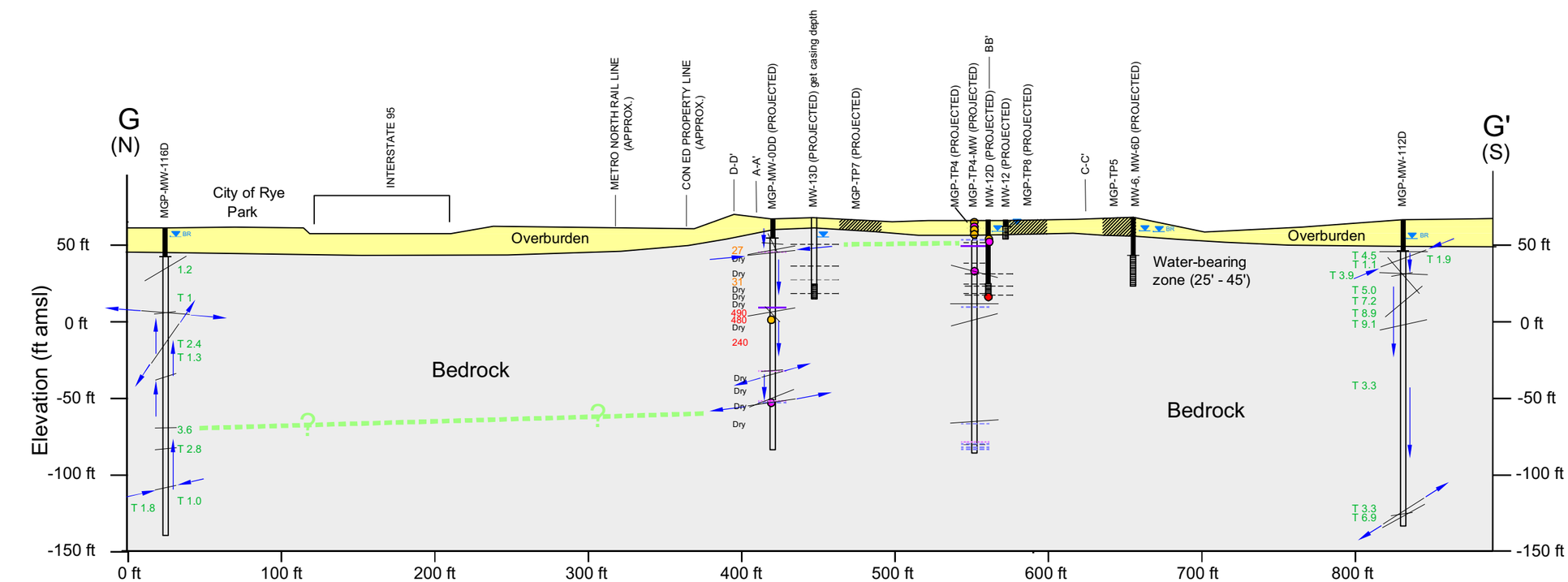
Light: individual OLM/TLM blebs < 0.5 inches in diameter and/or discontinuous horizontal line of individual OLM/TLM blebs < 0.5 inches in diameter.



No Vertical Exaggeration

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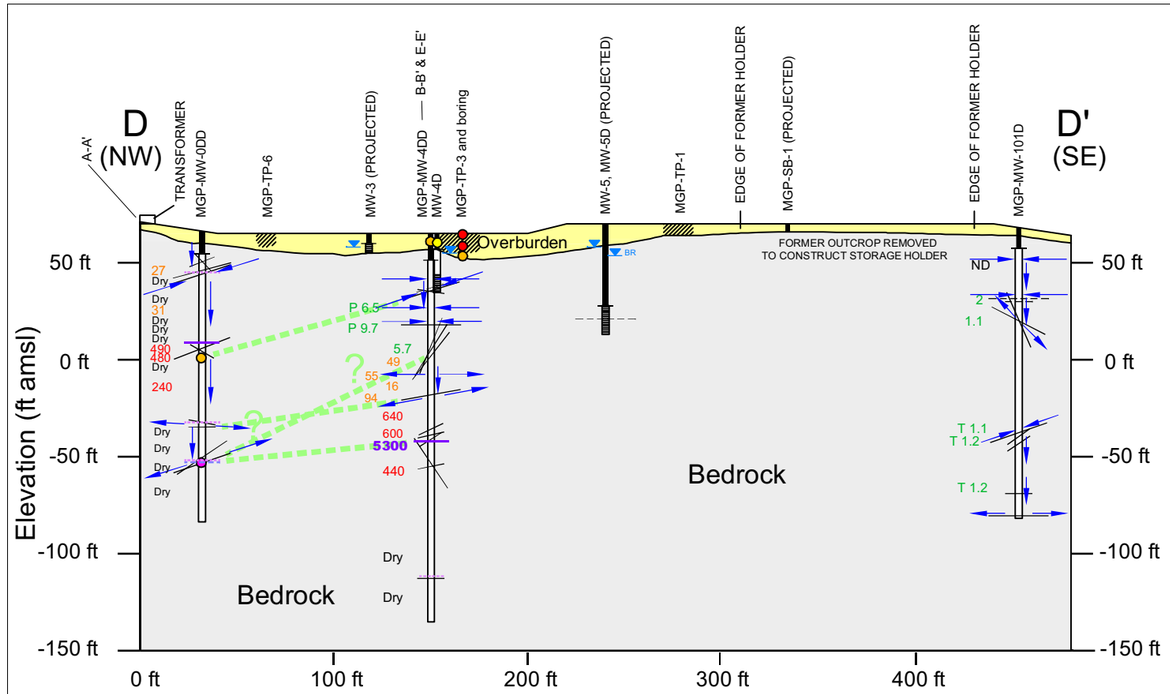
CROSS SECTIONS C-C' & G-G'

DRAWING NUMBER:
4-4
SHEET NUMBER:
REVISION 0



Legend:

- Piezometric surface in overburden (spring 2012)
- BR Piezometric surface in bedrock (spring 2012)
- Casing
- Well screen
- Open hole in bedrock
- Fracture (dashed where uncertain; see notes and Bedrock Fracture Mapping Memo)
- Flow direction from heat-pulse flowmeter
- Potential fracture connection (see notes)
- Top of bedrock

Visible Impacts from Logs:

- Blebs, globs, sheen
- Staining, odor
- Coated material, lenses
- Petroleum impacts, staining, odors
- Tar saturated

Note: no impacts observed where color absent

Visible Impacts from FLUTe liner (see notes for explanation):

- Heavy
- Medium
- Light

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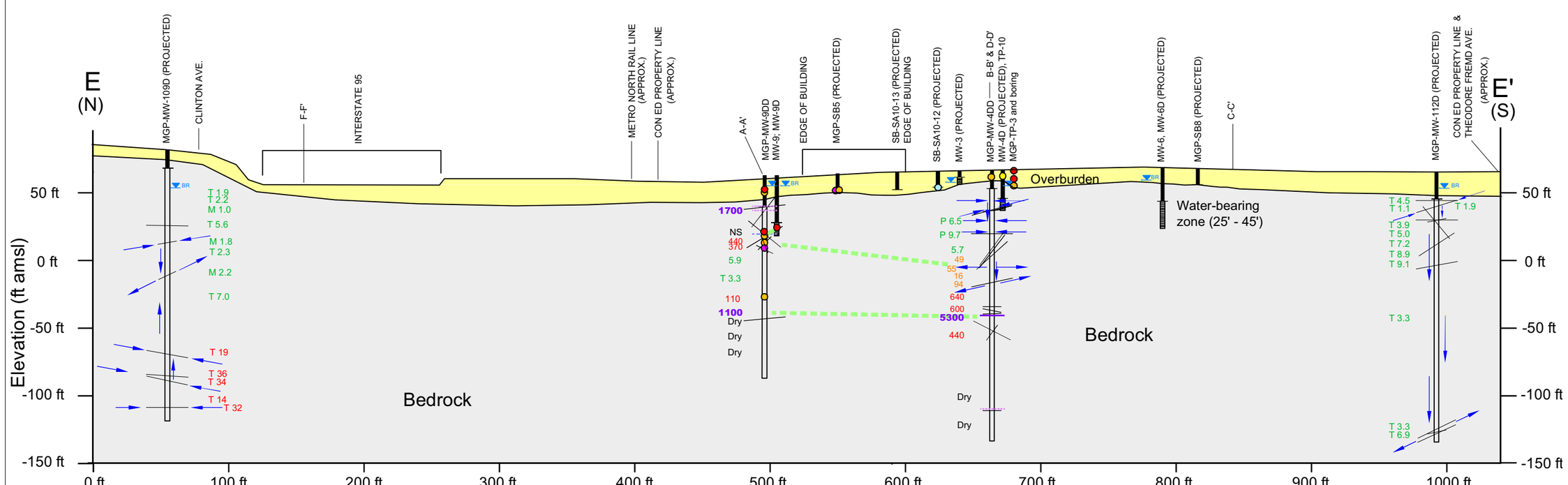
Light: individual OLM/TLM blebs < 0.5 inches in diameter and/or discontinuous horizontal line of individual OLM/TLM blebs < 0.5 inches in diameter.



No Vertical Exaggeration

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CROSS SECTIONS D-D' & E-E'

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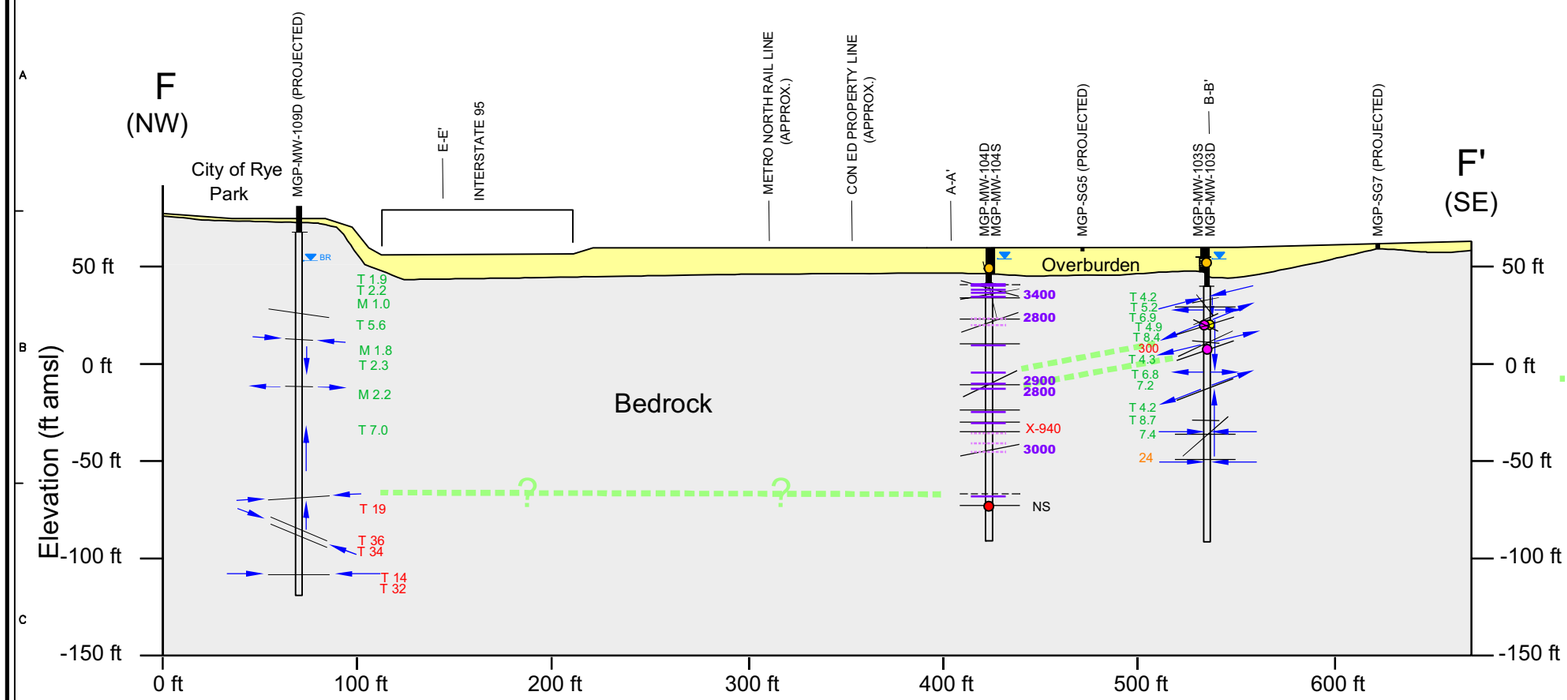
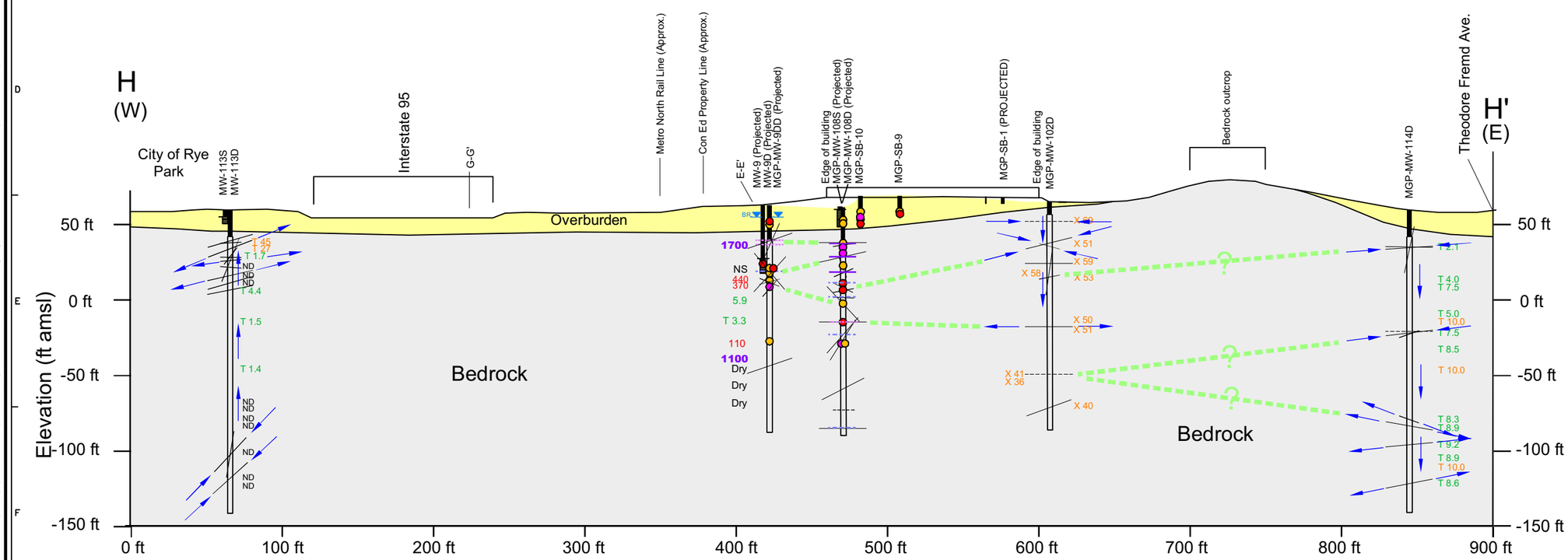
4-5

SHEET NUMBER:

REVISION 0





Legend:

- Piezometric surface in overburden (spring 2012)
- BR Piezometric surface in bedrock (spring 2012)
- Casing
- Well screen
- Open hole in bedrock
- Fracture (dashed where uncertain; see notes and Bedrock Fracture Mapping Memo)
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- Potential fracture connection (see notes)
- Top of bedrock

