Supplemental Field Program Report

Sag Harbor Former MGP Site

Suffolk County, Long Island
Sag Harbor, New York
Site ID No. 1-52-159

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Table of Contents

Table of Contents (cont.)

Tables

Figures

Appendices

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Abbreviations and Acronyms

ASP	Analytical Services Protocol
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
COPCs	Chemicals of Potential Concern
COPECs	Chemicals of Potential Ecological Concern
DNAPL	Dense Non-Aqueous Phase Liquid
EPA	United States Environmental Protection Agency
FWRIA	Fish and Wildlife Resources Impacts Analysis
LILCO	Long Island Lighting Company
LNAPL	Light Non-Aqueous Phase Liquid
MDL	Method Detection Limit
MGP	Manufactured Gas Plant
MTBE	Methyl Tert Butyl Ether
NAPL	Non-Aqueous Phase Liquids
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
ORP	Oxidation/Reduction Potential
PAH	Polycyclic Aromatic Hydrocarbon
PID	Photoionization Detector
QA/QC	Quality Assurance/Quality Control
QHEA	Qualitative Human Exposure Assessment
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SCG	Standards, Criteria and Guidance
SVOC	Semivolatile Organic Compound
TAGM	Technical and Administrative Guidance Memorandum
TCL	Target Compound List
TOGS	Technical Operations and Guidance Series
VOC	Volatile Organic Compound

MEASUREMENTS

bgs	below ground surface
msl	mean sea level
ppbv	parts per billion per unit volume
ug/L	microgram per liter
mg/kg	milligram per kilogram

Executive Summary

This report provides the results of a Supplemental Field Program conducted at the Sag Harbor former Manufactured Gas Plant (MGP) site located in the Village of Sag Harbor, Suffolk County, New York. The results of the supplemental field program confirm the conclusions of the previous Remedial Investigation (RI) and document that there are no complete exposure pathways to humans or ecological receptors.

The Sag Harbor site is located on the east side of Bridge Street at its intersection with Long Island Avenue and West Water Street. A manufactured gas plant previously operated on the site. Detailed historical information regarding the operation of the former MGP site is limited. Gas production first began at the site in 1859 when coal or rosin was manufactured into gas. The Lowe Carbureted Water Gas Process was used for gas manufacturing after 1892. In 1916, the Long Island Gas Corporation took control of the site and increased production capacity. In 1929, the Long Island Lighting Company (LILCO) purchased the site, gas production was ceased and the facilities for gas manufacturing were dismantled and removed. Since that time, the site has been used for gas storage and an active 100,000-cubic foot gas storage tank (Hortonsphere) and compressor station building, as well as three natural gas storage tanks, are located on the property. The site is currently owned by KeySpan Corporation (KeySpan).

The supplemental field program was undertaken to assess current environmental conditions at and adjacent to the site, and identify whether there have been significant changes to these conditions since the previous investigation, as described in the Final Remedial Investigation Report, dated December 2003 (Final RI Report). In addition, the field program was conducted to identify whether there are any additional potential exposure pathways through which people or flora and fauna could be exposed to chemical constituents from the site. The results of the supplemental field program augment the existing information from the RI to guide the development of any efforts to remediate contamination associated with the site.

The objectives of the supplemental field program were to:

- Document current contaminant concentrations in on-site and off-site groundwater, and any changes in distribution of these chemical constituents since the previous investigation.
- Determine if the contaminants from the site have migrated into the local stormwater sewer system.

- Document if any surface soil adjacent to the site is impacted by chemical constituents from the site.
- Document if indoor air at private properties within the area of the groundwater plume has been impacted by chemical constituents related to the site.
- Document whether there is a need to revise the previous exposure assessment and if interim measures are necessary to reduce potential exposures.

The results of the field program verified the presence of coal tar-related volatile and semivolatile organic compounds (benzene, toluene, ethylbenzene and xylenes [BTEX] and certain polycyclic aromatic hydrocarbons [PAHs]) within the study area.

The key findings of the supplemental field program include (see Section 5 of this report for further discussion):

- Groundwater data show that BTEX and PAH concentrations have remained generally stable from the previous investigation sampling event in May 2002, with the exception of several shallow wells exhibiting increased concentrations in 2004. The distribution of BTEX and PAHs is consistent with the previous investigation findings of the Final RI.
- Dense non-aqueous phase liquid (DNAPL) was present in several on-site and off-site monitoring wells, including some wells that did not contain DNAPL during the previous investigation.
- Stormwater data suggest that contaminants from the groundwater plume have not migrated into the stormwater sewer system.
- Relatively low total BTEX and PAH concentrations were detected in the surface soil samples and appear to be related to potential sources other than the former MGP site.
- Indoor and outdoor air sampling data indicate that the majority of volatile organic compounds (VOCs) were reported as non-detect, and the compounds that were detected were either detected within the range of background concentrations as reported by the New York State Department of Health (NYSDOH), were orders of magnitude below occupational standards, and/or were generally those not typically associated with MGP impacts. Additionally, naphthalene, the compound most commonly associated with potential MGP impacts, was not detected in any of the samples.
- The stormwater, surface soil, and indoor air sampling results indicate that exposure pathway issues are consistent with the findings of the Final RI and that there is no need to revise the previous exposure assessment, and interim measures are not necessary to reduce potential exposures.

Based on the above, continued groundwater sampling is recommended to monitor BTEX and PAH concentrations in groundwater. In addition, it is recommended that monitoring for the presence of DNAPL in monitoring wells be continued and that accumulated DNAPL be removed from these wells on a continual basis.

Section 1 of this report introduces the objectives and scope of the supplemental field program, as well as a brief description of the site, its operational history, and site conditions. Section 2 presents a summary of findings from previous investigations conducted on or in the vicinity of the site, as well as a summary of the exposure assessment that was included in the Final RI Report. Section 3 details the field investigation, while Section 4 discusses the findings of the analytical data from the supplemental field program. Section 5 provides conclusions and recommendations based on the findings of this report.

1. Introduction

This Supplemental Field Program report was prepared by GEI Consultants, Inc. (GEI) for the Sag Harbor former manufactured gas plant (MGP) site located in the Village of Sag Harbor, Suffolk County, New York (Site ID No. 1-52-159). The report was prepared on behalf of KeySpan Corporation (KeySpan). The scope of the supplemental field program was developed with the New York State Department of Conservation (NYSDEC) and with input from the New York State Department of Health (NYSDOH).

KeySpan entered into an Order of Consent (Index No. D1-0002-98-11) with NYSDEC to conduct a remedial investigation at the former MGP site. An initial field program was completed in Spring 2000 and a Remedial Investigation Report was completed in June 2002 by Dvirka and Bartilucci Consulting Engineers (D&B). Additional sampling activities were completed and presented in the Final Remedial Investigation Report (Final RI Report), dated December 2003, by D&B.

The supplemental field program is based on GEI's assessment of remedial investigation data concerning the nature and extent of contamination at the site and requests for additional sampling activities made by NYSDEC to further evaluate potential off-site human health and environmental impacts of contaminants from the former MGP operations. A Supplemental Field Program Work Plan was submitted to NYSDEC on April 20, 2004. The purpose of the supplemental field program was to assess the current conditions at the site and identify whether there were any significant differences from the conditions described in the Final RI Report. The objectives of the field program included:

- To document current contaminant concentrations in on-site and off-site groundwater and to determine if contaminant concentrations and distribution has changed since the previous investigations.
- To document if contaminants related to the site have migrated into the stormwater sewer system in the vicinity of the site and are present in the discharge from the stormwater outfall pipe to Sag Harbor Cove.
- To document if any accessible surface soil is impacted by contaminants related to the site.
- To document if indoor air at private properties adjacent to the site, and within the area of the groundwater plume associated with the former MGP has been impacted by contaminants related to the site. The previous assessment of indoor air showed no such impacts.

- To document if there is a need to revise the exposure assessment presented in the Final RI Report based on the data collected in this field program and if interim measures are necessary to reduce potential exposures.