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No Vertical Exaggeration

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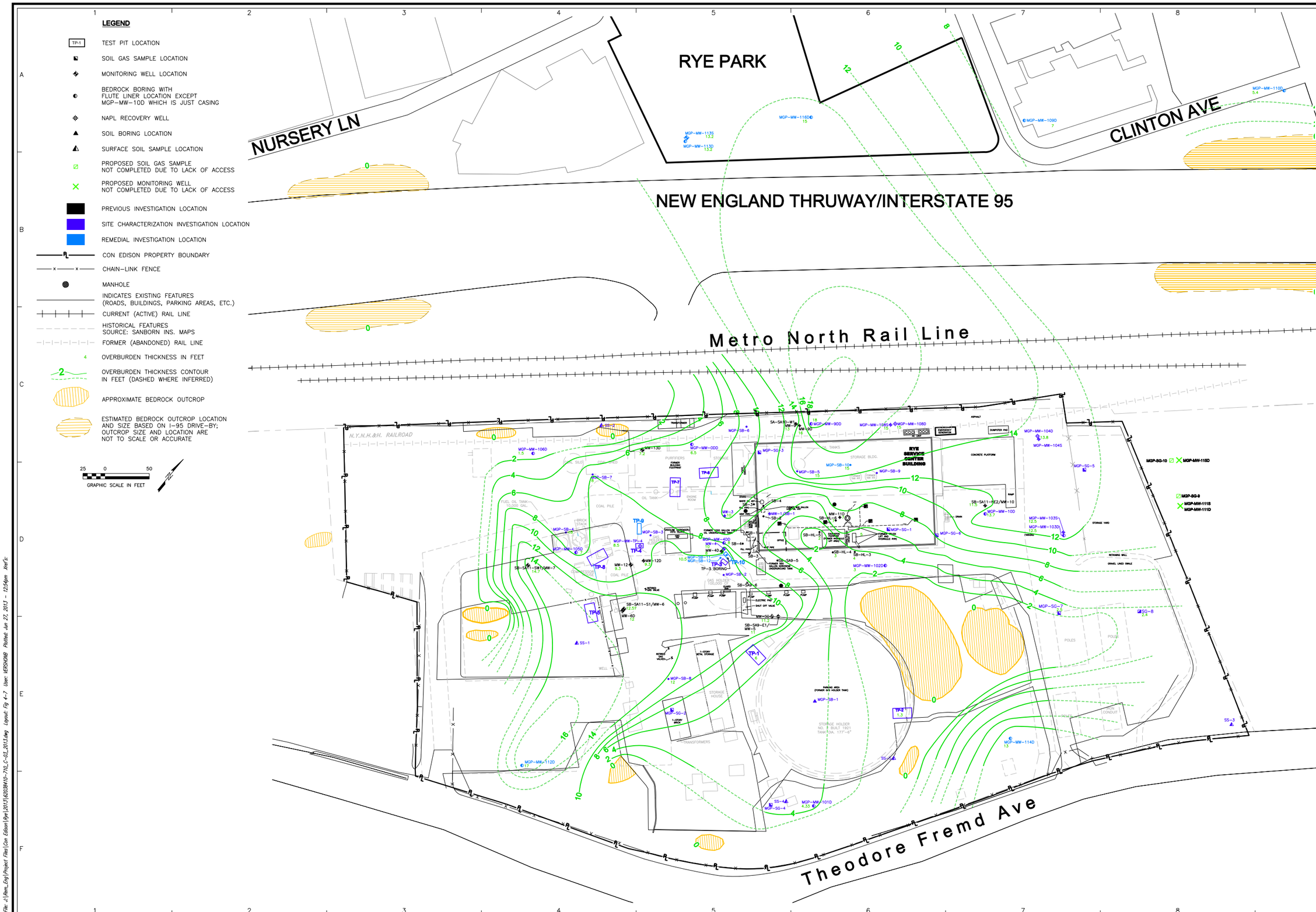
DATE: 04-2013

CROSS SECTIONS F-F' & H-H'

DRAWING NUMBER:
4-6
SHEET NUMBER:
REVISION 0



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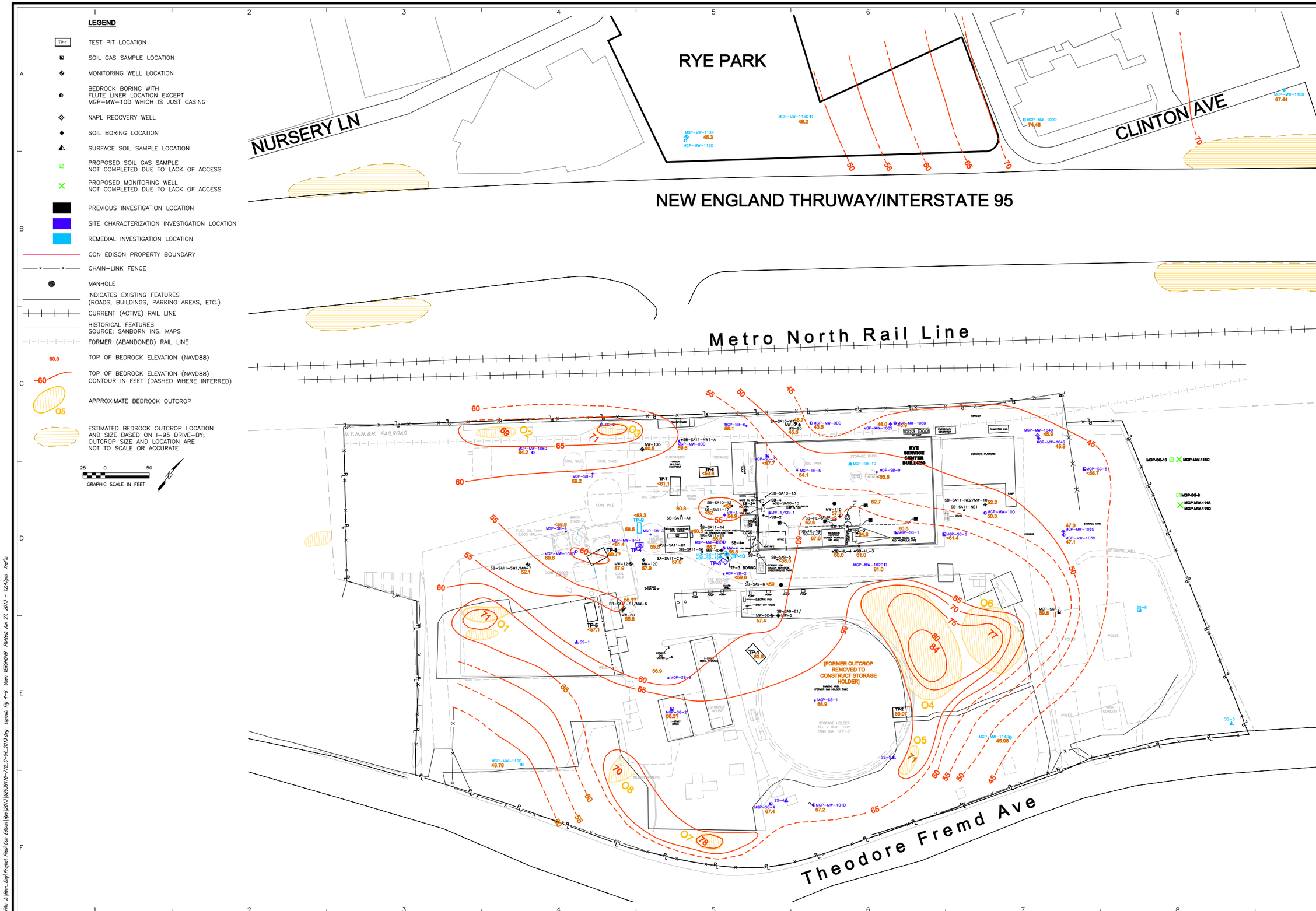
PROJ. NO.: 60281931.810
DATE: 06/2013

OVERBURDEN THICKNESS ISOPACH MAP

REMEDIAL INVESTIGATION

DRAWING NUMBER: 4-7
SHEET NUMBER:
REVISION 0

File: J:\Rem_Eng\Project Files\Con Edison\Rye\2013\60281810-710_C-03_2013.dwg Layout: Fig 4-7 User: MERSKOMB Plotted: Jun 27, 2013 - 12:54pm Xref's:



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PROJ. NO.: 60281931.810
DATE: 06/2013

TOP OF BEDROCK ELEVATION CONTOUR MAP

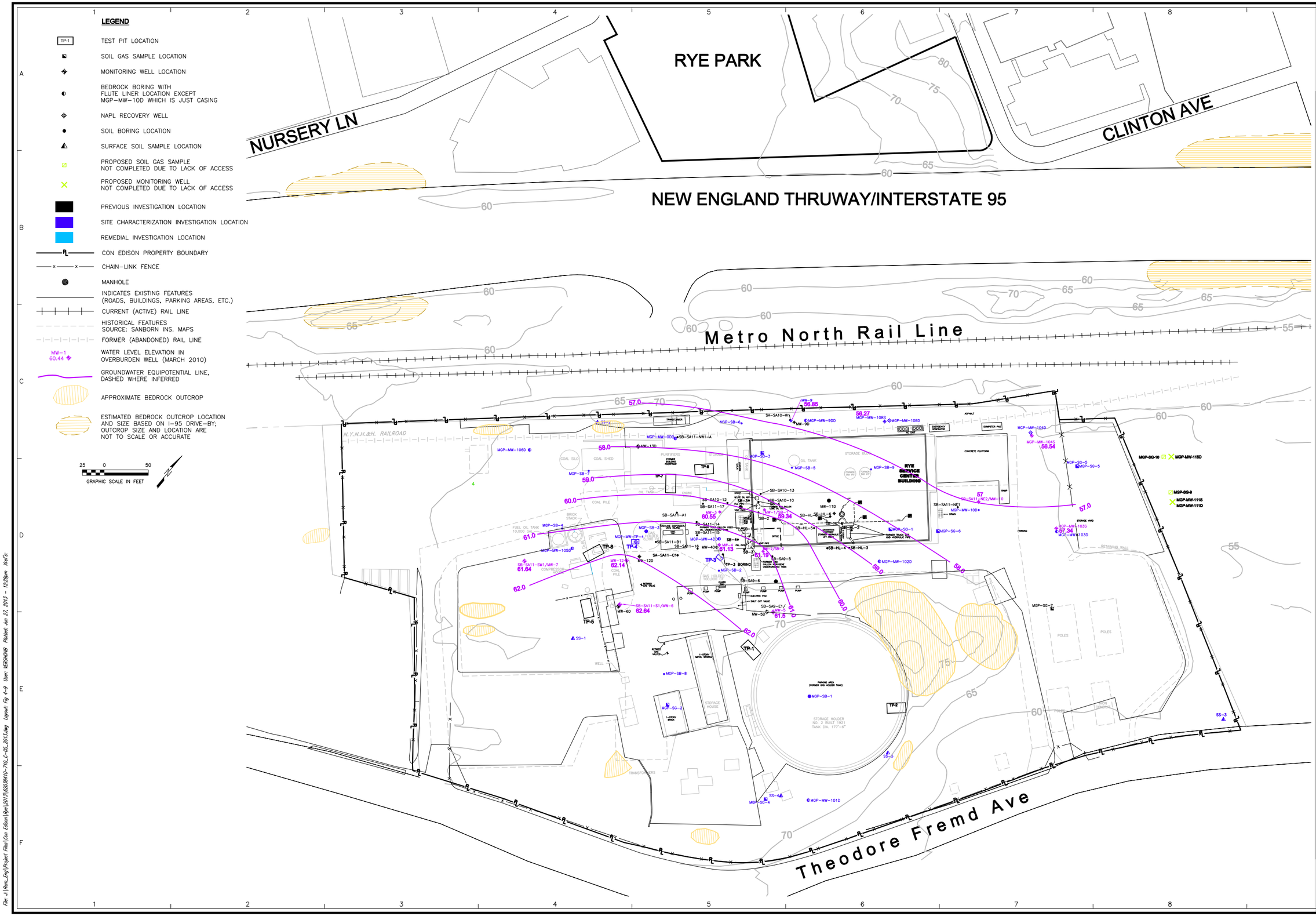
REMEDIAL INVESTIGATION

DRAWING NUMBER: 4-8

SHEET NUMBER:

REVISION 0

File: J:\Rem_Eng\Project Files\Con Edison\Rye\2013\60281010-710_C-04_2013.dwg Layout: Fig 4-8 User: VERONAD Plotted: Jun 27, 2013 - 12:47pm Xref's:



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PROJ. NO.: 60281931.810
DATE: 06/2013

WATER LEVEL ELEVATIONS IN OVERBURDEN MARCH 2010

REMEDIAL INVESTIGATION

DRAWING NUMBER: 4-9

SHEET NUMBER:

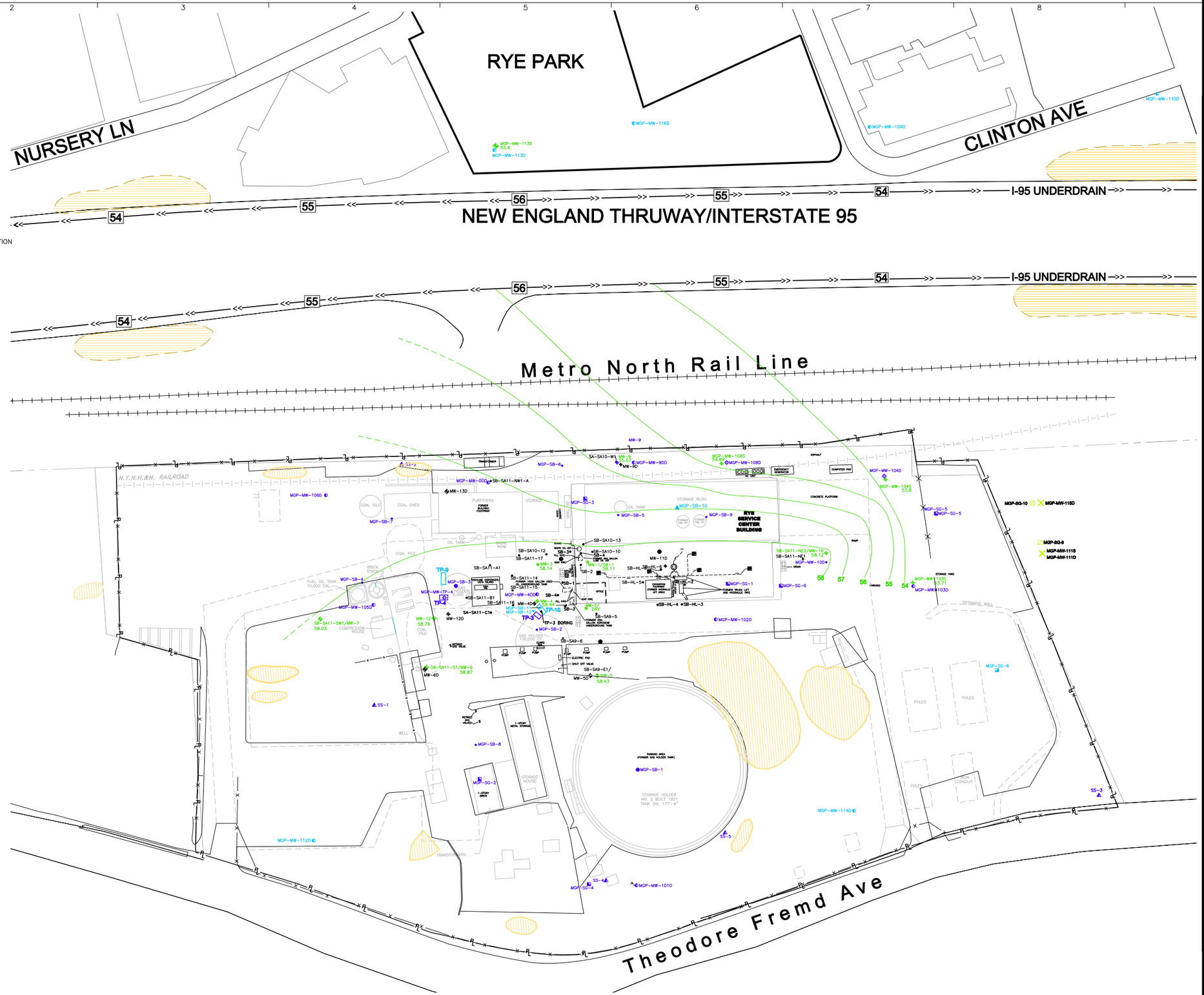
REVISION 0

File: J:\Rem_Eng\Project Files\Con Edison\Rye\2013\60281810-710_C-05_2013.dwg Layout: Fig 4-9 User: MERCKNB Plotted: Jun 27, 2013 - 12:29pm Xref's:

LEGEND

- TP-1 — TEST PIT LOCATION
- SOIL GAS SAMPLE LOCATION
- MONITORING WELL LOCATION
- BEDROCK BORING WITH FLUTE LINER LOCATION EXCEPT MGP–MW–10D WHICH IS JUST CASING
- NAPL RECOVERY WELL
- SOIL BORING LOCATION
- SURFACE SOIL SAMPLE LOCATION
- PROPOSED SOIL GAS SAMPLE NOT COMPLETED DUE TO LACK OF ACCESS
- PROPOSED MONITORING WELL NOT COMPLETED DUE TO LACK OF ACCESS
- PREVIOUS INVESTIGATION LOCATION
- SITE CHARACTERIZATION INVESTIGATION LOCATION
- REMEDIAL INVESTIGATION LOCATION
- CON EDISON PROPERTY BOUNDARY
- CHAIN–LINK FENCE
- MANHOLE
- INDICATES EXISTING FEATURES (ROADS, BUILDINGS, PARKING AREAS, ETC.)
- CURRENT (ACTIVE) RAIL LINE
- HISTORICAL FEATURES SOURCE: SANBORN INS. MAPS
- FORMER (ABANDONED) RAIL LINE
- MW–1 60.44 — WATER LEVEL ELEVATION IN OVERBURDEN WELL (APRIL 2012)
- GROUNDWATER EQUIPOTENTIAL LINE, DASHED WHERE INFERRED
- APPROXIMATE BEDROCK OUTCROP
- ESTIMATED BEDROCK OUTCROP LOCATION AND SIZE BASED ON I–95 DRIVE–BY; OUTCROP SIZE AND LOCATION ARE NOT TO SCALE OR ACCURATE
- 56 — APPROXIMATE LOCATION AND ELEVATION OF I–95 UNDERDRAIN SYSTEM

25 0 50
GRAPHIC SCALE IN FEET



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DATE: 06/2013

WATER LEVEL ELEVATIONS IN OVERBURDEN APRIL 2012

REMEDIAL INVESTIGATION

DRAWING NUMBER: 4-10
SHEET NUMBER:
REVISION 0

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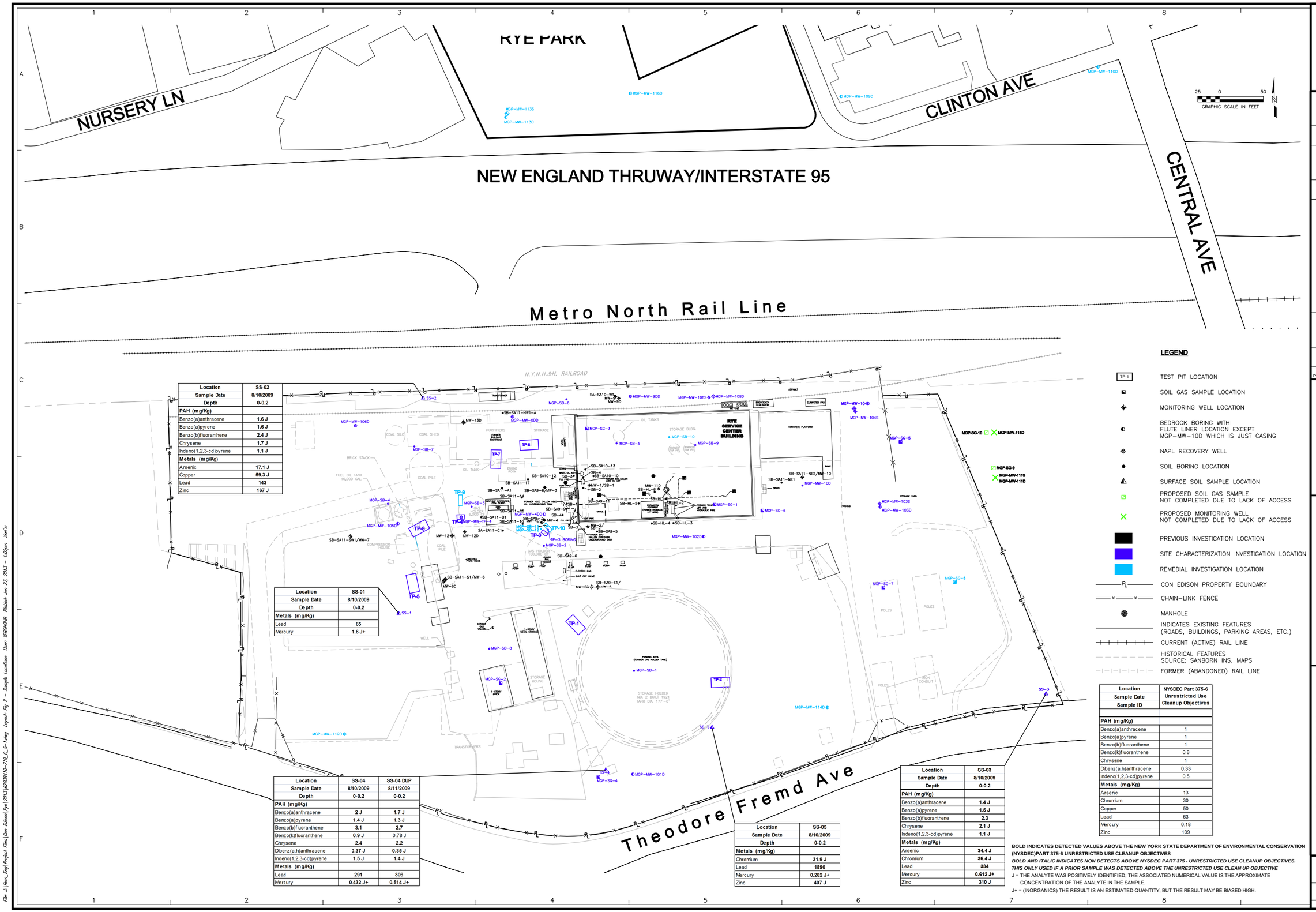

Location Sample Date Depth	SS-02 8/10/2009 0-0.2
PAH (mg/Kg)	
Benzo(a)anthracene	1.6 J
Benzo(a)pyrene	1.6 J
Benzo(b)fluoranthene	2.4 J
Chrysene	1.7 J
Indeno(1,2,3-cd)pyrene	1.1 J
Metals (mg/Kg)	
Arsenic	17.1 J
Copper	59.3 J
Lead	143
Zinc	167 J

Location Sample Date Depth	SS-01 8/10/2009 0-0.2
Metals (mg/Kg)	
Lead	65
Mercury	1.6 J+

Location Sample Date	SS-04 8/10/2009	SS-04 DUP 8/11/2009
Depth	0-0.2	0-0.2
PAH (mg/Kg)		
Benzo(a)anthracene	2 J	1.7 J
Benzo(a)pyrene	1.4 J	1.3 J
Benzo(b)fluoranthene	3.1	2.7
Benzo(k)fluoranthene	0.9 J	0.78 J
Chrysene	2.4	2.2
Dibenz(a,h)anthracene	0.37 J	0.35 J
Indeno(1,2,3-cd)pyrene	1.5 J	1.4 J
Metals (mg/Kg)		
Lead	291	306
Mercury	0.432 J+	0.514 J+

Location Sample Date Depth	SS-05 8/10/2009 0-0.2
Metals (mg/Kg)	
Chromium	31.9 J
Lead	1890
Mercury	0.282 J+
Zinc	407 J

Location Sample Date Depth	SS-03 8/10/2009 0-0.2
PAH (mg/Kg)	
Benzo(a)anthracene	1.4 J
Benzo(a)pyrene	1.5 J
Benzo(b)fluoranthene	2.3
Chrysene	2.1 J
Indeno(1,2,3-cd)pyrene	1.1 J
Metals (mg/Kg)	
Arsenic	34.4 J
Chromium	36.4 J
Lead	334
Mercury	0.612 J+
Zinc	310 J

LEGEND

- TP-1 — TEST PIT LOCATION
- SOIL GAS SAMPLE LOCATION
- MONITORING WELL LOCATION
- BEDROCK BORING WITH FLUTE LINER LOCATION EXCEPT MGP–MW–10D WHICH IS JUST CASING
- NAPL RECOVERY WELL
- SOIL BORING LOCATION
- SURFACE SOIL SAMPLE LOCATION
- PROPOSED SOIL GAS SAMPLE NOT COMPLETED DUE TO LACK OF ACCESS
- PROPOSED MONITORING WELL NOT COMPLETED DUE TO LACK OF ACCESS
- PREVIOUS INVESTIGATION LOCATION
- SITE CHARACTERIZATION INVESTIGATION LOCATION
- REMEDIAL INVESTIGATION LOCATION
- CON EDISON PROPERTY BOUNDARY
- CHAIN–LINK FENCE
- MANHOLE
- INDICATES EXISTING FEATURES (ROADS, BUILDINGS, PARKING AREAS, ETC.)
- CURRENT (ACTIVE) RAIL LINE
- HISTORICAL FEATURES SOURCE: SANBORN INS. MAPS
- FORMER (ABANDONED) RAIL LINE

Location Sample Date Sample ID	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
PAH (mg/Kg)	
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1
Benzo(k)fluoranthene	0.8
Chrysene	1
Dibenz(a,h)anthracene	0.33
Indeno(1,2,3-cd)pyrene	0.5
Metals (mg/Kg)	
Arsenic	13
Chromium	30
Copper	50
Lead	63
Mercury	0.18
Zinc	109

BOLD INDICATES DETECTED VALUES ABOVE THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC)PART 375-6 UNRESTRICTED USE CLEANUP OBJECTIVES

BOLD AND ITALIC INDICATES NON DETECTS ABOVE NYSDEC PART 375 - UNRESTRICTED USE CLEANUP OBJECTIVES.

THIS ONLY USED IF A PRIOR SAMPLE WAS DETECTED ABOVE THE UNRESTRICTED USE CLEAN UP OBJECTIVE

J = THE ANALYTE WAS POSITIVELY IDENTIFIED; THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.

J+ = (INORGANICS) THE RESULT IS AN ESTIMATED QUANTITY, BUT THE RESULT MAY BE BIASED HIGH.

NO.	DRWN	DATE	REVISION	CHKD	DATE	APPV'D	DATE
7							
6							
5							
4							
3							
2							
1							
0							

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PROJ. NO.: 60281931.810
DATE: 04/2013

SURFACE SOIL ANALYTICAL RESULTS EXCEEDING CRITERIA

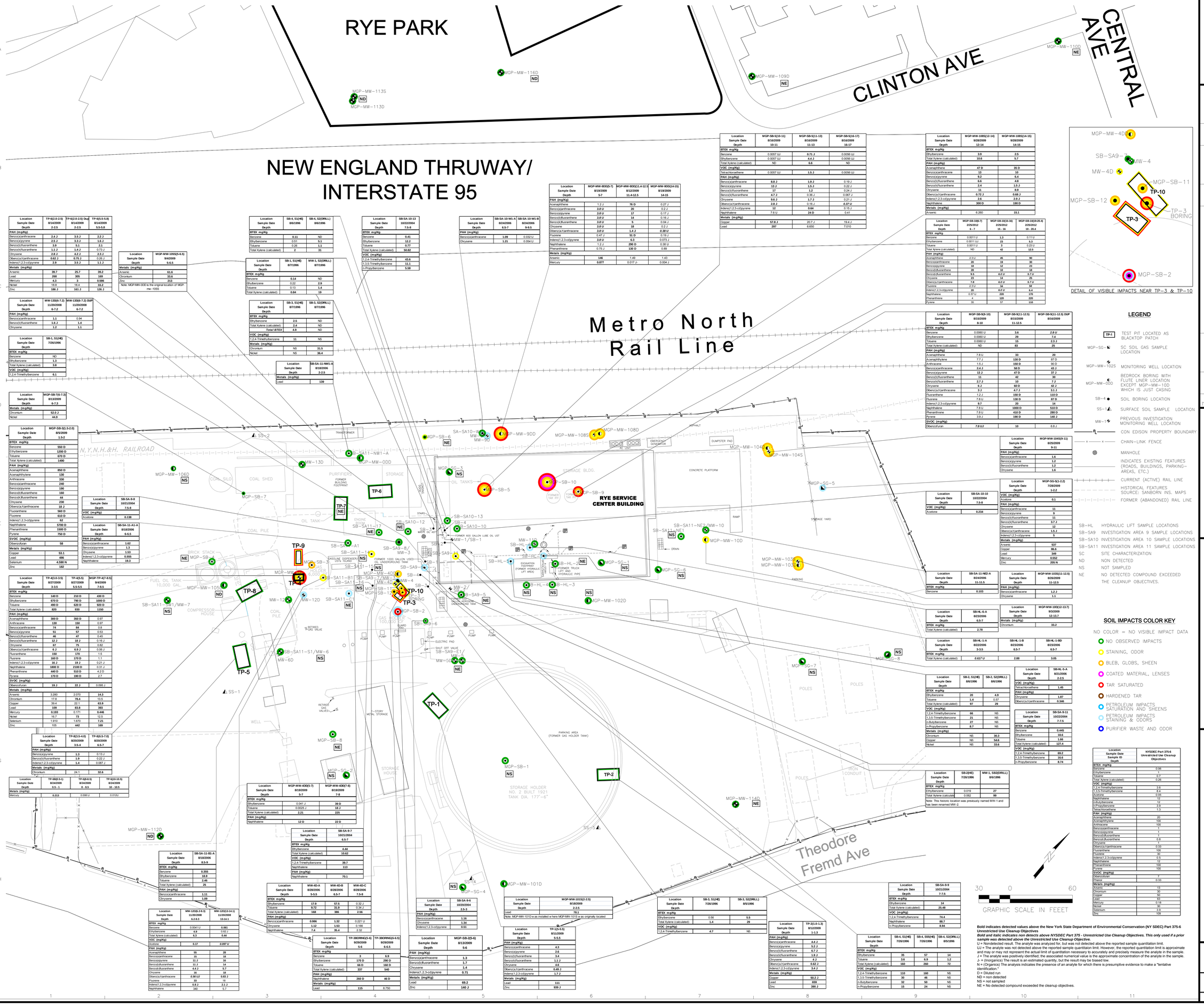
REMEDIAL INVESTIGATION

DRAWING NUMBER: 5-1

SHEET NUMBER:

REVISION 0

File: J:\Rem_Eng\Project Files\Con Edison\Rye\2011\60281410-710_C_5-1.dwg Layout: Fig 2 – Sample Locations User: VERSONB Plotted: Jun 27, 2013 – 1:02pm Xref's:



Location Sample Date Depth	TP-6(2.0-2.5) 8/14/2009 2-2.5	TP-6(2.0-2.5) Dup 8/14/2009 2-2.5	TP-4(5.5-5.8) 8/14/2009 5.5-5.8
PAH (mg/Kg)			
Benzo(a)anthracene	2.4 J	3.5 J	2.2 J
Benzo(a)pyrene	2.5 J	3.3 J	1.6 J
Benzo(b)fluoranthene	3.9	5.1	2.1
Benzo(k)fluoranthene	1.1 J	1.4 J	0.73 J
Chrysene	2.8 J	4.2 J	2.3 J
Dibenz(a,h)anthracene	0.62 J	0.75 J	0.26 J
Indeno(1,2,3-cd)pyrene	2.9	3.5 J	1.1 J
Metals (mg/Kg)			
Arsenic	39.7	25.7	39.2
Lead	268	305	169
Mercury	4.3	3	0.586
Nickel	18.8	18.4	33.2
Zinc	186 J	161 J	126 J

Location Sample Date Depth	MGP-MW-105D(5-6.5) 9/4/2009 5-6.5
Metals (mg/Kg)	
Arsenic	61.6
Chromium	33.6
Zinc	213
Note: MGPMW-0DD is the original location of MGP-mw-105S	

Location Sample Date Depth	SB-4, S1(4ft) 8/6/1996	SB-4, S2(DRILL) 8/6/1996
BTEX mg/kg		
Benzene	0.11	ND
Ethylbenzene	0.61	5.1
Toluene	0.26	1.1
Total Xylene (calculated)	2	31

Location Sample Date Depth	SB-1, S1(4ft) 8/7/1996	MW-1, S2(DRILL) 8/7/1996
BTEX mg/kg		
Benzene	0.14	ND
Ethylbenzene	0.22	2.9
Toluene	0.13	1.4
Total Xylene (calculated)	0.84	19

Location Sample Date Depth	SB-3, S1(4ft) 8/7/1996	SB-3, S2(DRILL) 8/7/1996
BTEX mg/kg		
Ethylbenzene	2.5	ND
Total Xylene (calculated)	2.4	ND
Total BTEX	4.9	ND
VOC (mg/kg)		
1,2,4-Trimethylbenzene	11	NS
Metals (mg/Kg)		
Chromium	ND	31.5
Nickel	NS	36.4

Location Sample Date Depth	SB-SA-11-NW1-A 8/18/2006 2-2.5
Metals (mg/Kg)	
Lead	139

Location Sample Date Depth	SB-SA-10-13 10/22/2004 7.5-8
BTEX mg/Kg	
Benzene	0.41
Ethylbenzene	12.2
Toluene	0.77
Total Xylene (calculated)	50.82
VOC (mg/Kg)	
1,2,4-Trimethylbenzene	43.6
1,3,5-Trimethylbenzene	11.1
n-Propylbenzene	5.58

Location Sample Date Depth	SB-SA-10-W1-A 8/24/2006 6.5-7	SB-SA-10-W1-B 8/24/2006 9-9.5
PAH (mg/Kg)		
Benzo(a)anthracene	1.09	0.032 U
Chrysene	1.21	0.054 U

Location Sample Date Depth	MGP-MW-9DD(5-7) 8/19/2009 5-7	MGP-MW-9DD(11.4-12.5) 8/12/2009 11.4-12.5	MGP-MW-9DD(14-15) 8/19/2009 14-15
PAH (mg/Kg)			
Acenaphthene	1.2 J	76 D	0.27 J
Benzo(a)anthracene	3.8 U	20	0.2 J
Benzo(a)pyrene	2.8 U	17	0.17 J
Benzo(b)fluoranthene	3.8 U	14	0.16 J
Benzo(k)fluoranthene	3.8 U	5	0.04 J
Chrysene	3.8 U	18	0.2 J
Dibenz(a,h)anthracene	3.8 U	1.4 J	0.38 U
Fluorene	0.47 J	51 D	0.19 J
Indeno(1,2,3-cd)pyrene	3.8 U	6.3	0.073 J
Naphthalene	1.2 J	290 D	0.38 U
Phenanthrene	0.75 J	130 D	0.89
Metals (mg/Kg)			
Arsenic	146	1.49	1.43
Mercury	0.877	0.017 J-	0.004 J