1.1 Site Description and History

The Sag Harbor former MGP site is located on the east end of Long Island in the Village of Sag Harbor, Suffolk County, New York. It is located on the north shore of the south fork of Long Island. The site location is shown in Figure 1. The site is situated on the east side of Bridge Street at its intersection with Long Island Avenue and West Water Street. It is approximately 0.8 acres in area. The site is bordered by Long Island Avenue and a commercial development (retail stores) to the north, a commercial building to the south, Bridge Street and residential condominiums to the west, and a post office and parking lot to the east. The area surrounding the site includes a variety of land uses including residential, commercial, industrial, and recreational. The site layout and adjacent areas are depicted on Figure 2.

Detailed historical information regarding the operation of the former MGP site is limited. The following discussion is based on information provided by KeySpan. The property was first purchased in 1859 by Captain David Cogden, and was said to have been used to manufacture gas from coal or rosin. The Lowe Carbureted Water Gas Process was used on-site from 1892 to approximately 1929. Successor companies manufactured gas, either intermittently or continuously, on the site. The original service area included the Village of Sag Harbor and the surrounding area, as well as seasonal communities on the eastern end of Long Island. In 1916, the Long Island Gas Corporation took control and increased production capacity, and in 1929, the Long Island Lighting Company (LILCO) purchased the site.

After acquisition, LILCO linked the company’s gas distribution system in eastern Long Island to Bay Shore. With the shift to serving as a distribution link in 1929, production at the Sag Harbor site ceased, and gas storage capacity was increased significantly, including the construction of aboveground storage tanks. The facilities for gas manufacturing were dismantled and removed from the site sometime after 1929. Based on a review of historic site plans and Sanborn maps, the property included four gas storage tanks, three purifying houses, several oil tanks, a tar separator, and several other production buildings.

An active 100,000 cubic foot spherical gas storage tank (referred to as a Hortonsphere) is currently located on the southwest corner of the site. Gas lines from a regulator located in the northeastern area of the site traverse the northern and central portions of the site and convey natural gas to the Hortonsphere. A compressor station building is located to the east of the regulator. Three natural gas storage tanks are set on concrete southwest of the compressor station. The surface of the site is covered in crushed stone.

1.2 Site Topography/Drainage

Topography at the site is relatively flat; however, there are low points where stormwater accumulates during heavy rain, particularly in the southwestern portion of the site. Site elevation ranges from approximately 3.5 feet above mean sea level (msl) in the southwestern portion of the site to about 5.5 feet above msl in the northeastern corner of the site. Stormwater runoff across the site generally flows southwest. Stormwater catch basins located along Long Island Avenue to the west of the site are connected to storm sewers that ultimately discharge to Sag Harbor Cove.

1.3 Site Hydrology

Groundwater at the site ranges in depth from approximately 0.8 to 2 feet below ground surface (bgs) based on groundwater level measurements collected on May 17, 2004. Groundwater flow is tidally influenced. Groundwater flow is predominantly to the west.

1.4 Site Geology

Historical records indicate the Sag Harbor area consisted of large tracts of marshland that have been filled since the 1730s to allow for development. As a result, the site and surrounding properties are directly underlain by historic fill material consisting primarily of sand and silt along with varying amounts of clay, cobbles, brick, coal, ash, and wood. The fill material is between 4 and 8 feet in thickness and rests directly on a peat deposit in most locations. The peat deposit consists of a highly organic material containing plant fibers and roots and occurs in conjunction with a fine-grained inorganic silt/clay sediment. This peat/silt/clay unit is found throughout the site, as well as in areas to the south. It has an observed thickness of 0.5 to 14 feet. The unit appears to be absent in off-site areas to the north and northwest and appears to be absent or relatively thin in the southeastern portion of the site.

Where present, the peat/silt/clay unit appears to act as a confining layer, limiting the vertical flow of groundwater, as well as the vertical migration of chemical constituents. Below this unit exists the shallow sand unit, which consists of fairly well sorted fine- to medium-grained quartz sand characteristic of highly permeable glacial sands found throughout much of Long Island. The shallow sand unit contains a number of discontinuous fine-sand/silt lenses.

2. Previous Site Investigations

2.1 Environmental Investigations

Between 1988 and 2003, several environmental investigations, including the RI field programs conducted in 2000 and 2002, were completed at and in the vicinity of the site. The results of these investigations indicated that chemical constituents associated with MGP operations were present in the soil and groundwater on-site and in the adjacent area. Additional details regarding previously completed investigations are presented in the Final RI Report.

A summary of the findings of the RI field programs completed at the site in 2000 and 2002 is provided below.

Surface soil on the site was found to contain polycyclic aromatic hydrocarbons (PAHs). Off-site surface soil samples collected in various different land use areas generally did not exhibit chemical constituents at elevated concentrations, with the exception of PAHs in a sample collected immediately adjacent to the southwestern corner of the site. However, the concentration of PAHs detected at this location was significantly less than the concentrations detected on-site.

Subsurface soil contained elevated concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX) and PAHs, with the highest levels found in the eastern and central portions of the site at or near the locations of former MGP structures. A number of subsurface soil samples collected within these areas also exhibited evidence of nonaqueous phase liquid (NAPL). However, evidence of NAPL did not extend beyond a depth of 12 feet below ground surface (bgs) at most soil boring locations, indicating that the peat/silt/clay unit, which is found approximately 8 feet bgs in most portions of the site, has limited the vertical migration of NAPL, as well as BTEX and PAHs. In source areas, such as the location of some of the former MGP structures, where the peat/silt/clay unit is thin or absent, evidence of a dense nonaqueous phase liquid (DNAPL) was observed at deeper depths in isolated locations. The most notable location was at the location of the former Tar Separating Tank (central/northeastern portion of the site), where DNAPL was observed to a maximum depth of 90 feet bgs. However, this appeared to be an isolated localized occurrence in this area of the site. In general, BTEX and PAH concentrations appeared to rapidly decrease with increasing depth, even in areas exhibiting DNAPL.

Several groundwater probe samples exhibited sheens and tar droplets or blebs. The majority of these samples were collected from the eastern and central portions of the site. However, monitoring wells exhibited little evidence of any measurable NAPL with the exception of on-site shallow well MW-05, which exhibited blebs of LNAPL, and on-site shallow well MW-02, which exhibited less than 0.2 feet of DNAPL.

The highest concentrations of BTEX and PAHs in groundwater were generally detected in the shallow groundwater zone (i.e., above the peat/silt/clay unit) in the eastern and central portions of the site. In the source areas where the peat/silt/clay unit is thin or absent, elevated levels of BTEX and PAHs were also found in deeper groundwater.

A diffuse off-site zone of shallow groundwater containing BTEX and PAHs exists primarily to the northwest, west, and south of the site. BTEX and PAH compounds did not appear to have appreciably migrated off site to the northeast or east of the site. The predominant west and northwestern direction of plume migration corresponds to the west to northwestern component of groundwater flow. BTEX and PAH migration in intermediate depth groundwater was similar to the trends found in the shallow zone, but is generally less significant. BTEX and PAHs were not found at the elevated concentrations in deep groundwater off-site.

Based on the groundwater flow direction and proximity to Sag Harbor Cove of some of the groundwater sampling points that exhibited BTEX and PAHs, it is likely that groundwater containing BTEX and PAHs is discharging to this water body to some degree. However, the sampling undertaken within Sag Harbor Cove did not reveal the presence of BTEX and PAH compounds at significant concentrations in the pore water and surface water samples collected from the cove. Although sediment samples were found to contain PAHs, this may be attributable to the extensive use of the cove by motorized watercraft and/or from stormwater runoff from surrounding streets and parking lots that discharges to this surface water body. As a result, it does not appear that the site has had a significant adverse impact on Sag Harbor Cove.

Based on findings of a private water supply well survey, one inactive and two active private water supply wells were identified within the study area. Tap water samples collected from the two active wells showed no detectable concentrations of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), RCRA metals and cyanide with the exception of one VOC and two metals, which were all detected at concentrations well below NYSDOH drinking water standards/action levels.

Indoor air sampling for VOCs and naphthalene was conducted at all 17 off-site locations where access was requested and granted by property owners/occupants. Results of this sampling indicated that the majority of VOCs were reported as non-detect, and the compounds that were detected were either within the range of background concentrations as reported by NYSDOH, were orders of magnitude below occupational standards, and/or were generally those not typically associated with MGP impacts. In addition, naphthalene, the compound most commonly associated with potential MGP impacts, was not detected in any of the samples. The analytical results did not suggest site-related impacts to indoor air in the homes and businesses where samples were collected.