Location Sample Date Depth	MGP-SB-5(10-11) 8/16/2009 10-11	MGP-SB-5(11-13) 8/16/2009 11-13	MGP-SB-5(16-17) 8/16/2009 16-17
BTEX mg/Kg			
Benzene	0.0057 UJ	0.71 J	0.0056 UJ
Ethylbenzene	0.0057 UJ	4.4 J	0.0056 UJ
Total Xylene (calculated)	ND	6.6	ND
VOC (mg/Kg)			
Tetrachloroethene	0.0057 UJ	1.5 J	0.0056 UJ
PAH (mg/Kg)			
Benzo(a)anthracene	8.8 J	1.9 J	0.19 J
Benzo(a)pyrene	33 J	1.5 J	0.22 J
Benzo(b)fluoranthene	17	1.2	0.24 J
Benzo(k)fluoranthene	4.7 J	0.36 J	0.067 J
Chrysene	9.6 J	1.7 J	0.21 J
Dibenz(a,h)anthracene	2.8 J	0.16 J	0.37 U
Indeno(1,2,3-cd)pyrene	12	0.64	0.15 J
Naphthalene	7.6 U	24 D	0.41
Metals (mg/Kg)			
Copper	57.8 J	20.7 J	19.4 J
Lead	297	6.650	7.010

Location Sample Date Depth	MGP-MW-108S(12-14) 9/28/2009 12-14	MGP-MW-108S(14-15) 9/28/2009 14-15
BTEX mg/Kg		
Ethylbenzene	3.9	2.5
Total Xylene (calculated)	10.6	5.7
PAH (mg/Kg)		
Acenaphthene	47 D	35 D
Benzo(a)anthracene	13	10
Benzo(a)pyrene	9.2	6.4
Benzo(b)fluoranthene	6.6	4.8
Benzo(k)fluoranthene	2.4	1.5 J
Chrysene	11	8.9
Dibenz(a,h)anthracene	0.72 J	0.68 J
Indeno(1,2,3-cd)pyrene	2.6	2.9 J
Naphthalene	300 D	190 D
Metals (mg/Kg)		
Arsenic	6.260	15.1

Location Sample Date Depth	MGP-SB-10(6-7) 2/25/2012 6 - 7	MGP-SB-10(15-16) 2/25/2012 15 - 16	MGP-SB-10(19-20.4) 2/25/2012 19 - 20.4
BTEX mg/Kg			
Benzene	0.0011 U	1.3	0.11 U
Ethylbenzene	0.0011 UJ	23	5.3
Toluene	0.0011 U	3	0.21 U
Total Xylene (calculated)	ND	42	12.5
PAH (mg/Kg)			
Acenaphthene	2.3 U	45	90
Benzo(a)anthracene	28	19	30
Benzo(a)pyrene	18	12	23
Benzo(b)fluoranthene	28	10	18
Benzo(k)fluoranthene	9.5	6.8 U	5.7 U
Chrysene	23	14	25
Dibenz(a,h)anthracene	7.8	6.8 U	5.7 U
Fluorene	2.3 U	34	54
Indeno(1,2,3-cd)pyrene	28	6.8 U	6.4
Naphthalene	0.57 U	220	170
Phenanthrene	4	120	220
Pyrene	35	57	110

Location Sample Date Depth	MGP-SB-8(8-10) 8/15/2009 8-10	MGP-SB-8(11-12.5) 8/15/2009 11-12.5	MGP-SB-8(11-12.5) DUP 8/16/2009
BTEX mg/Kg			
Benzene	0.0060 U	3.6	2.8 U
Ethylbenzene	0.0060 U	29	7.4
Toluene	0.0060 U	15	2.3 J
Total Xylene (calculated)	ND	83	25
PAH (mg/Kg)			
Acenaphthene	7.8 U	33	20
Acenaphthylene	7.7 J	130 D	87 D
Anthracene	1.5 J	150 D	90 D
Benzo(a)anthracene	2.4 J	58 D	43 J
Benzo(a)pyrene	33 J	47 D	37 J
Benzo(b)fluoranthene	11	42	30
Benzo(k)fluoranthene	2.7 J	16	7 J
Chrysene	6 J	60 D	42 J
Dibenz(a,h)anthracene	3 J	4.7 J	3.1 J
Fluoranthene	1.2 J	190 D	110 D
Fluorene	7.8 U	130 D	87 D
Indeno(1,2,3-cd)pyrene	9.7	20	14
Naphthalene	7.8 U	1000 D	510 D
Phenanthrene	7.8 U	410 D	280 D
Pyrene	3.9 J	190 D	140 J
SVOC (mg/kg)			
Dibenzofuran	7.8 UJ	16	6.8 J

Location Sample Date Depth	MGP-MW-104S(8-11) 8/25/2009 8-11
PAH (mg/Kg)	
Benzo(a)anthracene	1.6
Benzo(a)pyrene	1.2
Benzo(b)fluoranthene	1.2
Chrysene	1.6

Location Sample Date Depth	MGP-SG-5(1-2.2) 7/28/2009 1-2.2
VOC (mg/Kg)	
Acetone	0.1
PAH (mg/Kg)	
Benzo(a)anthracene	11
Benzo(a)pyrene	9
Benzo(b)fluoranthene	11
Benzo(k)fluoranthene	3.7 J
Chrysene	12
Dibenz(a,h)anthracene	1.5 J
Indeno(1,2,3-cd)pyrene	5
Metals (mg/Kg)	
Arsenic	537
Copper	86.6
Lead	340
Mercury	0.552
Zinc	205 N

Location Sample Date Depth	SB-SA-10-10 10/22/2004 7.5-8
VOC (mg/Kg)	
Acetone	0.234

Location Sample Date Depth	SB-SA-11-NE2-A 8/24/2006 11-11.5
BTEX mg/Kg	
Benzene	0.103

Location Sample Date Depth	MGP-MW-103S(11-12.5) 8/26/2009 11-12.5
PAH (mg/Kg)	
Benzo(a)anthracene	1.2 J
Chrysene	1.1

Location Sample Date Depth	SB-HL-6-A 8/23/2006 6.5-7
BTEX mg/Kg	
Total Xylene (calculated)	2.78

Location Sample Date Depth	MGP-MW-100(12-13.7) 9/3/2009 12-13.7
Metals (mg/Kg)	
Chromium	33.2

Location Sample Date Depth	SB-HL-1-A 8/22/2006 3-3.5	SB-HL-1-B 8/23/2006 6.5-7	SB-HL-1-BD 8/23/2006 6.5-7
BTEX mg/Kg			
Total Xylene (calculated)	0.617 U	2.88	3.05

Location Sample Date Depth	SB-2, S1(4ft) 8/6/1996	SB-2, S2(DRILL) 8/6/1996
BTEX mg/Kg		
Ethylbenzene	20	4.9
Toluene	1.4	0.57
Total Xylene (calculated)	97	29
VOC (mg/Kg)		
1,2,4-Trimethylbenzene	66	NS
1,3,5-Trimethylbenzene	21	NS
n-Butylbenzene	27	NS
n-Propylbenzene	8.7	NS
Metals (mg/Kg)		
Chromium	NS	30.3
Copper	NS	54.6
Nickel	NS	33.6

Location Sample Date Depth	SB-HL-5-A 8/21/2006 2-2.5
VOC (mg/Kg)	
Tetrachloroethene	1.45
PAH (mg/Kg)	
Chrysene	1.87
Dibenz(a,h)anthracene	0.346

Location Sample Date Depth	SB-SA-9-11 10/22/2004 7.7-7.5
BTEX mg/Kg	
Benzene	0.445
Ethylbenzene	18.6
Toluene	1.66
Total Xylene (calculated)	127.4
VOC (mg/Kg)	
1,2,4-Trimethylbenzene	69.2
1,3,5-Trimethylbenzene	16.6
n-Propylbenzene	8.74

Location Sample Date Depth	SB-2(4ft) 7/26/1996	MW-1, S2(DRILL) 8/6/1996
BTEX mg/Kg		
Ethylbenzene	0.019	27
Total Xylene (calculated)	0.062	99
Note: This historic location was previously named MW-1 and has been renamed MW-2.		

Location Sample Date Depth	MGP-MW-105D(5-6.5) 9/4/2009 5-6.5
Metals (mg/Kg)	
Arsenic	61.6
Chromium	33.6
Zinc	213
Note: MGPMW-0DD is the original location of MGP-mw-105S	

Location Sample Date Depth	MW-13(6-7.2) 11/20/2008 6-7.2	MW-13(6-7.2) DUP 11/20/2008 6-7.2
PAH (mg/Kg)		
Benzo(a)anthracene	1.1	0.94
Benzo(b)fluoranthene	1.6 J	1.4
Chrysene	1.2	1.1

Location Sample Date Depth	SB-1, S1(4ft) 7/26/1996
BTEX mg/Kg	
Benzene	ND
Ethylbenzene	1.3
Total Xylene (calculated)	3.8
VOC (mg/Kg)	
1,2,4-Trimethylbenzene	6.1

Location Sample Date Depth	MGP-SB-7(6-7.3) 8/13/2009 6-7.3
Metals (mg/Kg)	
Chromium	52.0 J
Nickel	44.9

Location Sample Date Depth	MGP-SB-3(1.5-2.0) 8/5/2009 1.5-2
BTEX mg/Kg	
Benzene	550 D
Ethylbenzene	1200 D
Toluene	670 D
Total Xylene (calculated)	1490
PAH (mg/Kg)	
Acenaphthene	850 D
Acenaphthylene	130
Anthracene	330
Benzo(a)anthracene	240
Benzo(a)pyrene	190
Benzo(b)fluoranthene	160
Benzo(k)fluoranthene	44
Chrysene	230
Dibenz(a,h)anthracene	18 J
Fluoranthene	560 D
Fluorene	610 D
Indeno(1,2,3-cd)pyrene	62
Naphthalene	5700 D
Phenanthrene	1500 D
Pyrene	750 D
SVOC (mg/Kg)	
Dibenzofuran	58
Metals (mg/Kg)	
Copper	53.1
Lead	486
Selenium	4.590 N
Zinc	182

Location Sample Date Depth	SB-SA-9-8 10/21/2004 7.5-8
VOC (mg/Kg)	
Acetone	0.138

Location Sample Date Depth	SB-SA-11-A1-A 8/18/2006 6-6.5
PAH (mg/Kg)	
Benzo(a)anthracene	1.42
Benzo(a)pyrene	1.3
Chrysene	1.53
Indeno(1,2,3-cd)pyrene	0.555
Naphthalene	19.3

Location Sample Date Depth	TP-4(3.0-3.5) 8/27/2009 3-3.5	TP-4(5.5) 8/27/2009 5.5-5.5	MGP-TP-4(7-8.5) 9/4/2009 7-8.5
BTEX mg/Kg			
Benzene	140 D	210 D	430 D
Ethylbenzene	670 D	790 D	1000 D
Toluene	490 D	620 D	920 D
Total Xylene (calculated)	820	930	1150
PAH (mg/Kg)			
Acenaphthene	300 D	350 D	0.97
Anthracene	130	150	0.97
Benzo(a)anthracene	74	84	0.8
Benzo(a)pyrene	51	57	0.53
Benzo(b)fluoranthene	46	47	0.45
Benzo(k)fluoranthene	12 J	18 J	0.16 J
Chrysene	67	75	0.82
Dibenz(a,h)anthracene	6 J	6.9 J	0.06 J
Fluoranthene	150	170	1.5
Fluorene	160 D	170 D	1.1
Indeno(1,2,3-cd)pyrene	16 J	19 J	0.27 J
Naphthalene	1800 D	2100 D	0.31 J
Phenanthrene	440 D	510 D	4.2 D
Pyrene	170 D	190 D	2.7
SVOC (mg/Kg)			
Dibenzofuran	19 J	22 J	0.065 J
Metals (mg/Kg)			
Arsenic	3.280	2.070	14.3
Chromium	17.8	76.4	13.5
Copper	39.4	22.1	63.9
Lead	109	83.8	393
Mercury	0.193	0.171	0.446
Nickel	16.7	73	12.5
Selenium	1.910	1.670	7.23
Zinc	105	442	169

Location Sample Date Depth	TP-8(3.5-4.0) 8/20/2009 3.5-4	TP-8(6.5-7.0) 8/20/2009 6.5-7
PAH (mg/Kg)		
Benzo(a)pyrene	1.3	0.13 J
Benzo(b)fluoranthene	1.9	0.22 J
Indeno(1,2,3-cd)pyrene	1.4	0.087 J
Metals (mg/Kg)		
Chromium	24.1	32.6

Location Sample Date Depth	TP-5B(5.5-1) 8/24/2009 5.5 - 1	TP-5(8-8.5) 8/24/2009 8 - 8.5	TP-5(10-10.5) 8/24/2009 10 - 10.5
Metals (mg/Kg)			
Mercury	0.213	0.006 U	0.012U

Location Sample Date Depth	MGP-MW-4D0(5-7) 8/19/2009 5-7	MGP-MW-4D0(7-8) 8/19/2009 7-8
BTEX mg/Kg		
Ethylbenzene	0.041 J	39 D
Toluene	0.0025 J	18 J
Total Xylene (calculated)	2.21	225
PAH (mg/Kg)		
Naphthalene	12 D	22 D

Location Sample Date Depth	SB-SA-9-7 10/21/2004 6.5-7
BTEX mg/Kg	
Ethylbenzene	4.44
Total Xylene (calculated)	10.62
VOC (mg/Kg)	
1,2,4-Trimethylbenzene	39.7
Naphthalene	113
PAH (mg/Kg)	
Naphthalene	70.1

Location Sample Date Depth	SB-SA-11-B1-A 8/18/2006 8-8.5
BTEX mg/Kg	
Benzene	0.355
Ethylbenzene	18.9
Toluene	2.46
Total Xylene (calculated)	25
PAH (mg/Kg)	
Benzo(a)anthracene	1.11
Chrysene	1.09

Location Sample Date Depth	MW-4D-A 8/28/2006 5-5.5	MW-4D-B 8/28/2006 6.5-7	MW-4D-C 8/28/2006 7.5-8
BTEX mg/Kg			
Ethylbenzene	17.9	57.5	0.32 J
Toluene	5.72	31.5	0.34 J
Total Xylene (calculated)	168	386	2.56
PAH (mg/Kg)			
Benzo(a)anthracene	0.886	1.32	0.221 U
Chrysene	1.12	1.53	0.166
Naphthalene	7.4	35.4	2.32

Location Sample Date Depth	MW-12(6.2-6.3) 11/20/2008 6.2-6.3	MW-12(13-14.1) 11/20/2008 13-14.1
BTEX mg/Kg		
Benzene	0.0041 U	0.061
Ethylbenzene	4.8	0.52 J
Total Xylene (calculated)	6.3	0.44
VOC (mg/Kg)		
Acetone	0.17	0.097 U
PAH (mg/Kg)		
Acenaphthene	55	28
Benzo(a)anthracene	15	18
Benzo(a)pyrene	11 J	16
Benzo(b)fluoranthene	11 J	14
Benzo(k)fluoranthene	4.4 J	5.7
Chrysene	16	18
Dibenz(a,h)anthracene	0.56 U	0.83 J
Fluorene	33	18
Indeno(1,2,3-cd)pyrene	6.8 J	2.1 J
Naphthalene	340	5.7

Location Sample Date Depth	TP-3B0RIN(5-6) 9/29/2009 5-6	TP-3B0RIN(5.6-5) 9/29/2009 6-6.5
BTEX mg/Kg		
Benzene	3	6.9
Ethylbenzene	170 D	290 D
Toluene	66 D	160 D
Total Xylene (calculated)	337	540
PAH (mg/Kg)		
Naphthalene	260 D	46 D
Metals (mg/Kg)		
Lead	115	8.750

Location Sample Date Depth	SB-SA-9-6 10/20/2004 2.5-3
PAH (mg/Kg)	
Benzo(a)anthracene	1.16
Chrysene	1.34
Indeno(1,2,3-cd)pyrene	0.51

Location Sample Date Depth	MGP-SB-2(5-6) 8/13/2009 5-6
PAH (mg/Kg)	
Benzo(a)anthracene	1.3
Benzo(b)fluoranthene	1.7
Chrysene	1.4
Indeno(1,2,3-cd)pyrene	0.71
Metals (mg/Kg)	
Lead	69.2
Zinc	140 J

Location Sample Date Depth	MGP-MW-101S(2-2.5) 8/18/2009 2-2.5
Lead	78.1
Note: MGP-MW-101D w as installed w here MGP-MW-101S w as originally located	

Location Sample Date Depth	TP-1(5-5.5) 8/11/2009 5-5.5
PAH (mg/Kg)	
Benzo(a)anthracene	4.3
Benzo(a)pyrene	2.6
Benzo(b)fluoranthene	3.4
Benzo(k)fluoranthene	1.1 J
Chrysene	4.6
Dibenz(a,h)anthracene	0.49 J
Indeno(1,2,3-cd)pyrene	1.7 J
Metals (mg/Kg)	
Lead	111
Zinc	939 J

Location Sample Date Depth	SB-3, S1(4ft) 7/26/1996	SB-3, S2(DRILL) 8/5/1996
BTEX mg/Kg		
Ethylbenzene	0.56	5.5
Total Xylene (calculated)	1.4	29
VOC (mg/Kg)		
1,2,4-Trimethylbenzene	4.7	NS

Location Sample Date Depth	TP-2(1.0-1.3) 8/12/2009 1-1.3
PAH (mg/Kg)	
Benzo(a)anthracene	4.4 J
Benzo(a)pyrene	5.2 J
Benzo(b)fluoranthene	6.7 J
Benzo(k)fluoranthene	1.9 J
Chrysene	4.2
Dibenz(a,h)anthracene	0.62 J
Indeno(1,2,3-cd)pyrene	3.4 J
Metals (mg/Kg)	
Copper	50.2 J
Lead	659
Zinc	390 J

Location Sample Date Depth	SB-SA-9-9 10/21/2004 7-7.5
BTEX mg/Kg	
Ethylbenzene	14
Total Xylene (calculated)	25.48
VOC (mg/Kg)	
1,2,4-Trimethylbenzene	74.4
Naphthalene	88.7
n-Propylbenzene	8.94

Location Sample Date Depth	SB-4, S1(4ft) 7/26/1996	SB-4, S5S(4ft) 7/26/1996	SB-4, S2(DRILL) 8/5/1996
BTEX mg/Kg			
Ethylbenzene	35	57	14
Toluene	3.6	6.9	1.2
Total Xylene (calculated)	160	260	72
VOC (mg/Kg)			
1,2,4-Trimethylbenzene	110	160	NS
1,3,5-Trimethylbenzene	30	46	NS
n-Butylbenzene	32	50	NS
n-Propylbenzene	15	24	NS

LEGEND

- TP-1 — TEST PIT LOCATED AS BLACKTOP PATCH
- MGP-SG-1 — SC SOIL GAS SAMPLE LOCATION
- MGP-MW-102S — MONITORING WELL LOCATION
- MGP-MW-0DD — BEDROCK BORING WITH FLUTE LINER LOCATION EXCEPT MGP-MW-10D WHICH IS JUST CASING
- SB-4 — SOIL BORING LOCATION
- SS-1 — SURFACE SOIL SAMPLE LOCATION
- MW-1 — PREVIOUS INVESTIGATION MONITORING WELL LOCATION
- CON EDISON PROPERTY BOUNDARY
- CHAIN-LINK FENCE
- MANHOLE
- INDICATES EXISTING FEATURES (ROADS, BUILDINGS, PARKING-AREAS, ETC.)
- CURRENT (ACTIVE) RAIL LINE
- HISTORICAL FEATURES SOURCE: SANBORN INS. MAPS
- FORMER (ABANDONED) RAIL LINE

SB-HL HYDRAULIC LIFT SAMPLE LOCATIONS
SB-SA9 INVESTIGATION AREA 9 SAMPLE LOCATIONS
SB-SA10 INVESTIGATION AREA 10 SAMPLE LOCATIONS
SB-SA11 INVESTIGATION AREA 11 SAMPLE LOCATIONS
SC SITE CHARACTERIZATION
ND NON DETECTED
NS NOT SAMPLED
NE NO DETECTED COMPOUND EXCEEDED THE CLEANUP OBJECTIVES.

SOIL IMPACTS COLOR KEY

NO COLOR = NO VISIBLE IMPACT DATA
- NO OBSERVED IMPACTS
- STAINING, ODOR
- BLEB, GLOBS, SHEEN
- COATED MATERIAL, LENSES
- TAR SATURATED
- HARDENED TAR
- PETROLEUM IMPACTS SATURATION AND SHEENS
- PETROLEUM IMPACTS STAINING & ODORS
- PURIFIER WASTE AND ODOR

Location Sample Date Sample ID Depth	NYSDEC Part 375-6 Unrestricted Use Cleanup Objectives
BTEX mg/Kg	
Benzene	0.06
Ethylbenzene	1
Toluene	0.7
Total Xylene (calculated)	0.26
VOC (mg/Kg)	
1,2,4-Trimethylbenzene	3.6
1,3,5-Trimethylbenzene	8.4
Acetone	0.05
Naphthalene	12
n-Butylbenzene	12
n-Propylbenzene	3.9
Tetrachloroethene	1.3
PAH (mg/Kg)	
Acenaphthene	20
Acenaphthylene	100
Anthracene	100
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1
Benzo(k)fluoranthene	0.8
Chrysene	1
Dibenz(a,h)anthracene	0.33
Fluoranthene	100
Fluorene	30
Indeno(1,2,3-cd)pyrene	0.5
Naphthalene	12
Phenanthrene	100
Pyrene	100
SVOC (mg/Kg)	
Dibenzofuran	7
Phenol	0.33
Metals (mg/Kg)	
Arsenic	13
Chromium	30
Copper	50
Lead	63
Mercury	0.18
Nickel	30
Selenium	3.9
Zinc	109

Bold indicates detected values above the New York State Department of Environmental Conservation (NY SDEC) Part 375-6 Unrestricted Use Cleanup Objectives
Bold and italic indicates non detects above NYSDEC Part 375 - Unrestricted Use Cleanup Objectives. This only used if a prior sample was detected above the Unrestricted Use Cleanup Objective.
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
N = (Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
D = Diluted run
ND = non detected
NS = not sampled
NE = No detected compound exceeded the cleanup objectives.

NO.	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
7							
6							
5							
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3							
2							
1							
0							

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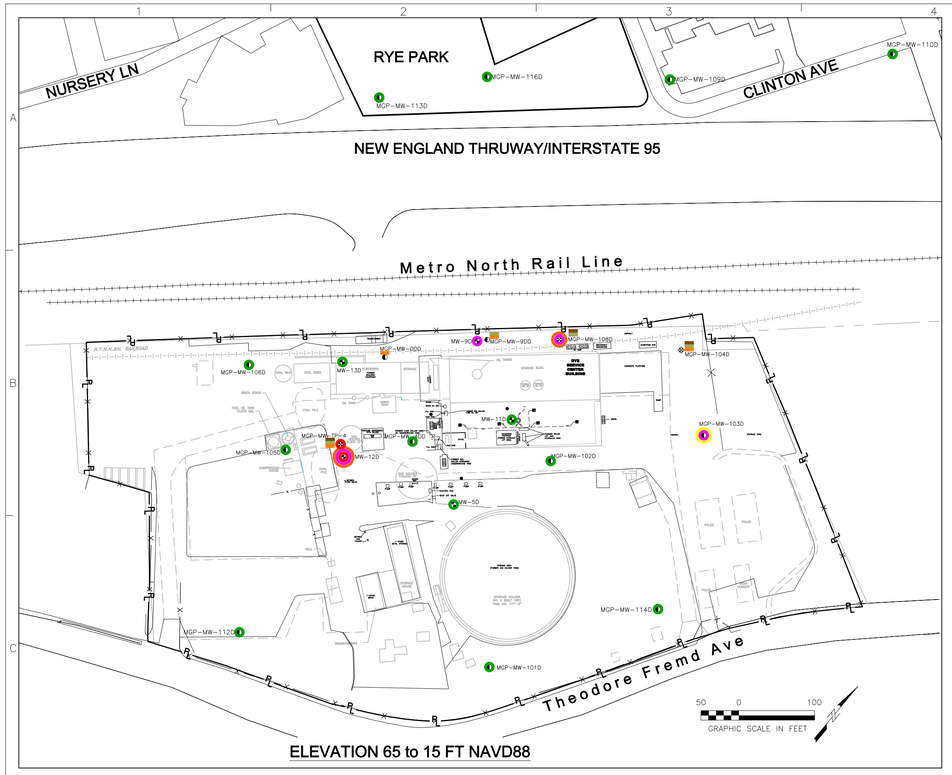
DATE: 06/2013

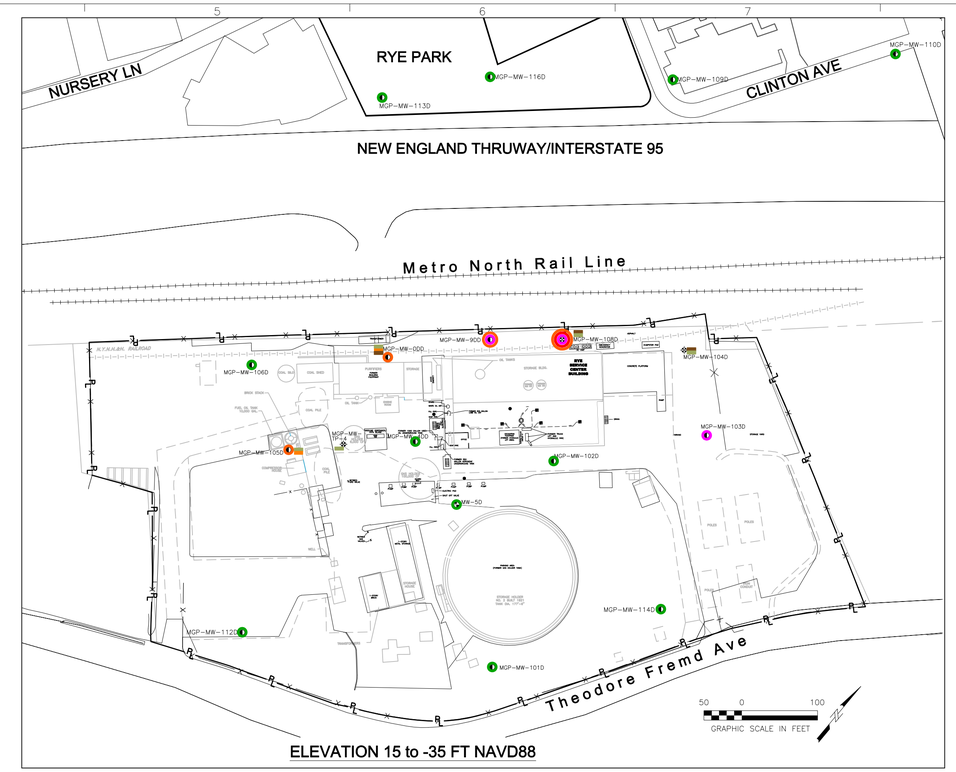
SUBSURFACE SOIL EXCEEDANCES AND VISIBLE IMPACTS

REMEDIAL INVESTIGATION

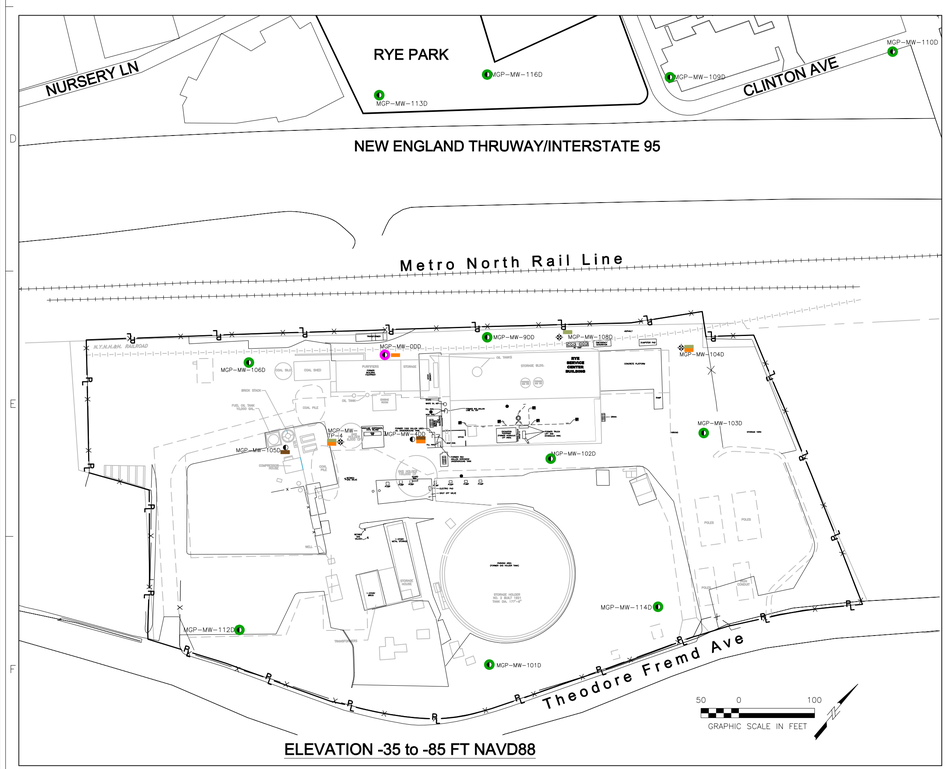
DRAWING NUMBER: 5-2
SHEET NUMBER:
REVISION 0



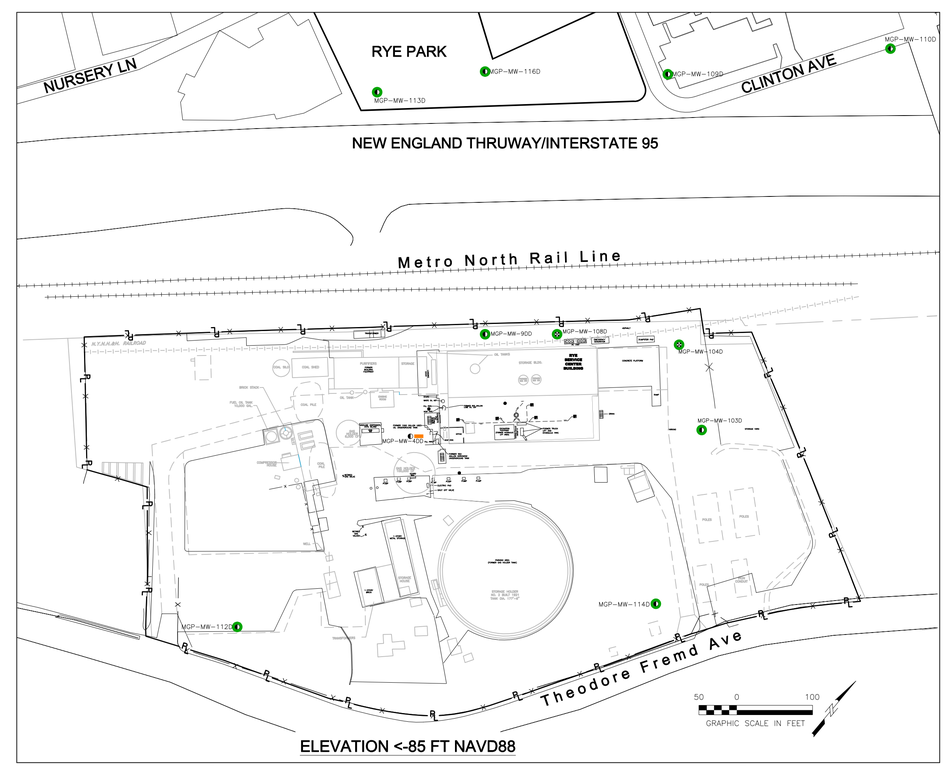
ELEVATION 65 to 15 FT NAVD88



ELEVATION 15 to -35 FT NAVD88



ELEVATION -35 to -85 FT NAVD88



ELEVATION <-85 FT NAVD88

LEGEND

MGP-MW-101D	BEDROCK BORING WITH FLUTe (EXCEPT MGP-MW-10D WHICH IS JUST CASING)
MW-4D	BEDROCK MONITORING WELL
MGP-MW-108D	NAPL RECOVERY WELL
	CON EDISON PROPERTY BOUNDARY
	CHAIN-LINK FENCE
	MANHOLE
	INDICATES EXISTING FEATURES (ROADS, BUILDINGS, PARKING AREAS, ETC.)
	CURRENT (ACTIVE) RAIL LINE
	HISTORICAL FEATURES SOURCE: SANBORN INS. MAPS
	FORMER (ABANDONED) RAIL LINE

DRILLING AND CORING OBSERVATIONS

- NO OBSERVED IMPACTS
- STAIN
- SHEEN
- COATED MATERIAL, LENSES
- TAR SATURATED

FLUTe OBSERVATIONS

- LIGHT IMPACTS – INDICATES INDIVIDUAL OLM/TLM BLEBS LESS THAN 0.5 INCHES IN DIAMETER AND/OR DISCONTINUOUS HORIZONTAL LINE OF INDIVIDUAL OLM/TLM BLEBS LESS THAN 0.5 INCHES IN DIAMETER.
- MEDIUM IMPACTS – INDICATES INDIVIDUAL BLEBS OR SPLOTCHES BETWEEN 0.5 AND 4 INCHES IN DIAMETER, DISCONTINUOUS HORIZONTAL LINE OF TAR BLEBS, OR A THICK TAR BAND THAT IS LESS THAN 2 INCHES THICK AND MAY OR MAY NOT REACH ACROSS THE FLUTe LINER.
- HEAVY IMPACTS – INDICATES TAR SPLOTCHES GREATER THAN 4 INCHES IN DIAMETER AND/OR HORIZONTAL TAR BANDS THAT ARE GREATER THAN 2 INCHES THICK AND GENERALLY EXTEND ACROSS THE FLUTe LINER AND MAY OR MAY NOT HAVE VERTICAL FINGERS OF TAR EXTENDING DOWN HOLE FROM THE HORIZONTAL TAR BAND.