2.2 Exposure Assessment

The Qualitative Human Exposure Assessment (QHEA) indicated that under current site use conditions, potential receptors were found to include trespassers and KeySpan site workers. On-site exposure for trespassers is limited to surface soil via the ingestion (oral), dermal, and inhalation routes. On-site KeySpan workers (those engaged in the function and maintenance of site operations) may potentially be exposed to chemicals of potential concern (COPCs) in both surface and subsurface soils through the ingestion, dermal, and inhalation routes during outdoor activities, as well as to COPCs in indoor air via inhalation during indoor activities at the unmanned compressor station building. Potential exposure to surface soil is unlikely under current site conditions given that the site is covered in crushed stone.

Relevant current off-site receptors include commercial workers, visitors to commercial establishments, residents of properties located southwest of the site, and commercial workers, visitors and residents of properties located north and west of the site. These receptors may be exposed to volatilization of chemicals from subsurface soil and groundwater underneath these structures in indoor air. Potential exposure to chemicals in surface soil may be possible for these off-site residents. Additionally, given the high water table at Sag Harbor, direct contact with groundwater as well as subsurface soil by off-site residents is possible if they access the subsurface in their yards.

A Fish and Wildlife Resources Impact Analysis (FWRIA) was also completed. The analysis indicated that several chemicals of potential ecological concern (COPECs) were detected above applicable toxicological benchmarks. However, the risk to wildlife is not significant for several reasons. The low exposure frequency, low chemical concentrations, indirect mechanism of exposure and low duration of exposure suggest that risk to wildlife is low. Given the current development in the vicinity of the former MGP site, minimal habitat is available to support a wildlife population.

The complete exposure assessment is included in the Final RI Report.

3. Field Investigation Program

The supplemental field program scope of work included the collection of groundwater, stormwater, surface soil, and indoor and outdoor air analytical samples in order to verify the environmental conditions on and in the vicinity of the site. In addition, synoptic groundwater levels were collected from each of the existing monitoring wells during high and low tides. Groundwater and surface-soil sample locations are shown on Figure 3. Stormwater sample locations are presented on Figure 4. Indoor/outdoor air sample locations are shown on Figure 5.

The supplemental field program was completed between May 17 and June 17, 2004. A total of 32 groundwater samples, 3 stormwater samples, 10 surface soil samples, and 27 indoor and outdoor air samples were collected for chemical analysis to evaluate environmental conditions. In addition, on August 30, 2004, groundwater samples were collected from four monitoring wells that were re-sampled due to the presence of DNAPL.

This section generally describes the methods used for sampling in accordance with the NYSDEC-approved Generic Work Plan entitled, *Remedial Investigation/Feasibility Study Work Plan for the Sag Harbor former MGP Site,* dated February 2000 (approved work plan). Surface soil, groundwater, and stormwater sample analyses were completed by H2M Laboratories, located in Melville, New York (a NYSDEC-approved laboratory). Air samples were analyzed by Air Toxics, Ltd., a lab specializing in air analysis located in Folsom, California. Chain-of-custody forms and data validation/usability reports are presented in Appendices A through D.

3.1 Field Methods and Procedures

3.1.1 Water Level and NAPL Measurements

Because the water table is tidally influenced, two rounds of water level measurements were completed before sampling; one at high tide and one at low tide. Measurements were timed to correspond with the maximum high or low tide and generally took place within a half-hour of that time. Any monitoring well suspected of containing NAPL was first gauged for LNAPL, using an oil/water interface probe, and DNAPL, using a dedicated weighted measuring tape. Water level measurements, groundwater elevations, and NAPL observations are presented in Table 1. Based on the data collected on May 17, 2004, shallow and intermediate zone groundwater contour maps were produced and are presented as Figures 6 through 9.

Figures 6 through 9 indicate that the shallow and intermediate groundwater flow direction at the site is predominantly to the west, but varies from west-southwest to west to west-northwest depending on tidal conditions.

As shown in Table 1, DNAPL was observed in monitoring wells MW-02, MW-03, MW-04, MW-05, SHMW-02I, SHMW-04S, and SHMW-5S. The greatest DNAPL thickness, 4.9 feet, was measured in on-site intermediate monitoring well SHMW-02I.

3.1.2 Groundwater

Thirty-two existing groundwater monitoring wells were sampled using low-flow sampling techniques. Eighteen of these monitoring wells are screened in the shallow groundwater zone, thirteen in the intermediate groundwater zone, and one in the deep groundwater zone. The monitoring well locations are shown in Figure 3. Dedicated polyethylene tubing was inserted down the monitoring well to the approximate mid-point of the screened interval. Water was purged with a peristaltic pump and monitored with a flow-through cell until field parameters (pH, specific conductivity, temperature, dissolved oxygen, oxygen reduction potential (ORP), and turbidity) stabilized to within 0.1 standard unit for pH, 3% for specific conductivity and temperature, 10% for dissolved oxygen and turbidity, and 10 millivolts for ORP.

After purging, samples were placed directly into laboratory-provided bottles and placed in ice-filled coolers to await transport to the laboratory. Groundwater samples were analyzed for BTEX, methyl tert-butyl ether (MTBE), and PAHs.

In addition, four monitoring wells were re-sampled on August 30, 2004 after the analytical results of the May 2004 samples indicated that the detected BTEX and PAH concentrations were not consistent with the historic BTEX and PAH data. During the initial sampling event in May 2004, DNAPL was observed in the purge water and in the analytical samples from monitoring wells MW-02, MW-05, and SHMW-02I. As a result, the May 2004 samples from these wells exhibited high BTEX and PAH concentrations when compared to the historic data (see Section 4.1 for further discussion). Therefore, it was determined that these wells be re-sampled. For the re-sampling, the polyethylene tubing was only inserted down the well to the water column surface in order to minimize the potential for drawing DNAPL into the sample. Monitoring well MW-01, where no DNAPL was observed, was re-sampled to compare the representativeness of the re-sampling method to the original sampling method.

3.1.3 Stormwater

Three stormwater samples were collected from the stormwater sewer system in the vicinity of the site. Two samples were taken from the stormwater outfall pipe into Sag Harbor Cove on two different occasions. A third stormwater sample was collected from a catch basin located at the intersection of Rose and Bridge Streets, south (upgradient) of the site. Two of the stormwater samples were collected directly from the outfall pipe and the sample from the catch basin was collected with polyethylene tubing and a peristaltic pump. The samples were collected in laboratory-provided jars that were placed in ice-filled coolers for transport to the laboratory. It is important to note that because the outfall pipe is normally submerged during normal low tide conditions, it was necessary to collect the samples from the outfall pipe at extreme low tide under new moon conditions in order to obtain representative samples of water discharging from the storm sewer system. The stormwater sample locations are presented in Figure 4.

The three samples were analyzed for Target Compound List (TCL) VOCs (including MTBE) and TCL SVOCs.

3.1.4 Surface Soil

Ten surface soil samples were collected from observed areas of exposed surface soil (not covered by turf, vegetative layer, crushed stone, or asphalt/concrete) surrounding the site. Each sample was collected from 0 to 2 inches bgs. The discrete samples were screened for VOCs using a photoionization detector (PID) and placed directly into laboratory-provided jars using dedicated polyethylene scoops. The sample jars were then placed in ice-filled coolers for transport to the laboratory. The surface soil sample locations are shown on Figure 3.

Surface soil samples were analyzed for BTEX and PAHs.

3.1.5 Indoor/Outdoor Air

Nineteen indoor air samples and eight outdoor ambient air samples were collected from two private residences, one apartment/condominium unit, and five businesses along Long Island Avenue, West Water Street, and Bridge Street. One-hour composite samples were typically collected at each location. The total number of indoor air samples at each location varied depending on the size of the structure and accessibility, and one outdoor ambient air sample was collected at each property.

All of the air samples were analyzed for VOCs (by EPA Method TO-14) including naphthalene.

3.1.6 Quality Assurance/Quality Control (QA/QC) Plan

QA/QC samples were collected as part of the supplemental field program, as described in the approved work plan. One set of QA/QC samples, consisting of a matrix spike, matrix spike duplicate, and field blank was collected and analyzed for at least every 20 environmental samples collected in the field or one week of sampling.

All sample analysis and data validation was conducted in accordance with the NYSDEC June 2000 Analytical Services Protocol (ASP).