NOTES:

OLM = OIL LIKE MATERIAL
TLM = TAR LIKE MATERIAL
FT – FEET
NAVD88 – NORTH AMERICAN VERTICAL DATUM OF 1988

NO.	DRWN	DATE	REVISION	CHKD	DATE	APPV'D	DATE
7							
6							
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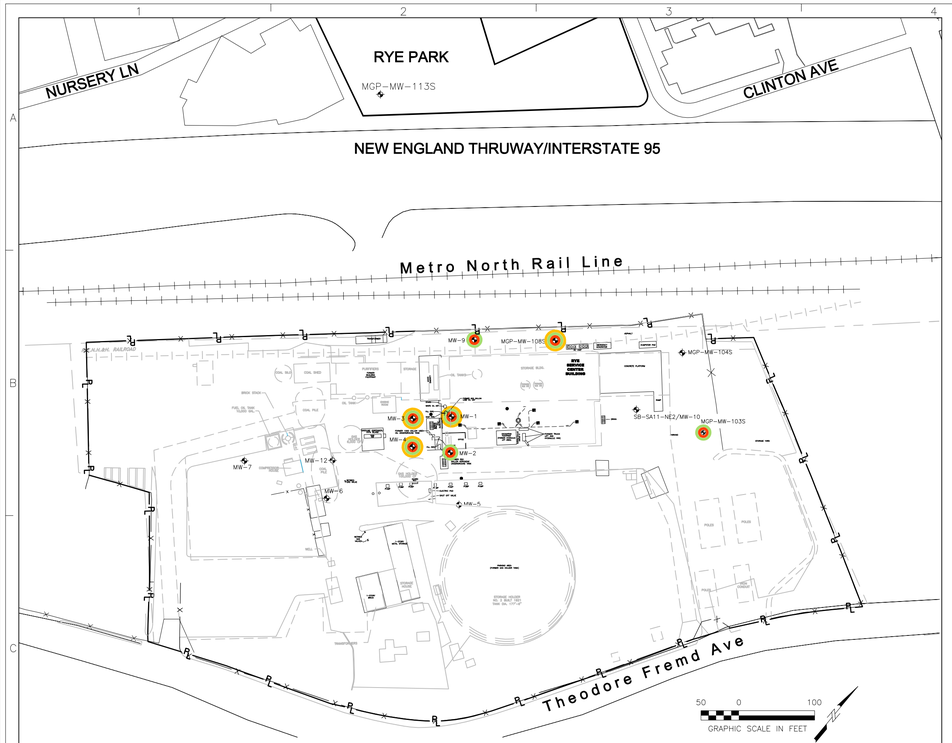
VISIBLE IMPACTS IN BEDROCK BY ELEVATION

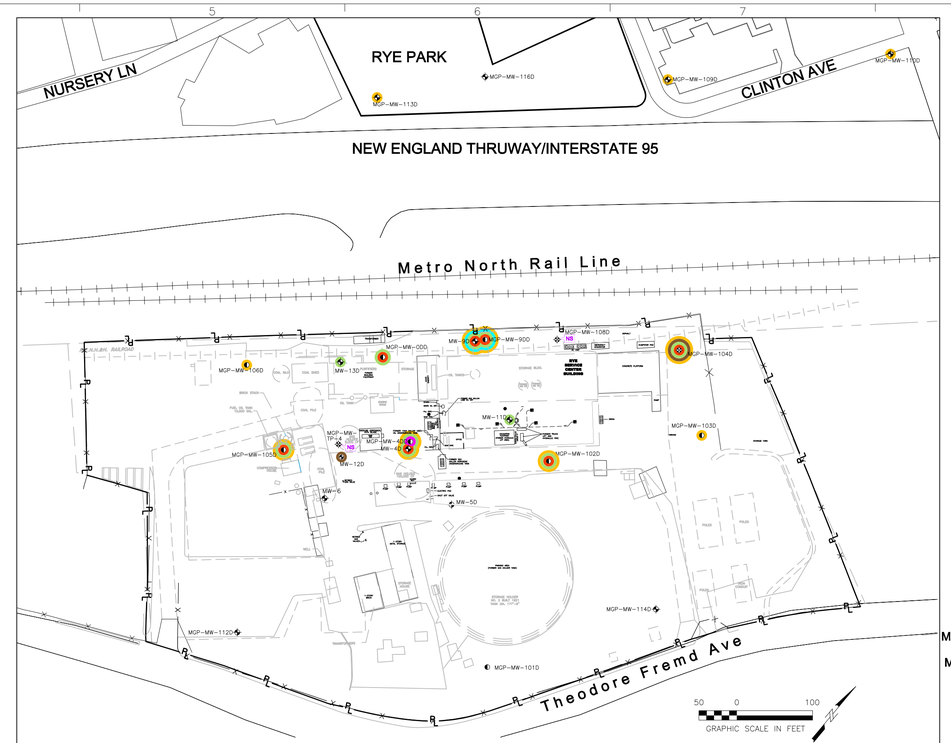
REMEDIAL INVESTIGATION

DRAWING NUMBER: 5-3
SHEET NUMBER:
REVISION 0

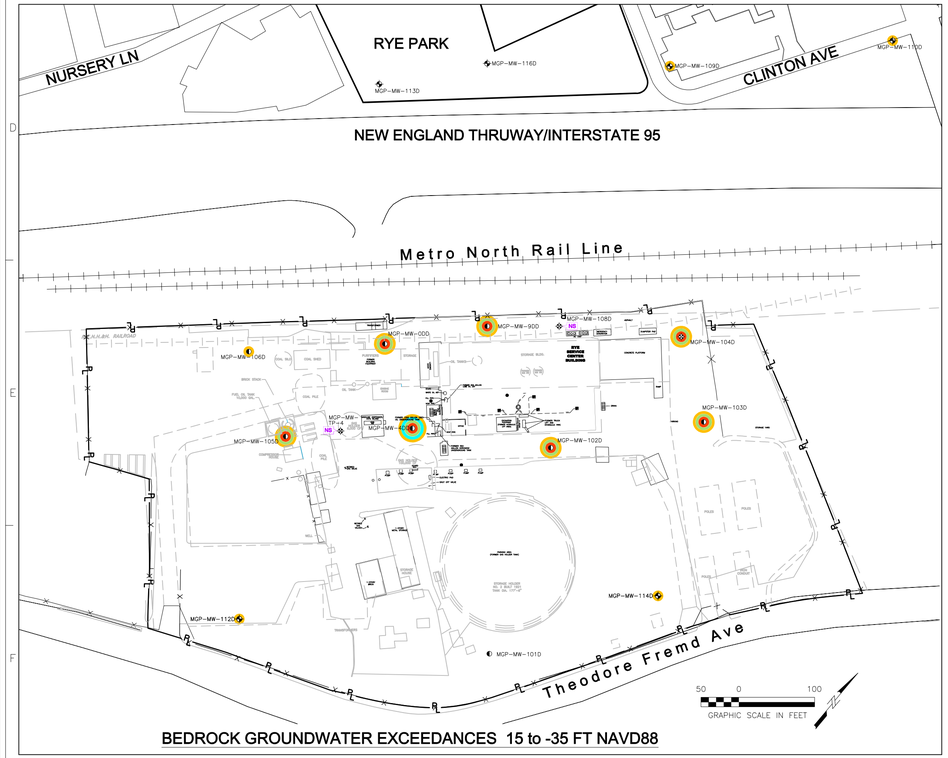
File: J:\Rem_Eng\Project Files\Con Edison\Rye\2013\60281931-710_C_5-3.dwg Layout: 5-3_VisibleImpacts-BP User: VERSONJD Plotted: Jun 27, 2013 - 2:07pm Ver:5-



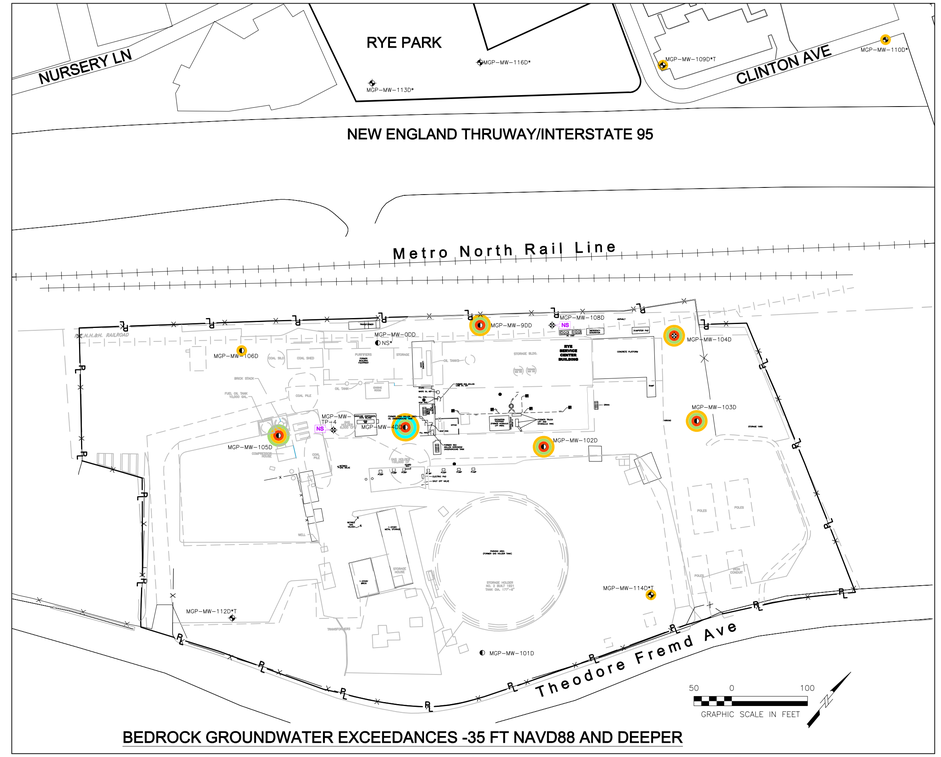
OVERBURDEN GROUNDWATER EXCEEDANCES



BEDROCK GROUNDWATER EXCEEDANCES 65 to 15 FT NAVD88



BEDROCK GROUNDWATER EXCEEDANCES 15 to -35 FT NAVD88



BEDROCK GROUNDWATER EXCEEDANCES -35 FT NAVD88 AND DEEPER

LEGEND

- MGP-MW-103S — MONITORING WELL LOCATION
- MGP-MW-0DD — BEDROCK BORINGS WITH FLUTE
- MGP-MW-104D — NAPL RECOVERY WELL
- CON EDISON PROPERTY BOUNDARY
- CHAIN-LINK FENCE
- MANHOLE
- INDICATES EXISTING FEATURES (ROADS, BUILDINGS, PARKING AREAS, ETC.)
- CURRENT (ACTIVE) RAIL LINE
- HISTORICAL FEATURES SOURCE: SANBORN INS. MAPS
- FORMER (ABANDONED) RAIL LINE
- BENZENE WAS DETECTED AT A CONCENTRATION EXCEEDING THE AWQSGV OF 1ug/L
- NAPHTHALENE WAS DETECTED AT A CONCENTRATION EXCEEDING THE AWQSGV OF 10ug/L
- MTBE WAS DETECTED AT A CONCENTRATION EXCEEDING THE AWQSGV OF 10ug/L
- OLM/TLM PRESENT IN WELL– SAMPLE NOT COLLECTED OR SAMPLE NOT SUBMITTED FOR LABORATORY ANALYSIS
- TETRACHLOROETHENE (PCE) WAS DETECTED AT A CONCENTRATION EXCEEDING THE AWQSGV OF 5 ug/L
- TOLUENE WAS DETECTED AT A CONCENTRATION EXCEEDING THE AWQSGV OF 5 ug/L

NS* — A GROUNDWATER SAMPLE WAS NOT COLLECTED BECAUSE THE FRACTURE ZONES IN THIS RANGE WERE DRY.

* — BEDROCK ZONES DEEPER THAN –85FT NAVD88 WERE SAMPLED AT THIS LOCATION

T — TOLUENE WAS DETECTED AT A CONCENTRATION EXCEEDING THE AWQSGV OF 5 UG/L IN BEDROCK ZONES DEEPER THAN –85FT NAVD88 AT THIS LOCATION

NS — GROUNDWATER PACKER SAMPLING WAS NOT PERFORMED AT THIS LOCATION DUE TO THE PRESENCE OF TAR IN THE BOREHOLE. TAR WAS OBSERVED ON THE FLUTe LINER OR IN THE CORE IN THIS ELEVATION RANGE.

NOTES:

OLM	OIL LIKE MATERIAL
TLM	TAR LIKE MATERIAL
AWQSGV	NYSDEC AMBIENT WATER QUALITY STANDARD OR GUIDANCE VALUE
FT	FEET
NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988

NO.	DRWN	DATE	REVISION	CHKD	DATE	APPV'D	DATE
7							
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DATE: 06/2013

SUMMARY OF SELECTED GROUNDWATER EXCEEDANCES IN OVERBURDEN AND IN BEDROCK BY ELEVATION RANGE (2009-2012)

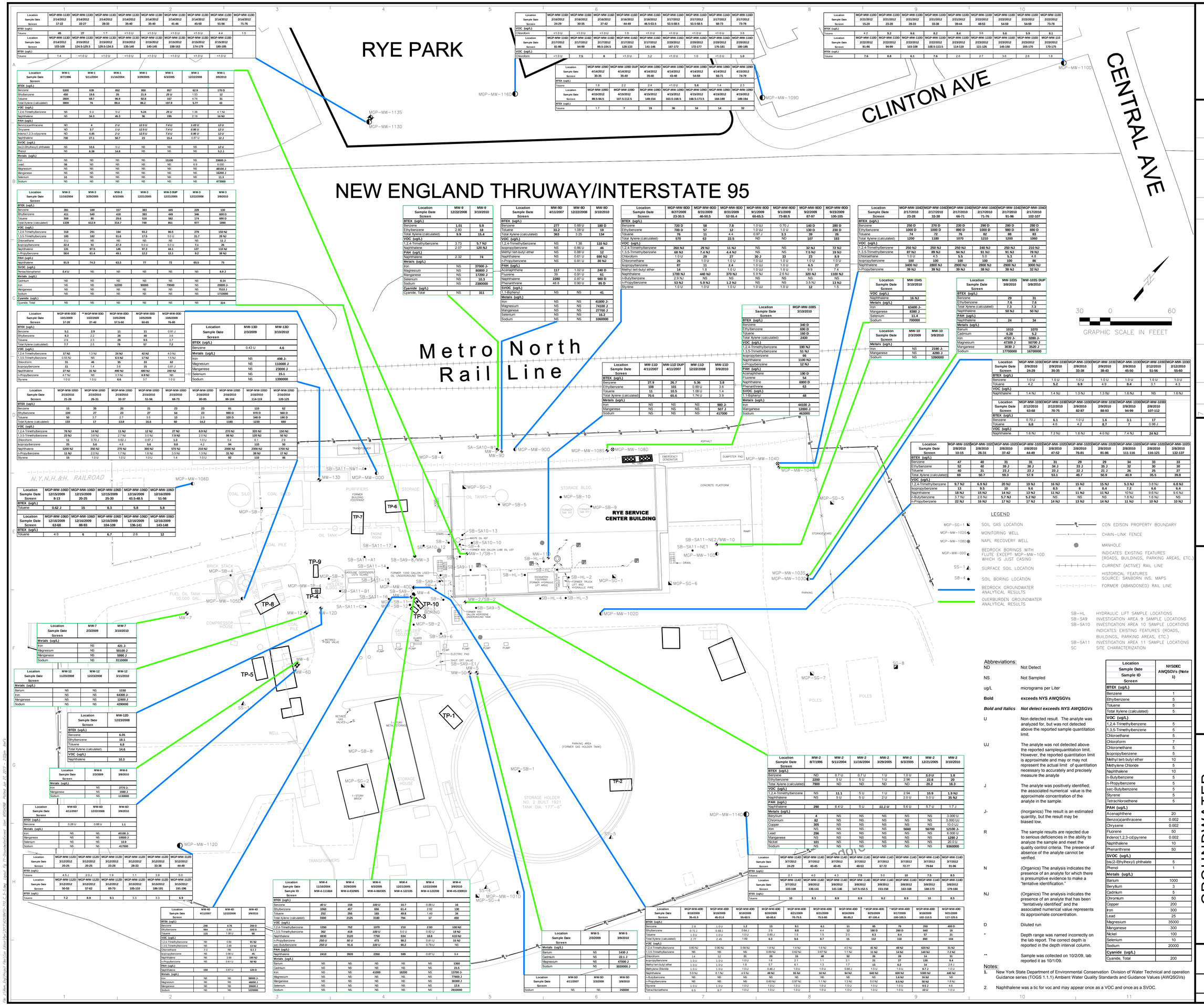
REMEDIAL INVESTIGATION

DRAWING NUMBER: 5-4

SHEET NUMBER:

REVISION 0

File: J:\Rem_Eng\Project Files\Con Edison\Rye\203171620384Y-710_C_5-4.dwg Layout: 5-4_OB_Exceedances User: VERSONJB Plotted: Jun 27, 2013 - 2:08pm Ver:5



Location Sample Date Screen	MGP-MW-113D 2/14/2012 17-22	MGP-MW-113D 2/14/2012 22-27	MGP-MW-113D 2/14/2012 29-33	MGP-MW-113D 2/14/2012 35-40	MGP-MW-113D 2/14/2012 35-40	MGP-MW-113D 2/14/2012 41-46	MGP-MW-113D 2/14/2012 45-50	MGP-MW-113D 2/14/2012 51-56	MGP-MW-113D 2/14/2012 71-76
BTEX (ug/L)									
Toluene	45	27	1.7	<1.0 U	<1.0 U	<1.0 U	<1.0 U	4.4	1.5

Location Sample Date Screen	MGP-MW-113D 2/14/2012 103-108	MGP-MW-113D 2/15/2012 124.5-129.5	MGP-MW-113D 2/15/2012 129.5-134.5	MGP-MW-113D 2/15/2012 135-140	MGP-MW-113D 2/15/2012 140-145	MGP-MW-113D 2/15/2012 158-163	MGP-MW-113D 2/15/2012 174-179	MGP-MW-113D 2/15/2012 180-185
BTEX (ug/L)								
Toluene	1.4	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U

Location Sample Date Screen	MGP-MW-116D 2/16/2012 24-29	MGP-MW-116D 2/16/2012 30-35	MGP-MW-116D 2/16/2012 37-42	MGP-MW-116D 2/16/2012 44-49	MGP-MW-116D 2/16/2012 48.5-53.5	MGP-MW-116D 2/17/2012 53.5-58.5	MGP-MW-116D 2/17/2012 58-63	MGP-MW-116D 2/17/2012 73-78
VOC (ug/L)								
Chloroform	<1.0 U	<1.0 U	<1.0 U	1.5	<1.0 U	<1.0 U	<1.0 U	2.6

Location Sample Date Screen	MGP-MW-116D 2/17/2012 81-86	MGP-MW-116D 2/17/2012 94-99	MGP-MW-116D 2/17/2012 99.5-104.5	MGP-MW-116D 2/17/2012 128-133	MGP-MW-116D 2/17/2012 141-146	MGP-MW-116D 2/20/2012 167-172	MGP-MW-116D 2/20/2012 172-177	MGP-MW-116D 2/20/2012 176-181	MGP-MW-116D 2/20/2012 180-185
VOC (ug/L)									
Chloroform	<1.0 U	7.5	8	<1.0 U	3.2	<1.0 U	1.0	<1.0 U	1.0

Location Sample Date Screen	MGP-MW-109D 4/14/2012 30-35	MGP-MW-109D DUP 4/14/2012 35-40	MGP-MW-109D 4/14/2012 35-40	MGP-MW-109D 4/14/2012 43-48	MGP-MW-109D 4/14/2012 54-59	MGP-MW-109D 4/14/2012 66-71	MGP-MW-109D 4/15/2012 74-79
BTEX (ug/L)							
Toluene	1.9	2.2	2.4	<1.0 U	5.6	1.4	2.3

Location Sample Date Screen	MGP-MW-109D 4/15/2012 88.5-94.5	MGP-MW-109D 4/15/2012 107.5-112.5	MGP-MW-109D 4/15/2012 149-154	MGP-MW-109D 4/15/2012 163.5-168.5	MGP-MW-109D 4/15/2012 168.5-173.5	MGP-MW-109D 4/15/2012 184-189	MGP-MW-109D 4/15/2012 189-194
BTEX (ug/L)							
Toluene	1.7	7	19	36	34	14	32

Location Sample Date Screen	MGP-MW-110D 2/23/2012 15-20	MGP-MW-110D 2/21/2012 23-28	MGP-MW-110D 2/21/2012 28-33	MGP-MW-110D 2/21/2012 33-38	MGP-MW-110D 2/23/2012 39-44	MGP-MW-110D 2/22/2012 48-53	MGP-MW-110D 2/22/2012 54-59	MGP-MW-110D 2/22/2012 64-69	MGP-MW-110D 2/22/2012 73-78
BTEX (ug/L)									
Toluene	4.2	9.2	9.6	8.2	8.4	3.6	5.6	5.9	8.1

Location Sample Date Screen	MGP-MW-110D 2/22/2012 81-86	MGP-MW-110D 2/22/2012 94-99	MGP-MW-110D 2/22/2012 103-108	MGP-MW-110D 2/22/2012 108.5-113.5	MGP-MW-110D 2/23/2012 114-119	MGP-MW-110D 2/23/2012 121-126	MGP-MW-110D 2/23/2012 145-150	MGP-MW-110D 2/23/2012 165-170	MGP-MW-110 2/23/2012 170-175
BTEX (ug/L)									
Toluene	7.6	8.8	6.1	7.6	2.6	2.7	3.6	2.6	1.8

Location Sample Date Screen	MW-1 8/7/1996	MW-1 5/11/2004	MW-1 11/16/2004	MW-1 3/29/2005	MW-1 6/3/2005	MW-1 12/22/2008	MW-1 3/9/2010
BTEX (ug/L)							
Benzene	5300	639	852	959	857	62.9	170 D
Ethylbenzene	450	19.6	26	21.9	*25 U*	1.53	12
Toluene	2800	69.7	96.9	92.8	157	4.74	31
Total Xylene (calculated)	3900	76	89.4	86.2	197.9	5.77	43
VOC (ug/L)							
1,2,4-Trimethylbenzene	NS	5 U	5 U	**5.24**	*25 U*	1.36	4.1 NJ
Naphthalene	NS	34.3	45.3	36	195	2.18	16 NJ
PAH (ug/L)							
Benzo(a)anthracene	ND	*4*	*2 U*	*12.5 U*	*7.4 U*	*1.03 U*	*12 U*
Chrysene	ND	3.7	*2 U*	*12.5 U*	*7.4 U*	*0.95 U*	*12 U*
Indeno(1,2,3-cd)pyrene	ND	4.45	*2 U*	*12.5 U*	*7.4 U*	*0.95 U*	*12 U*
Naphthalene	700	27.1	50.7	23	15.4	0.87 U	12 J
SVOC (ug/L)							
bis(2-Ethylhexyl) phthalate	NS	10.6	5 U	NS	NS	NS	*12 U*
Phenol	NS	8.38	14.8	NS	NS	NS	5.2 J
Metals (ug/L)							
Iron	NS	NS	NS	NS	15100	NS	33600 J-
Lead	56	NS	NS	NS	NS	8.9	8.000
Magnesium	NS	NS	NS	NS	NS	NS	48100 J
Manganese	NS	NS	NS	NS	NS	NS	16200 J
Selenium	18	NS	NS	NS	NS	NS	11.3
Sodium	NS	NS	NS	NS	NS	NS	673000

Location Sample Date Screen	MW-3 11/16/2004	MW-3 3/29/2005	MW-3 6/3/2005	MW-3 12/21/2005	MW-3 DUP 12/21/2005	MW-3 12/22/2008	MW-3 3/9/2010
BTEX (ug/L)							
Benzene	391	189	157	383	445	229	135
Ethylbenzene	411	540	418	393	449	346	600 D
Toluene	559	80	29.6	516	582	174	690 D
Total Xylene (calculated)	1339	612.9	314.7	749	851	977	1890
VOC (ug/L)							
1,2,4-Trimethylbenzene	318	291	194	93.2	96.5	279	150 NJ
1,3,5-Trimethylbenzene	100	182	51.6	17.9	5.0 U	31.7	26 NJ
Chloroethane	5 U	NS	NS	NS	NS	NS	11.2
Isopropylbenzene	32.4	51	27.3	5.0 U	5.0 U	7.1	26
Naphthalene	131	97.5	145	97.3	44.1	127	110 NJ
n-Propylbenzene	58.6	61.4	49.1	12.2	12.1	9.2	38 NJ
PAH (ug/L)							
Naphthalene	91.9	74.3	63.3	77	72	65.5	75
SVOC (ug/L)							
Pentachlorophenol	*5.4 U*	NS	NS	NS	NS	NS	8.9 J
Metals (ug/L)							
Cadmium	NS	NS	NS	NS	NS	NS	8.14
Iron	NS	NS	52200	90000	79500	NS	20800 J-
Manganese	NS	NS	NS	NS	NS	NS	7510 J
Sodium	NS	NS	NS	NS	NS	NS	1710000
Cyanide (ug/L)							
Cyanide, Total	NS	NS	NS	NS	NS	NS	324

Location Sample Date Screen	MW-9 12/22/2008	MW-9 3/10/2010
BTEX (ug/L)		
Benzene	1.01	5.9
Ethylbenzene	2.80	18
Total Xylene (calculated)	9.9	15.4
VOC (ug/L)		
1,2,4-Trimethylbenzene	3.73	5.7 NJ
Naphthalene	2.07	120 NJ
PAH (ug/L)		
Naphthalene	2.32	74
Metals (ug/L)		
Iron	NS	37000 J-
Magnesium	NS	80800 J
Manganese	NS	17200 J
Selenium	NS	10.3
Sodium	NS	2380000
Cyanide (ug/L)		
Cyanide, Total	NS	311

Location Sample Date Screen	MW-9D 4/11/2007	MW-9D 12/22/2008	MW-9D 3/10/2010
BTEX (ug/L)			
Benzene	277	0.88 U	180 D
Toluene	33.2	1.08 U	19
Total Xylene (calculated)	263	3.25	134
VOC (ug/L)			
1,2,4-Trimethylbenzene	NS	1.38	110 NJ
Isopropylbenzene	NS	0.86 U	46
Methyl tert-butyl ether	NS	0.88 U	12
Naphthalene	NS	0.61 U	690 NJ
n-Propylbenzene	NS	0.81 U	30 NJ
PAH (ug/L)			
Acenaphthene	117	1.02 U	240 D
Fluorene	39	0.91 U	61
Naphthalene	2280	0.87 U	980 D
Phenanthrene	48.8	0.90 U	85 D
SVOC (ug/L)			
1,1-Biphenyl	NS	NS	41
Metals (ug/L)			
Iron	NS	NS	41800 J-
Magnesium	NS	NS	74100 J
Manganese	NS	NS	27700 J
Selenium	NS	NS	16.2
Sodium	NS	NS	1060000

Location Sample Date Screen	MGP-MW-9DD 10/1/2009 17-20	** MGP-MW-9DD 10/2/2009 37-40	MGP-MW-9DD 10/5/2009 57.5-60	MGP-MW-9DD 10/6/2009 60-65	MGP-MW-9DD 10/6/2009 76-80
BTEX (ug/L)					
Benzene	5.1	2.9	11	11	0.91 J
Ethylbenzene	9.3	2.2	28	40	3.6
Toluene	2.9	2.3	29	9.5	3.7
Total Xylene (calculated)	7.7	2.5	78	57	7.2
VOC (ug/L)					
1,2,4-Trimethylbenzene	17 NJ	1.3 NJ	24 NJ	42 NJ	4.0 NJ
1,3,5-Trimethylbenzene	0.55 NJ	NS	6.5 NJ	17 NJ	1.5 NJ
Chloroform	31	45	35	33	42
Isopropylbenzene	11	1.4	3.6	15	0.81 J
Naphthalene	27 NJ	31 NJ	490 NJ	480 NJ	240 NJ
n-Propylbenzene	4.7 NJ	NS	3.3 NJ	6.9 NJ	NS
Styrene	1.0 U	1.0 U	6.6	3.7	1.0 U

Location Sample Date Screen	MW-13D 2/3/2009	MW-13D 3/10/2010
BTEX (ug/L)		
Benzene	0.43 U	4.6
Metals (ug/L)		
Iron	NS	498 J-
Magnesium	NS	110000 J
Manganese	NS	23000 J
Selenium	NS	15.1
Sodium	NS	1390000

Location Sample Date Screen	MW-11D 4/11/2007	MW-11D DUP 4/11/2007	MW-11D 12/22/2008	MW-11D 3/9/2010
BTEX (ug/L)				
Benzene	27.9	26.7	5.36	3.8
Ethylbenzene	108	101	0.89 U	3.6
Toluene	11	10.5	1.08 U	1.4
Total Xylene (calculated)	70.6	65.6	1.74 U	3.9
Metals (ug/L)				
Iron	NS	NS	NS	980 J-
Manganese	NS	NS	NS	507 J
Sodium	NS	NS	NS	417000

Location Sample Date Screen	MGP-MW-108S 3/10/2010
BTEX (ug/L)	
Benzene	340 D
Ethylbenzene	690 D
Toluene	160 D
Total Xylene (calculated)	2430
VOC (ug/L)	
1,2,4-Trimethylbenzene	190 NJ
1,3,5-Trimethylbenzene	51 NJ
Isopropylbenzene	66
Naphthalene	1100 NJ
n-Propylbenzene	12 NJ
PAH (ug/L)	
Acenaphthene	190 D
Fluorene	54
Naphthalene	6900 D
Phenanthrene	63
SVOC (ug/L)	
1,1-Biphenyl	48
Metals (ug/L)	
Iron	44100 J-
Manganese	12000 J
Sodium	463000

Location Sample Date Screen	MGP-MW-104D 2/17/2010 23-28	MGP-MW-104D 2/17/2010 33-38	MGP-MW-104D 2/17/2010 66-71	MGP-MW-104D 2/17/2010 71-76	MGP-MW-104D 2/17/2010 91-96	MGP-MW-104D 2/17/2010 102-107
BTEX (ug/L)						
Benzene	250 D	270 D	230 D	290 D	280 D	280 D
Ethylbenzene	1000 D	1000 D	890 D	1000 D	980 D	880 D
Toluene	74	72	76	82	88	83
Total Xylene (calculated)	1200	1180	1070	1210	1200	1060
VOC (ug/L)						
1,2,4-Trimethylbenzene	250 NJ	250 NJ	250 NJ	240 NJ	250 NJ	210 NJ
1,3,5-Trimethylbenzene	87 NJ	89 NJ	94 NJ	91 NJ	91 NJ	78 NJ
Chloroethane	1.0 U	4.5	5.5	5.0	5.3	4.8
Isopropylbenzene	100	100	100	100	100	86
Naphthalene	3400 NJ	2800 NJ	2900 NJ	2800 NJ	2900 NJ	3000 NJ
n-Propylbenzene	39 NJ	39 NJ	39 NJ	38 NJ	38 NJ	32 NJ

Location Sample Date Screen	MW-104S 3/10/2010
VOC (ug/L)	
Naphthalene	16 NJ
Metals (ug/L)	
Iron	63400 J-
Manganese	8380 J
Selenium	11.4
Sodium	700000

Location Sample Date Screen	MW-10 2/3/2009	MW-10 3/8/2010
Metals (ug/L)		
Iron	NS	2190 J-
Manganese	NS	4280 J
Sodium	NS	1090000

Location Sample Date Screen	MW-103S 3/8/2010	MW-103S DUP 3/8/2010
BTEX (ug/L)		
Benzene	29	31
Ethylbenzene	7.6	7.6
Total Xylene (calculated)	7.3	7.3
Naphthalene	50 NJ	50 NJ
PAH (ug/L)		
Naphthalene	24	34
Metals (ug/L)		
Barium	1010	1070
Cadmium	6.28	5.2
Iron	4720 J-	3280 J-
Magnesium	47300 J	50700 J
Manganese	3030 J	3520 J
Sodium	17700000	16700000

Location Sample Date Screen	MGP-MW-103D 2/9/2010 24-29	MGP-MW-103D 2/9/2010 30-35	MGP-MW-103D 2/9/2010 33-38	MGP-MW-103D 2/9/2010 38-43	MGP-MW-103D 2/9/2010 45-50	MGP-MW-103D 2/12/2010 51-56	MGP-MW-103D 2/12/2010 55-60
BTEX (ug/L)							
Benzene	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	4.2	5.2	6.9	4.9	8.4	3.1	4.3
VOC (ug/L)							
Naphthalene	1.4 NJ	1.4 NJ	1.3 NJ	1.3 NJ	1.6 NJ	NS	1.6 NJ

Location Sample Date Screen	MGP-MW-103D 2/12/2010 63-68	MGP-MW-103D 2/12/2010 70-75	MGP-MW-103D 2/9/2010 82-87	MGP-MW-103D 2/9/2010 88-93	MGP-MW-103D 2/9/2010 94-99	MGP-MW-103D 2/9/2010 107-112
BTEX (ug/L)						
Benzene	0.70 J	6.1	1.0 U	1.6	3.1	17
Toluene	6.8	4.6	4.2	8.7	7	0.98 J
VOC (ug/L)						
Naphthalene	1.6 NJ	7.2 NJ	1.8 NJ	4.0 NJ	7.4 NJ	24 NJ