4. Field Investigation Findings

This section of the report provides a discussion of the findings of the supplemental field investigation. The analytical results of the samples collected as part of the investigation were compared to NYSDEC regulatory standards, criteria, and guidance (SCGs) for screening purposes.

4.1 Groundwater Analytical Results

A summary of the laboratory analytical results for the groundwater samples is provided in Table 2. The table presents the identification, analytical result, and appropriate data qualifier for chemical constituents in a sample, as well as the NYSDEC SCGs for each compound detected. The SCGs for groundwater are the Class GA groundwater standards and guidance values provided in the NYSDEC Technical Operations and Guidance Series (TOGS) 1.1.1.

BTEX constituents were detected in 16 of 32 groundwater samples initially collected from the monitoring wells in May 2004. Total BTEX concentrations ranged from 13,287 ug/L and 11,600 ug/L in monitoring wells MW-02 and MW-05, respectively, to 4.0 ug/L in MW-01. Detected concentrations were limited to shallow groundwater zone monitoring wells with the exception of the sample from intermediate zone monitoring well SHMW-2I, which exhibited a total BTEX concentration of 1,179 ug/L. BTEX compounds were not detected in the remaining 16 samples collected from three shallow wells, 12 intermediate wells, and one deep monitoring well.

BTEX compounds were detected at concentrations exceeding SCGs in 15 of 18 samples collected from shallow zone monitoring wells. However, BTEX compounds were found at levels in excess of SCGs in only 1 of 13 samples collected from intermediate zone monitoring wells and were not detected in the one sample from the deep well.

In addition, as indicated in subsection 3.1.2, four monitoring wells were re-sampled in August 2004. As discussed, during the initial groundwater-sampling event in May 2004, DNAPL was observed in the purge water and in the samples collected for laboratory analysis from monitoring wells MW-02, MW-05, and SHMW-02I. As a result, these wells were re-sampled in August 2004 using a modified low flow sampling method in order to minimize drawing DNAPL into the groundwater samples so that the analytical results would be more representative of dissolved phase contaminants in groundwater. In addition, a sample was collected from MW-01, a well at which NAPL was not observed, in order to compare the representativeness of the analytical results of samples collected using the re-sampling method to the initial sampling method.

As expected, the analytical results of the samples collected during the re-sampling of monitoring wells MW-01, MW-02, MW-05, and SHMW-02I exhibited lower total BTEX concentrations. The samples from monitoring wells MW-02 and MW-05 exhibited total BTEX concentrations of 8,740 ug/L (13,287 ug/L in the initial sample) and 2,938 ug/L (11,600 ug/L in the initial sample), respectively. The sample from monitoring well SHMW-02I exhibited a total BTEX concentration of 16 ug/L (1,179 ug/L in the initial sample). BTEX compounds were not detected (estimated total BTEX concentration of 4 ug/L in the initial sample) in the sample from monitoring well MW-01, which was re-sampled to illustrate the representativeness of the modified field method.

MTBE was detected in 2 of 32 groundwater samples. The samples from monitoring wells SHMW-08S and SHMW-12S exhibited concentrations of 1 ug/L and 2 ug/L, respectively.

PAHs were detected in 19 of 32 groundwater samples initially collected from the monitoring wells in May 2004. Total PAH concentrations ranged from 580,200 ug/L in monitoring well SHMW-02I to 3 ug/L in monitoring well SHMW-11S. Similar to BTEX, PAHs were primarily found in shallow zone monitoring wells. PAHs were not detected in any of the intermediate zone wells with the exception of SHMW-02I. The sample from deep zone monitoring well SHMW-02D exhibited a relatively low total PAH concentration of 88 ug/L.

PAHs were detected at concentrations exceeding SCGs in 15 of 18 samples collected from shallow zone monitoring wells, and in the one sample from the deep zone well. However, PAHs were found at levels in excess of SCGs in only 1 of 13 samples collected from intermediate zone monitoring wells. PAHs detected above SCGs included:

- acenaphthene
- anthracene
- fluoranthene
- fluorene
- naphthalene
- phenanthrene
- pyrene
- benzo[a]anthracene
- benzo[b]fluoranthene
- benzo[k]fluoranthene
- chrysene
- indeno[1,2,3-cd]pyrene

As discussed previously, four monitoring wells were re-sampled in August 2004 due to the presence of DNAPL in the initial samples collected in May 2004. As expected, the analytical results of the samples collected during the re-sampling of monitoring wells MW-01, MW-02, MW-05, and SHMW-2I exhibited lower total PAH concentrations.

In the three wells containing DNAPL, the differences were significant. Monitoring wells MW-02 and MW-05 exhibited total PAH concentrations 4,414 ug/L (25,167 ug/L in the initial sample) and 2,049 ug/L (431,600 ug/L in the initial sample), respectively. The sample from monitoring well SHMW-02I exhibited a low total PAH concentration of 41 ug/L (580,200 ug/L in the initial sample). The sample from monitoring well MW-01, re-sampled to illustrate the representativeness of the modified field method, exhibited a total PAH concentration of 24 ug/L, which was similar to the concentration of 30 ug/L previously detected in the initial sample.

4.2 Stormwater Analytical Results

A summary of the laboratory analytical results for the samples collected from the stormwater sewer system is provided in Table 3. The table presents the identification, analytical result, and appropriate data qualifier for chemical constituents in a sample. No comparable SCGs are applicable for the stormwater samples, and therefore, only the data are presented.

Stormwater sample SHSO-102, sampled from a catch basin upgradient of the site at the intersection of Rose and Bridge Streets, in the vicinity of a parking lot, exhibited a total BTEX concentration of 26 ug/L. No other stormwater sample exhibited detections of BTEX constituents. No other VOCs were detected in any of the stormwater samples.

A total PAH concentration of 10 ug/L was detected in upgradient stormwater sample SHSO-102. Acenaphthene, fluorene, 2-methylnaphthalene, and phenanthrene were the PAHs detected. Stormwater sample SHSO-101, collected from the storm sewer outfall pipe to Sag Harbor Cove, exhibited a total PAH concentration of 1 ug/L. Acenaphthene was the only compound detected. One other SVOC, butyl benzyl phthalate, was detected at a concentration of 1 ug/L in stormwater sample SHSO-102. No other SVOCs were detected in the other samples.

4.3 Surface Soil Analytical Results

A summary of the laboratory analytical results for the surface soil samples is provided in Table 4. The table presents the identification, analytical result, and appropriate data qualifier for chemical constituents in a sample, as well as the NYSDEC SCGs for each compound detected. The SCGs for soil are those presented in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046.

BTEX compounds were detected in 4 of 10 surface soil samples. Total BTEX concentrations ranged from 0.012 mg/kg in surface soil sample SHSS-109 to 0.002 mg/kg in surface soil sample SHSS-107. The detections were limited to xylene in all samples with the exception of SHSS-109 where ethylbenzene was also detected. SCGs were not exceeded in any of the samples.

MTBE was not detected in any of the surface soil samples.

PAHs were detected in all of the surface soil samples. Total PAH concentrations ranged from 29.2 mg/kg in surface soil sample SHSS-105 to 2.045 mg/kg in SHSS-108. SCGs for at least one PAH were exceeded in all of the samples. PAHs detected above the SCGs were limited to:

- benzo[a]anthracene
- benzo[a]pyrene
- benzo[b]fluoranthene
- benzo[k]fluoranthene
- chrysene

All other PAHs were detected below the SCGs in all of the surface soil samples, except for Dibenzo[a,h]anthracene which was not detected in any sample.

4.4 Indoor/Outdoor Air Analytical Results

A summary of the laboratory analytical results for the indoor and outdoor air samples is provided in Table 5. The table presents the identification, analytical results, and appropriate data qualifier for chemical constituents in a sample. Table 5 presents the analytical results for only those constituents detected.

Nineteen indoor air samples and eight outdoor ambient air samples were collected at off-site locations as shown on Figure 5. Samples were analyzed for VOCs via Method TO-14A plus naphthalene. The air samples were collected at the following locations:

- Property 101 – Post Office
- Property 102 – Video Store
- Property 103 – Liquor Store
- Property 104 – Private Residence
- Property 105 – Private Residence
- Property 106 – Restaurant
- Property 107 – Private Residence
- Property 108 – Commercial Business

For the indoor air samples, of the 64 VOCs analyzed, 44 were reported as “not detected.” Twenty-one analytes were reported in at least one of the samples at concentrations above the minimum limit of detection, which for all chemicals ranged from 0.50 parts per billion per unit volume (ppbv) to 2.0 ppbv. These analytes included the following:

- acetone
- benzene
- 2-butanone (MEK)
- carbon disulfide
- ethanol
- ethylbenzene
- 4-ethyltoluene (ethyltoluene, p-)
- Freon 12 (dichlorodifluoromethane)
- heptane
- hexane
- tetrachloroethene
- methylene chloride
- methyl tert-butyl ether (MTBE)
- 2-propanol
- tetrahydrofuran
- toluene
- 1,2,4-trimethylbenzene
- 1,3,5-trimethylbenzene
- 2,2,4-trimethylpentane
- m,p-xylenes
- o-xylene

Acetone, 2-butanone, carbon disulfide, 2-propanol, ethanol, tetrachloroethene, tetrahydrofuran, toluene, and 1,2,4-trimethylbenzene were detected in at least one of the outdoor ambient air samples. Naphthalene, most commonly associated with MGP impacts, was not detected in any of the indoor or outdoor air samples.

5. Conclusions and Recommendations

The results of the supplemental field program are: 1) consistent with the results of the Final RI and 2) confirm that there are no complete exposure pathways to humans and ecological receptors at the site. The following sections provide a more detailed discussion of these conclusions including recommendations.

5.1 Groundwater

The total BTEX and PAH concentrations exhibited in the groundwater samples collected during the re-sampling of monitoring wells MW-01, MW-02, MW-05 and SHMW-02I were used in the data comparison in the following conclusions. Because the re-samples did not contain DNAPL, the results were more representative of the concentrations of dissolved-phase contaminants in groundwater on-site than the results of the samples initially collected that contained DNAPL.

Detected contaminant concentrations were compared to those of previous groundwater investigations in order to assess the extent and potential migration of the groundwater plume. Historic total BTEX and total PAH concentrations from three sampling events between April 2000 and May/August 2004 are presented in Table 6 and Table 7, respectively.

As shown in Table 6, the BTEX data indicate that groundwater samples collected in May/August 2004 from 12 of 18 shallow zone groundwater monitoring wells exhibited higher total BTEX concentrations compared to the April 2000 and May 2002 data. However, many of these increases were not significant when compared to the historic ranges of concentrations in the wells. Seven of the 12 shallow wells that exhibited increases, including MW-03, MW-04, MW-05, and SHMW-01S, 03S, 04S and 12S, showed increases in BTEX concentrations in 2004 of approximately 50% or greater over the historic upper range concentration from the 2000 and 2002 data. The greatest increase between 2000 and 2004 was observed at MW-05 where total BTEX concentrations increased from 5 ug/L in April 2000 to 102 ug/L in May 2002 to 2,938 ug/L in August 2004.

BTEX compounds were not detected in 12 of 13 intermediate zone monitoring wells and the deep zone monitoring well sampled in 2004. BTEX compounds were detected in intermediate well SHMW-02I, where total BTEX concentrations have fluctuated from 26 ug/L in April 2000 to non-detect in May 2002 to 16 ug/L in August 2004. In general, the data from 2000 to 2004 indicates that BTEX concentrations have remained stable in the intermediate and deep wells.

As shown in Table 7, the PAH data indicates that groundwater samples collected in May/August 2004 from 7 of 18 shallow zone groundwater monitoring wells exhibited increased total PAH concentrations compared to the May 2002 data. In three of these wells, PAH concentrations in 2004 were higher than those in both 2000 and 2002. However, as with the BTEX data, many of these increases were not significant when compared to the historic ranges of PAH concentrations in the wells. Only 2 of the 7 shallow wells that exhibited increases, MW-05 and SHMW-12S, showed increases in total PAH concentrations in 2004 of approximately 50% or greater over the historic upper range concentration from the 2000 and 2002 data. The greatest increase between 2000 and 2004 was observed at MW-05 where total PAH concentrations increased from 101 ug/L in April 2000 to 1,160 ug/L in May 2002 to 2,049 ug/L in August 2004.

PAHs were not detected in 12 of 13 intermediate zone monitoring wells sampled in 2004. PAHs were detected in intermediate well SHMW-02I, where total PAH concentrations have fluctuated from 266 ug/L in April 2000 to non-detect in May 2002 to 41 ug/L in August 2004. PAHs were detected in deep monitoring well SHMW-02D at concentrations that ranged from 266 ug/L in April 2000 to 76 ug/L in May 2002 to 89 ug/L in May 2004. In general, the data from 2000 to 2004 indicate that PAH concentrations have remained stable in the intermediate and deep wells.

The noted detections in total BTEX and PAH concentrations continue to show a diffuse shallow groundwater plume generally to the north, northwest and west of the site in the direction of groundwater flow. The historic groundwater data indicate typical fluctuations of BTEX and PAH concentrations in monitoring wells on and adjacent to the site, with the exception of several shallow wells, which appear to be showing increasing concentrations. BTEX and PAH concentrations in intermediate and deep wells have remained stable. However, data are limited to only two complete sample rounds. Therefore, while comparison of this data can be made in order to identify possible trends in contaminant concentrations, further sample data would be necessary to verify these apparent trends.

The presence of DNAPL has increased in some monitoring wells on and immediately adjacent to the site. DNAPL measurements from monitoring wells recorded between May 2002 and August 2004 are presented in Table 8. Based on comparison between observations from May 2002 and May/August 2004, DNAPL was observed in some wells where it previously was not present, and the thickness of DNAPL has increased in several wells.

As indicated in Table 8, in May 2002, DNAPL was observed in monitoring wells MW-02, MW-03, and MW-05. The only measurable DNAPL thickness, 0.16 feet, was measured in on-site shallow monitoring well MW-02. This monitoring well is located in the southeast corner of the site, in the vicinity of a former gas holder. However, in May 2004, DNAPL was observed in shallow wells MW-02, MW-03, MW-04, MW-05, SHMW-04S and SHMW-05S, as well as in intermediate well SHMW-02I. The greatest DNAPL thickness, 4.9 feet, was measured in on-site intermediate monitoring well SHMW-02I located in the vicinity of the former Tar Separating Tank. SHMW-04S and SHMW-05S are off-site monitoring wells, located downgradient of the site, along Long Island Avenue.

Based on the boring and well construction logs for these wells, which are provided in previous reports including the Final RI Report, the following observations were made with respect to the identification or potential presence of NAPL in subsurface soil samples collected at the depths at which these wells were screened: product and sheens in soil at MW-02; oily soil at MW-03; sheens in soil and “oily water displaced to surface while adding filter pack sand” at MW-04; sheens, oily soil and oily product accumulation at MW-05; sheens and NAPL laden soil possibly at bottom of screened interval and/or well sump at SHMW-02I; NAPL staining in soil at SHMW-04S; and NAPL stained soil at SHMW-05S. Monitoring wells MW-02, MW-03, MW-04 and MW-05 were installed in 1995, while SHMW-02I, 04S and 05S were constructed in 2000. At locations where NAPL was observed in subsurface soil at the well screen intervals, it appears that, since the construction of these wells in 1995 and 2000, NAPL has entered the wells and is present as DNAPL in groundwater at these well locations.

The data indicate that DNAPL from on-site source areas is present within the shallow groundwater column. Additionally, it is possible that DNAPL from the vicinity of the Tar Separating Tanks is migrating off-site, downgradient in shallow groundwater in a west-northwesterly direction, as evidenced by the presence of DNAPL in shallow off-site monitoring well SHMW-04S. However, the presence of DNAPL in this well could also be from the existence of NAPL staining in subsurface soil at this location, as discussed above. Consistent with the findings of the Final RI Report, the vertical migration of DNAPL, as well as BTEX and PAHs, appears to be limited due to the presence of the peat/silt/clay layer. In source areas, such as the location of the former Tar Separating Tank, where the peat/silt/clay layer is thin or nonexistent, it is apparent that DNAPL has migrated below this layer, as evidenced by the presence of DNAPL in on-site intermediate well SHMW-02I. However, it appears that DNAPL is not migrating off-site in the intermediate zone since it is not present in any off-site intermediate wells and that BTEX and PAH concentrations were low or non-detect in these wells.