Location Sample Date Screen	MGP-MW-102D 2/8/2010 10-15	MGP-MW-102D 2/8/2010 26-31	MGP-MW-102D 2/8/2010 37-42	MGP-MW-102D 2/8/2010 44-49	MGP-MW-102D 2/8/2010 47-52	MGP-MW-102D 2/8/2010 76-81	MGP-MW-102D 2/8/2010 81-86	MGP-MW-102D 2/8/2010 111-116	MGP-MW-102D 2/8/2010 116-121	MGP-MW-102D 2/8/2010 132-137
BTEX (ug/L)										
Benzene	47	40	31	31	31	29	29	34	33	33
Ethylbenzene	52	40	39 J	38 J	34 J	33 J	35 J	32	30	30
Toluene	40	31	23 J	23 J	23 J	22 J	21 J	26	25	27
Total Xylene (calculated)	69	50.7	59.3	57.9	53.1	49.7	50.9	40.9	35.5	39.8
VOC (ug/L)										
1,2,4-Trimethylbenzene	9.7 NJ	6.9 NJ	20 NJ	19 NJ	16 NJ	15 NJ	15 NJ	5.3 NJ	3.8 NJ	6.8 NJ
Isopropylbenzene	13	9.5	10	9.6	8.5	9	8.4	7.2	6.6	6.4
Naphthalene	18 NJ	15 NJ	14 NJ	13 NJ	11 NJ	11 NJ	11 NJ	10 NJ	9.6 NJ	9.6 NJ
n-Butylbenzene	3.7 NJ	2.6 NJ	5.7 NJ	5.2 NJ	NS	NS	NS	1.8 NJ	1.6 NJ	NS
n-Propylbenzene	22 NJ	16 NJ	17 NJ	17 NJ	14 NJ	13 NJ	14 NJ	11 NJ	10 NJ	10 NJ

Location Sample Date Screen	MGP-MW-105D 2/15/2010 21-26	MGP-MW-105D 2/15/2010 26-31	MGP-MW-105D 2/15/2010 32-37	MGP-MW-105D 2/15/2010 51-56	MGP-MW-105D 2/15/2010 68-73	MGP-MW-105D 2/16/2010 80-85	MGP-MW-105D 2/16/2010 98-104	MGP-MW-105D 2/16/2010 114-119	MGP-MW-105D 2/16/2010 120-125
BTEX (ug/L)									
Benzene	15	35	20	21	23	23	91	110	62
Ethylbenzene	100	27	23	27	64	23	980 D	970 D	560 D
Toluene	50	3.7	2.7	3.5	13	2.9	320 D	340 D	190 D
Total Xylene (calculated)	133	17	13.8	15.6	60	14.2	1180	1230	660
VOC (ug/L)									
1,2,4-Trimethylbenzene	76 NJ	14 NJ	11 NJ	12 NJ	27 NJ	8.9 NJ	270 NJ	320 NJ	150 NJ
1,3,5-Trimethylbenzene	23 NJ	3.8 NJ	2.7 NJ	3.0 NJ	7.8 NJ	2.0 NJ	98 NJ	120 NJ	50 NJ
Chloroform	11	0.70 J	0.62 J	0.67 J	1.3	1.0 U	5.4	6.1	2.9
Isopropylbenzene	25	5.6	4.5	5.6	9.8	4.2	94	110	50
Naphthalene	120 NJ	350 NJ	270 NJ	300 NJ	570 NJ	210 NJ	2000 NJ	2300 NJ	1700 NJ
n-Propylbenzene	11 NJ	2.0 NJ	1.7 NJ	1.8 NJ	3.5 NJ	1.3 NJ	31 NJ	38 NJ	17 NJ
Styrene	15	1.0 U	1.0 U	1.0 U	1.4	1.0 U	92	110	46

Location Sample Date Screen	MGP-MW-106D 12/15/2009 8-13	MGP-MW-106D 12/15/2009 20-25	MGP-MW-106D 12/15/2009 25-30	MGP-MW-106D 12/16/2009 43.5-48.5	MGP-MW-106D 12/16/2009 51-56
BTEX (ug/L)					
Toluene	0.62 J	15	8.3	5.8	5.8

Location Sample Date Screen	MGP-MW-106D 12/16/2009 63-68	MGP-MW-106D 12/16/2009 88-93	MGP-MW-106D 12/16/2009 104-109	MGP-MW-106D 12/16/2009 136-141	MGP-MW-106D 12/16/2009 143-148
BTEX (ug/L)					
Toluene	4.0	6	6.7	2.6	12

Location Sample Date Screen	MW-7 2/3/2009	MW-7 3/10/2010
Metals (ug/L)		
Iron	NS	421 J-
Magnesium	NS	50100 J
Manganese	NS	5990 J
Sodium	NS	3110000

Location Sample Date Screen	MW-12 11/20/2008	MW-12 12/23/2008	MW-12 3/11/2010
Metals (ug/L)			
Barium	NS	NS	1150
Iron	NS	NS	64300 J-
Manganese	NS	NS	12400 J
Sodium	NS	NS	4290000

Location Sample Date Screen	MW-12D 12/23/2008
BTEX (ug/L)	
Benzene	6.05
Ethylbenzene	18.1
Toluene	6.8
Total Xylene (calculated)	14.6
VOC (ug/L)	
Naphthalene	10.3

Location Sample Date Screen	MW-6 2/3/2009	MW-6 3/9/2010
Metals (ug/L)		
Iron	NS	2770 J-
Manganese	NS	1590 J
Sodium	NS	1130000

Location Sample Date Screen	MW-6D 4/11/2007	MW-6D 12/22/2008	MW-6D 3/9/2010
BTEX (ug/L)			
Benzene	0.28 U	0.88 U	1.1
Metals (ug/L)			
Iron	NS	NS	45100 J-
Manganese	NS	NS	10500 J
Selenium	NS	NS	10.9
Sodium	NS	NS	417000

Location Sample Date Screen	MGP-MW-112D 3/12/2012 20-25	MGP-MW-112D 3/12/2012 20-25	MGP-MW-112D 3/12/2012 23-28	MGP-MW-112D 3/12/2012 28-33	MGP-MW-112D 3/12/2012 33-38	MGP-MW-112D 3/12/2012 44-49
BTEX (ug/L)						
Toluene	4.5 J	2.0 J	1.9	1.1	3.9	5.0

Location Sample Date Screen	MGP-MW-112D 3/12/2012 50-55	MGP-MW-112D 3/12/2012 57-62	MGP-MW-112D 3/12/2012 65-70	MGP-MW-112D 3/13/2012 105-110	MGP-MW-112D 3/13/2012 186-191	MGP-MW-112D 3/13/2012 191-196
BTEX (ug/L)						
Toluene	7.2	8.9	9.1	3.3	3.3	6.9

Location Sample Date Screen	MW-4 11/16/2004	MW-4 3/29/2005 MW-4-011604	MW-4 6/3/2005 MW-4-032905	MW-4 6/3/2005 MW-4-060305	MW-4 12/21/2005 MW-4-122105	MW-4 12/22/2008 MW-4-122208	MW-4 3/9/2010 MW-4S-030910
BTEX (ug/L)							
Benzene	*40 U*	158	*100 U*	10.7	0.88 U	16	
Ethylbenzene	1060	457	656	61.4	2.92	130	
Toluene	252	266	165	49.8	1.49	34	
Total Xylene (calculated)	3300	2125	3180	794	17	450	
VOC (ug/L)							
1,2,4-Trimethylbenzene	1350	752	1070	210	2.93	100 NJ	
1,3,5-Trimethylbenzene	362	418	*100 U*	8.0 U	0.82 U	18 NJ	
Naphthalene	6030	3120	7750	934	5.8	610 NJ	
n-Propylbenzene	*250 U*	*50 U*	473	98.2	0.81 U	15 NJ	
sec-Butylbenzene	*250 U*	91.6	*100 U*	90.2	0.78 U	NS	
PAH (ug/L)							
Naphthalene	2410	3920	2350	599	0.87 U	9.4	
Metals (ug/L)							
Barium	NS	NS	NS	NS	NS	1360	
Cadmium	NS	NS	NS	NS	NS	21.5	
Iron	NS	NS	41000	18200	NS	13700 J-	
Magnesium	NS	NS	NS	NS	NS	77800 J	
Manganese	NS	NS	NS	NS	NS	30300 J	
Selenium	NS	NS	NS	NS	NS	12.6	
Sodium	NS	NS	NS	NS	NS	2910000	

Location Sample Date Screen	MW-4D 4/11/2007	MW-4D 12/22/2008	MW-4D 3/9/2010
BTEX (ug/L)			
Benzene	246	4.76	200 D
Ethylbenzene	564	0.86	320 D
Toluene	115	1.08 U	90
VOC (ug/L)			
1,2,4-Trimethylbenzene	NS	0.84	91 NJ
1,3,5-Trimethylbenzene	NS	2.48	13 NJ
Chloroethane	3 U	NS	6.1 J
Isopropylbenzene	NS	0.86 U	45
Naphthalene	NS	2.66	190 NJ
n-Propylbenzene	NS	0.81 U	58 NJ
PAH (ug/L)			
Naphthalene	159	0.87 U	120 D
Metals (ug/L)			
Iron	NS	NS	39000 J-
Magnesium	NS	NS	48000 J
Manganese	NS	NS	20600 J
Sodium	NS	NS	1030000

Location Sample Date Screen	MW-5 2/3/2009	MW-5 3/9/2010
Metals (ug/L)		
Barium	NS	1430 J
Cadmium	NS	22.1 J
Magnesium	NS	47000 J
Sodium	NS	3020000 J

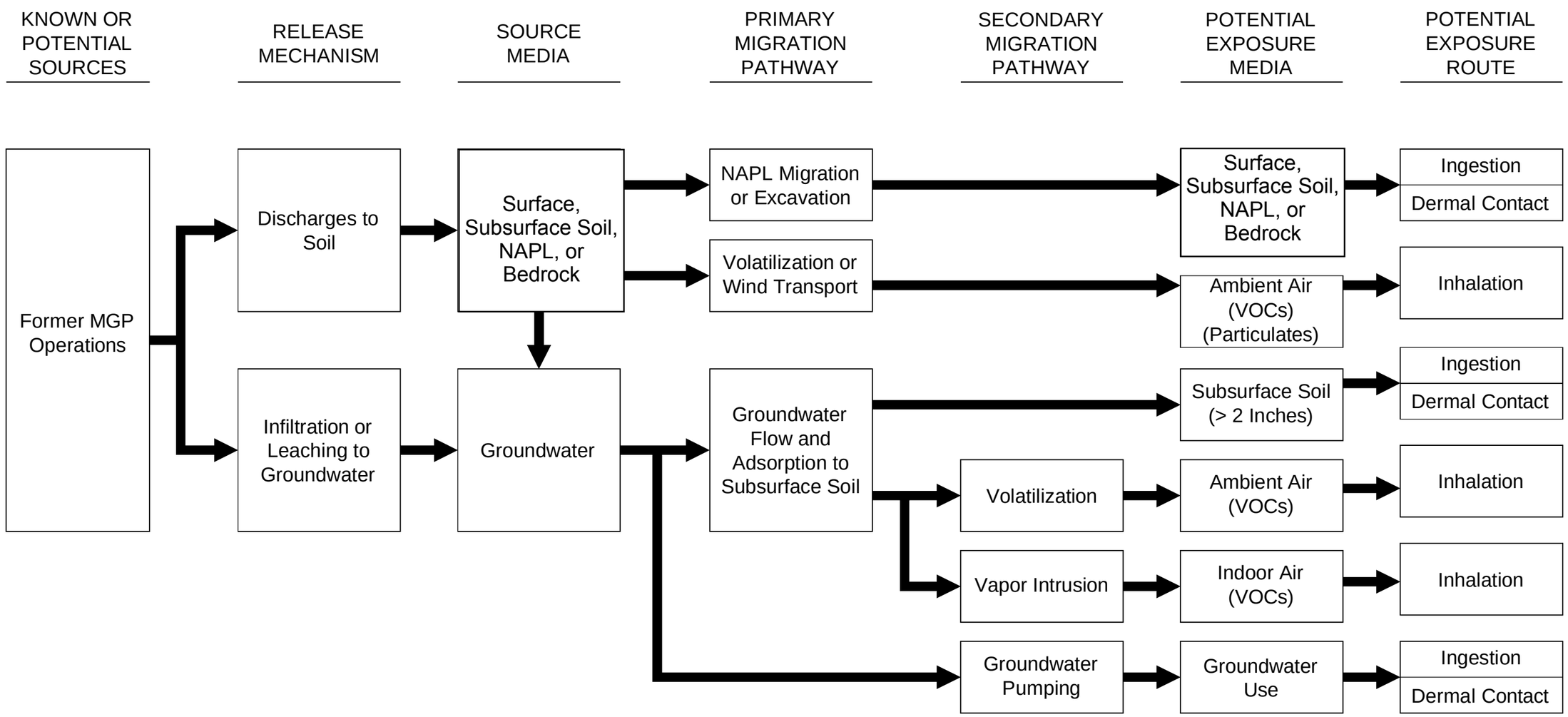
Location Sample Date Screen	MW-5D 4/11/2007	MW-5D 2/3/2009	MW-5D 3/9/2010
Sodium	NS	NS	250000

Location Sample Date Screen	MW-2 8/7/1996	MW-2 5/11/2004	MW-2 11/16/2004	MW-2 3/29/2005	MW-2 6/3/2005	MW-2 12/21/2005	MW-2 3/10/2010
BTEX (ug/L)							
Benzene	ND	0.7 U	0.7 U	1 U	1.0 U	**5.0 U**	**1.8**
Ethylbenzene	**2200**	5 U	5 U	1 U	2.96	**22.8**	**20**
Total Xylene (calculated)	**7900**	ND	ND	ND	ND	**20.2**	**18.3**
VOC (ug/L)							
1,2,4-Trimethylbenzene	NS	**11.1**	5 U	1 U	2.94	**10.9**	**1.9 NJ**
Naphthalene	NS	5 U	5 U	2 U	2.0 U	5.0 U	**35 NJ**
PAH (ug/L)							
Naphthalene	**290**	6.4 U	5 U	***11.1 U***	5.6 U	5.7 U	1.7 J
Metals (ug/L)							
Beryllium	**4**	NS	NS	NS	NS	NS	3.000 U
Chromium	**82**	NS	NS	NS	NS	NS	5.000 UJ
Copper	**305**	NS	NS	NS	NS	NS	10.0 UJ
Iron	NS	NS	NS	NS	**5660**	**56700**	**12100 J-**
Lead	**296**	NS	NS	NS	NS	NS	6.000 U
Manganese	NS	NS	NS	NS	NS	NS	**1290 J**
Nickel	**101**	NS	NS	NS	NS	NS	20.0 U
Sodium	NS	NS	NS	NS	NS	NS	**9360000**

Location Sample Date Screen	MGP-MW-114D 3/7/2012 24-29	MGP-MW-114D 3/7/2012 40-45	MGP-MW-114D 3/7/2012 40-45	MGP-MW-114D 3/7/2012 48-53	MGP-MW-114D 3/7/2012 67-72	MGP-MW-114D 3/7/2012 72-77	MGP-MW-114D 3/7/2012 79-84	MGP-MW-114D 3/7/2012 91-96
BTEX (ug/L)								
Toluene	2.1	4.0	4.3	7.5	5.0	10	7.5	8.5

Location Sample Date Screen	MGP-MW-114D 3/7/2012 103-108	MGP-MW-114D 3/8/2012 136-141	MGP-MW-114D 3/8/2012 141-146	MGP-MW-114D 3/8/2012 147.5-152.5	MGP-MW-114D 3/8/2012 153-158	MGP-MW-114D 3/8/2012 163-168	MGP-MW-114D 3/8/2012 168-173	MGP-MW-114D 3/8/2012 179-184
BTEX (ug/L)								
Toluene	10	8.3	8.9	8.9	9.2	8.9	10	8.5

Location Sample Date Screen	MGP-MW-104D 8/18/2009 35-41.5	MGP-MW-104D 8/19/2009 45-51.5	MGP-MW-104D 8/19/2009 55-60.5	MGP-MW-104D 8/20/2009 60-65.5	MGP-MW-104D 8/21/2009 70-75.5	MGP-MW-104D 8/21/2009 75.5-80	MGP-MW-104D 8/24/2009 80-85.2	* MGP-MW-104D 8/25/2009 87-100.4	* MGP-MW-104D 9/17/2009 100-105.5	MGP-MW-104D 9/18/2009 102-110.5	MGP-MW-104D 9/21/2009 117-125.5
BTEX (ug/L)											
Benzene	2.8	1.0 U	**1.2**	**13**	**9.1**	**6.1**	**11**	**85**	**79**	**250**	**400 D**



Note:
Table 6-1 provides summary information regarding the potential receptor groups identified for the Rye Gas Works Site

AECOM

CONSOLIDATED EDISON RYE GAS WORKS SITE 178 THEODORE FREMD AVE., RYE, NY	CONCEPTUAL SITE MODEL
6/28/2013 DRWN: BcV/W-MA	FIGURE 6-1