Based on the above, it is recommended that the groundwater monitoring and sampling program be continued and that bailing of DNAPL from monitoring wells be conducted as part of this program.

5.2 Stormwater

Stormwater analytical samples were collected to document whether the groundwater plume is migrating into the stormwater sewer system. The stormwater sewer system, located south and west of the site, consists of a series of catch basins, subsurface drainage pipes, and a gravity pipe outfall and pump station discharge outfall which discharge into Sag Harbor Cove. Stormwater flows through this system and ultimately discharges to the Cove via the two outfalls located west of the site. The analytical data suggests that contaminants from the groundwater plume have not migrated into the stormwater sewer system. Utility maps of the sewer system suggest that the system does not intercept the groundwater plume, with the exception of possibly a very small area near the outfalls to the Cove.

Stormwater sample SHSO-102, collected from a catch basin upgradient of the site at the intersection of Rose and Bridge Streets, in the vicinity of a parking lot, exhibited the highest total BTEX and PAH concentrations of the stormwater samples. BTEX compounds were not detected and only one PAH was detected at a low concentration in the samples collected at SHSO-101 from the gravity pipe outfall to Sag Harbor Cove located west and downgradient of the site. This suggests that the groundwater plume is not migrating into the stormwater sewer system. If it were, higher BTEX and PAH concentrations might be expected at the outfall sample location.

The detected BTEX and PAH concentrations are likely the result of stormwater runoff from nearby paved areas in the vicinity of the site.

5.3 Surface Soil

Surface soil analytical samples were collected to document whether any exposed surface soil in the vicinity of the site has been impacted by contaminants related to the site. Because of the high water table in the area, surface water can accumulate in low lying areas, especially after periods of heavy rainfall. If this surface water comes in contact with the groundwater plume, residual contamination could be left in the surface soil.

Ten surface-soil samples were collected adjacent to the site. Relatively low total BTEX concentrations were found in 4 of 10 samples. Surface soil samples SHSS-101 and SHSS-102 were collected south of the site along the site boundary. Surface-soil samples SHSS-107 and SHSS-109 were collected northwest of the site. Relatively low total PAH concentrations were also found in all surface soil samples. However, due to the very low standards for several of the compounds detected, SCGs were exceeded in the samples.

Because of the proximity of these surface soil samples to paved areas, such as parking lots and roadways, it is likely that the source of the BTEX and PAH concentrations is not MGP-related.

5.4 Indoor/Outdoor Air

Detected concentrations from the indoor air samples at each property were compared against typical indoor residential background concentrations as reported by NYSDOH (1997), regardless of whether the property was residential or commercial. Some compounds did not have established residential background concentrations. Only toluene, acetone, 2-butanone, and Freon 12 (dichlorodifluoromethane) were detected at least once above these background concentrations. Toluene, a common ingredient in glues and adhesives, was only detected above background concentrations at the Post Office (Property 101). The concentrations of toluene at this property were well below occupational guidelines and recommendations (NIOSH 2003). Acetone, detected in almost all of the indoor air samples, is a common laboratory contaminant and is found in many household products. 2-Butanone and Freon 12 are not associated with MGP wastes.

5.5 Exposure Assessment

Current exposure pathways and potential receptors are outlined in detail in the Final RI Report and in Section 2 of this report. Exposures at this time are limited due to restricted access to the site, a lack of complete exposure pathway to subsurface soils and groundwater, and limited access to surface soils due to the crushed stone covering of the site. The results of the supplemental field program confirm that there are no complete exposure pathways involving: 1) constituents in groundwater discharging to surface water or 2) constituents in soil and groundwater volatilizing to indoor air. The limited flora and fauna within the surrounding areas of the site do not indicate that environmental concerns are associated with site-related conditions.

References

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

National Institute for Occupational Safety and Health (NIOSH), January 2003. *Pocket Guide to Chemical Hazards.* United States Department of Health and Human Services, Centers for Disease Control and Prevention.

Tables

Table 1
Depth to Water and Groundwater Elevations
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

	Top of Casing Elevation (ft)	Tide	5/17/2004		Notes
			Depth to Water (ft)	Groundwater Elevation (ft)	
MW-01	5.09	High	1.82	3.27	
		Low	1.74	3.35	
MW-02	4.48	High	0.81	3.67	approx. 0.15' of DNAPL on 5/17/2004
		Low	0.83	3.65	approx. 0.29' of DNAPL on 8/30/2004
MW-03	4.59	High	1.95	2.64	approx. 0.03' of DNAPL on 5/17/2004
		Low	1.92	2.67	
MW-04	4.13	High	1.02	3.11	approx. 0.02' of DNAPL on 5/17/2004
		Low	0.91	3.22	
MW-05	5.07	High	1.91	3.16	approx. 1.0' of DNAPL on 5/17/2004
		Low	1.86	3.21	approx. 0.75' of DNAPL on 8/30/2004
MW-06	5.38	High	2	3.38	
		Low	1.99	3.39	
SHMW-01S	4.52	High	1.95	2.57	
		Low	1.86	2.66	
SHMW-01I	4.47	High	1.84	2.63	
		Low	2.5	1.97	
SHMW-02I	5.22	High	2.26	2.96	approx. 4.9' of DNAPL on 5/17/2004
		Low	2.83	2.39	approx. 4.7' of DNAPL on 8/30/2004
SHMW-02D	5.19	High	1.88	3.31	
		Low	2.55	2.64	
SHMW-03S	5.43	High	3.67	1.76	
		Low	3.75	1.68	
SHMW-03I	5.43	High	2.87	2.56	
		Low	3.44	1.99	
SHMW-04S	5.71	High	3.93	1.78	approx. 0.6' of DNAPL on 5/17/2004
		Low	4.02	1.69	
SHMW-04I	5.71	High	2.99	2.72	
		Low	3.6	2.11	
SHMW-05S	6.23	High	4.05	2.18	blebs of DNAPL in purge water on 5/17/2004
		Low	4.04	2.19	
SHMW-05I	6.14	High	3.62	2.52	
		Low	3.96	2.18	
SHMW-06S	4.44	High	1.24	3.2	
		Low	1.16	3.28	
SHMW-06I	4.43	High	1.85	2.58	
		Low	2.31	2.12	
SHMW-07S	5.05	High	1.43	3.62	
		Low	1.37	3.68	
SHMW-07I	5	High	2.15	2.85	
		Low	2.6	2.4	
SHMW-08S	5.26	High	1.53	3.73	
		Low	1.46	3.8	
SHMW-08I	5.08	High	2.21	2.87	
		Low	2.73	2.35	
SHMW-09S	4.36	High	NA	NA	
		Low	2.02	2.34	
SHMW-09I	4.41	High	1.91	2.5	
		Low	2.22	2.19	
SHMW-10S	5.91	High	4.75	1.16	
		Low	5.36	0.55	
SHMW-10I	5.89	High	4.23	1.66	
		Low	5.53	0.36	
SHMW-11S	5.74	High	5.51	0.23	
		Low	6.03	-0.29	
SHMW-11I	5.79	High	5.3	0.49	
		Low	6.19	-0.4	
SHMW-12S	3.42	High	0.31	3.11	
		Low	0.33	3.09	
SHMW-12I	3.29	High	0.48	2.81	
		Low	0.69	2.6	
SHMW-13S	4.68	High	1.27	3.41	
		Low	1.23	3.45	
SHMW-13I	4.7	High	1.58	3.12	
		Low	2.01	2.69	

Table 2
Groundwater Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID Screen Interval Date Collected	NYSDEC SCG	MW-01 1.5 - 7.25 ft 5/24/2004	MW-01 1.5 - 7.25 ft 8/30/2004	MW-02 0.5 - 7.25 ft 5/20/2004	MW-02 0.5 - 7.25 ft 8/30/2004	MW-03 2 - 10 ft 5/21/2004	MW-04 1.25 - 6.75 ft 5/18/2004
BTEX (ug/L)							
Benzene	1	**4 J**	10 U	**1700**	**680**	**920**	**94**
Ethylbenzene	5	10 U	10 U	**6900**	**5000**	**810**	**69**
Toluene	5	10 U	10 U	**87**	**60**	**63**	**5 J**
Xylene, total	5	10 U	10 U	**4600**	**3000**	**780**	**40**
Total BTEX	NE	**4**	0 U	**13287**	**8740**	**2573**	**208**
Other VOCs (ug/L)							
Methyl tert-butyl ether	NE	10 U	10 U	10 U	10 U	10 U	10 U
Non-carcinogenic PAHs (ug/L)							
Acenaphthene	20*	**9 J**	**24**	**1700 J**	**200 J**	**300 J**	**16**
Acenaphthylene	NE	**1 J**	10 U	**120**	10 U	**5 J**	**2 J**
Anthracene	50*	10 U	10 U	**680**	**28**	**15 J**	**6 J**
Benzo[g,h,i]perylene	NE	10 U	10 U	**150 J**	10 U	10 UJ	10 U
Fluoranthene	50*	10 U	10 U	**1300 J**	**35**	**8 J**	**6 J**
Fluorene	50*	**2 J**	10 U	**560**	**50**	**50 J**	**6 J**
Methylnaphthalene,2-	NE	10 U	10 U	**2400**	**420**	**470 J**	10 U
Naphthalene	10*	**18**	10 U	**11000**	**3500**	**2600**	**25**
Phenanthrene	50*	10 U	10 U	**2900 J**	**97**	**64 J**	**16**
Pyrene	50*	10 U	10 U	**1800 J**	**42**	**9 J**	**7 J**
Total Non-carcinogenic PAHs	NE	**30**	**24**	**22610**	**4372**	**3521**	**84**
Carcinogenic PAHs (ug/L)							
Benz[a]anthracene	0.002*	10 U	10 U	**750**	**17**	**1 J**	**2 J**
Benzo[a]pyrene	NE	10 U	10 U	**470**	**11**	10 UJ	**1 J**
Benzo[b]fluoranthene	0.002*	10 UJ	10 U	**390 J**	10 U	10 UJ	**1 J**
Benzo[k]fluoranthene	0.002*	10 U	10 U	**180 J**	10 U	10 UJ	10 U
Chrysene	0.002*	10 U	10 U	**580**	**14**	10 UJ	**2 J**
Dibenz[a,h]anthracene	NE	10 U	10 U	**47 J**	10 U	10 UJ	10 U
Indeno[1,2,3-cd]pyrene	0.002*	10 U	10 U	**140**	10 U	10 UJ	10 U
Total Carcinogenic PAHs	NE	0	0	**2557**	**42**	**1**	**6**
Total PAHs (ug/L)							
Total PAHs	NE	**30**	**24**	**25167**	**4414**	**3522**	**90**

Table 2
Groundwater Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID		MW-05	MW-05	MW-06	SHMW-01S	SHMW-01I	SHMW-02I
Screen Interval	NYSDEC	2.5 - 7.5 ft	2.5 - 7.5 ft	2.5 - 7.5 ft	1 - 6 ft	35 - 45 ft	35 - 45 ft
Date Collected	SCG	5/20/2004	8/30/2004	5/19/2004	5/21/2004	5/21/2004	5/24/2004
BTEX (ug/L)							
Benzene	1	**5500**	**2300**	**2 J**	**760**	10 U	10 U
Ethylbenzene	5	**2300**	**240**	**21**	**700**	10 U	**300**
Toluene	5	**1000**	**78**	**1 J**	**52**	10 U	**29**
Xylene, total	5	**2800**	**320**	**25**	**590**	10 U	**850**
Total BTEX	NE	**11600**	**2938**	**49**	**2102**	0 U	**1179**
Other VOCs (ug/L)							
Methyl tert-butyl ether	NE	100 U	10 U	10 U	10 U	10 U	10 U
Non-carcinogenic PAHs (ug/L)							
Acenaphthene	20*	**31000**	**200**	**28**	**77**	10 U	**9000 J**
Acenaphthylene	NE	**6500**	**16**	**2 J**	**6 J**	10 U	**48000**
Anthracene	50*	**17000**	**52**	10 U	**5 J**	10 U	**29000**
Benzo[g,h,i]perylene	NE	**3400 J**	**13**	10 UJ	10 UJ	10 UJ	**8600 J**
Fluoranthene	50*	**20000**	**70**	**1 J**	**2 J**	10 U	**40000**
Fluorene	50*	**16000**	**46**	**2 J**	**21**	10 U	**28000**
Methylnaphthalene,2-	NE	**61000**	**230**	10 U	**190 J**	10 U	**67000**
Naphthalene	10*	**110000**	**820**	10 U	**2100**	10 U	**120000**
Phenanthrene	50*	**79000**	**250**	10 U	**21**	10 U	**99000**
Pyrene	50*	**34000**	**200**	10 U	**2 J**	10 U	**51000**
Total Non-carcinogenic PAHs	NE	**377900**	**1897**	**33**	**2424**	0	**499600**
Carcinogenic PAHs (ug/L)							
Benz[a]anthracene	0.002*	**15000**	**44**	10 U	10 U	10 U	**22000 J**
Benzo[a]pyrene	NE	**11000**	**34**	10 U	10 U	10 U	**17000 J**
Benzo[b]fluoranthene	0.002*	**8300 J**	**23**	10 U	10 UJ	10 UJ	**12000 J**
Benzo[k]fluoranthene	0.002*	**3500 J**	**10**	10 U	10 U	10 U	**5800 J**
Chrysene	0.002*	**12000**	**41**	10 U	10 U	10 U	**18000 J**
Dibenz[a,h]anthracene	NE	**1100 J**	10 U	10 U	10 U	10 U	25000 U
Indeno[1,2,3-cd]pyrene	0.002*	**2800 J**	10 U	10 U	10 U	10 U	**5800 J**
Total Carcinogenic PAHs	NE	**53700**	**152**	0	0	0	**80600**
Total PAHs (ug/L)							
Total PAHs	NE	**431600**	**2049**	**33**	**2424**	0 U	**580200**

Table 2
Groundwater Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID		SHMW-02I	SHMW-02D	SHMW-03S	SHMW-03I	SHMW-04S	SHMW-04I
Screen Interval	NYSDEC	35 - 45 ft	65 - 75 ft	2 - 12 ft	35 - 45 ft	2 - 12 ft	35 - 45 ft
Date Collected	SCG	8/30/2004	5/24/2004	5/20/2004	5/20/2004	5/20/2004	5/20/2004
BTEX (ug/L)							
Benzene	1	10 U	10 U	**12**	10 U	**6500**	10 U
Ethylbenzene	5	10 U	10 U	**59**	10 U	**2900**	10 U
Toluene	5	10 U	10 U	10 U	10 U	**80**	10 U
Xylene, total	5	**16**	10 U	**39**	10 U	**2700**	10 U
Total BTEX	NE	**16**	0 U	**110**	0 U	**12180**	0 U
Other VOCs (ug/L)							
Methyl tert-butyl ether	NE	10 U	10 U	10 U	10 U	10 U	10 U
Non-carcinogenic PAHs (ug/L)							
Acenaphthene	20*	10 U	**6 J**	**28**	10 U	**360 J**	10 U
Acenaphthylene	NE	**12**	**2 J**	**1 J**	10 U	**11**	10 U
Anthracene	50*	10 U	**4 J**	**3 J**	10 U	**54**	10 U
Benzo[g,h,i]perylene	NE	10 U	**3 J**	10 UJ	10 UJ	**6 J**	10 UJ
Fluoranthene	50*	10 U	**8 J**	**1 J**	10 U	**47**	10 U
Fluorene	50*	10 U	**3 J**	**9 J**	10 U	**65**	10 U
Methylnaphthalene,2-	NE	10 U	**6 J**	**18**	10 U	**600 J**	10 U
Naphthalene	10*	**29**	**12**	**220**	10 U	**4300**	10 U
Phenanthrene	50*	10 U	**13**	**14**	10 U	**320 J**	10 U
Pyrene	50*	10 U	**11**	**1 J**	10 U	**75**	10 U
Total Non-carcinogenic PAHs	NE	**41**	**68**	**295**	0	**5838**	0
Carcinogenic PAHs (ug/L)							
Benz[a]anthracene	0.002*	10 U	**5 J**	10 U	10 U	**35**	10 U
Benzo[a]pyrene	NE	10 U	**5 J**	10 U	10 U	**26**	10 U
Benzo[b]fluoranthene	0.002*	10 U	**4 J**	10 U	10 U	**24**	10 U
Benzo[k]fluoranthene	0.002*	10 U	**1 J**	10 U	10 U	**8 J**	10 U
Chrysene	0.002*	10 U	**4 J**	10 U	10 U	**26**	10 U
Dibenz[a,h]anthracene	NE	10 U	10 U	10 U	10 U	**3 J**	10 U
Indeno[1,2,3-cd]pyrene	0.002*	10 U	**2 J**	10 U	10 U	**5 J**	10 U
Total Carcinogenic PAHs	NE	0	**21**	0	0	**127**	0
Total PAHs (ug/L)							
Total PAHs	NE	**41**	**89**	**295**	0 U	**5965**	0 U

Table 2
Groundwater Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID		SHMW-05S	SHMW-05I	SHMW-06S	SHMW-06I	SHMW-07S	SHMW-07I
Screen Interval	NYSDEC	2 - 12 ft	35 - 45 ft	2 - 6 ft	35 - 45 ft	1 - 11 ft	35 - 45 ft
Date Collected	SCG	5/21/2004	5/21/2004	5/18/2004	5/18/2004	5/18/2004	5/18/2004
BTEX (ug/L)							
Benzene	1	**21**	10 U	**410**	10 U	**79**	10 U
Ethylbenzene	5	**36**	10 U	**1400**	10 U	**190**	10 U
Toluene	5	10 U	10 U	**47**	10 U	**5 J**	10 U
Xylene, total	5	**26**	10 U	**1200**	10 U	**140**	10 U
Total BTEX	NE	**83**	0 U	**3057**	0 U	**414**	0 U
Other VOCs (ug/L)							
Methyl tert-butyl ether	NE	10 U	10 U	10 U	10 U	10 U	10 U
Non-carcinogenic PAHs (ug/L)							
Acenaphthene	20*	**20**	10 U	**180**	10 U	**200 J**	10 U
Acenaphthylene	NE	10 U	10 U	**7 J**	10 U	**4 J**	10 U
Anthracene	50*	**2 J**	10 U	**10**	10 U	**16**	10 U
Benzo[g,h,i]perylene	NE	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U
Fluoranthene	50*	**1 J**	10 U	**6 J**	10 U	**8 J**	10 U
Fluorene	50*	**6 J**	10 U	**34 J**	10 U	**46**	10 U
Methylnaphthalene,2-	NE	**1 J**	10 U	**240**	10 U	**360 J**	10 U
Naphthalene	10*	**55**	10 U	**2500**	10 U	**2000**	10 U
Phenanthrene	50*	**8 J**	10 U	**41**	10 U	**63**	10 U
Pyrene	50*	**1 J**	10 U	**6**	10 U	**9**	10 U
Total Non-carcinogenic PAHs	NE	**94**	0	**3024**	0	**2706**	0
Carcinogenic PAHs (ug/L)							
Benz[a]anthracene	0.002*	10 U	10 U	10 U	10 U	**1 J**	10 U
Benzo[a]pyrene	NE	10 U	10 U	10 UJ	10 U	10 U	10 U
Benzo[b]fluoranthene	0.002*	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U
Benzo[k]fluoranthene	0.002*	10 U	10 U	10 UJ	10 U	10 U	10 U
Chrysene	0.002*	10 U	10 U	10 UJ	10 U	**1 J**	10 U
Dibenz[a,h]anthracene	NE	10 U	10 U	10 UJ	10 U	10 U	10 U
Indeno[1,2,3-cd]pyrene	0.002*	10 U	10 U	10 UJ	10 U	10 U	10 U
Total Carcinogenic PAHs	NE	0	0	0	0	**2**	0
Total PAHs (ug/L)							
Total PAHs	NE	**94**	0 U	**3024**	0 U	**2708**	0 U

Table 2
Groundwater Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID		SHMW-08S	SHMW-08I	SHMW-09S	SHMW-09I	SHMW-10S	SHMW-10I
Screen Interval	NYSDEC	1 - 7 ft	35 - 45 ft	2 - 12 ft	35 - 45 ft	5 - 15 ft	35.5 - 45.5 ft
Date Collected	SCG	5/21/2004	5/21/2004	5/18/2004	5/18/2004	5/19/2004	5/19/2004
BTEX (ug/L)							
Benzene	1	**9 J**	10 U	**320**	10 U	10 U	10 U
Ethylbenzene	5	10 U	10 U	**530**	10 U	10 U	10 U
Toluene	5	10 U	10 U	**10**	10 U	10 U	10 U
Xylene, total	5	10 U	10 U	**240**	10 U	10 U	10 U
Total BTEX	NE	**9**	0 U	**1100**	0 U	0 U	0 U
Other VOCs (ug/L)							
Methyl tert-butyl ether	NE	**1 J**	10 U	10 U	10 U	10 U	10 U
Non-carcinogenic PAHs (ug/L)							
Acenaphthene	20*	**19**	10 U	**71**	10 U	**6 J**	10 UJ
Acenaphthylene	NE	10 U	10 U	10 U	10 U	10 UJ	10 UJ
Anthracene	50*	**3 J**	10 U	**2 J**	10 U	10 UJ	10 UJ
Benzo[g,h,i]perylene	NE	10 UJ	10 U	10 U	10 U	10 UJ	10 UJ
Fluoranthene	50*	**4 J**	10 U	10 U	10 U	10 UJ	10 UJ
Fluorene	50*	**10**	10 U	**16**	10 U	10 UJ	10 UJ
Methylnaphthalene,2-	NE	**1 J**	10 U	**95 J**	10 U	10 UJ	10 UJ
Naphthalene	10*	**35**	10 U	**1500**	10 U	10 UJ	10 UJ
Phenanthrene	50*	**18**	10 U	**13**	10 U	10 UJ	10 UJ
Pyrene	50*	**4 J**	10 U	10 U	10 U	10 UJ	10 UJ
Total Non-carcinogenic PAHs	NE	**94**	0	**1697**	0	**6**	0
Carcinogenic PAHs (ug/L)							
Benz[a]anthracene	0.002*	10 U	10 U	10 U	10 U	10 UJ	10 UJ
Benzo[a]pyrene	NE	10 U	10 U	10 U	10 U	10 UJ	10 UJ
Benzo[b]fluoranthene	0.002*	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ
Benzo[k]fluoranthene	0.002*	10 U	10 U	10 U	10 U	10 UJ	10 UJ
Chrysene	0.002*	10 U	10 U	10 U	10 U	10 UJ	10 UJ
Dibenz[a,h]anthracene	NE	10 U	10 U	10 U	10 U	10 UJ	10 UJ
Indeno[1,2,3-cd]pyrene	0.002*	10 U	10 U	10 U	10 U	10 UJ	10 UJ
Total Carcinogenic PAHs	NE	0	0	0	0	0	0
Total PAHs (ug/L)							
Total PAHs	NE	**94**	0 U	**1697**	0 U	**6**	0 U

Table 2
Groundwater Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID		SHMW-11S	SHMW-11I	SHMW-12S	SHMW-12I	SHMW-13S	SHMW-13I
Screen Interval	NYSDEC	3.5 - 13.5 ft	35 - 45 ft	1.5 - 6.5 ft	35 - 45 ft	1.5 - 6.5 ft	35 - 45 ft
Date Collected	SCG	5/19/2004	5/19/2004	5/19/2004	5/19/2004	5/20/2004	5/20/2004
BTEX (ug/L)							
Benzene	1	10 U	10 U	**270**	10 U	10 U	10 U
Ethylbenzene	5	10 U	10 U	**35**	10 U	10 U	10 U
Toluene	5	10 U	10 U	**1 J**	10 U	10 U	10 U
Xylene, total	5	10 U	10 U	**38**	10 U	10 U	10 U
Total BTEX	NE	0 U	0 U	**344**	0 U	0 U	0 U
Other VOCs (ug/L)							
Methyl tert-butyl ether	NE	10 U	10 U	**2 J**	10 U	10 U	10 U
Non-carcinogenic PAHs (ug/L)							
Acenaphthene	20*	**3 J**	10 UJ	**4 J**	10 UJ	10 U	10 U
Acenaphthylene	NE	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Anthracene	50*	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Benzo[g,h,i]perylene	NE	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ
Fluoranthene	50*	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Fluorene	50*	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Methylnaphthalene,2-	NE	10 UJ	10 UJ	**4 J**	10 UJ	10 U	10 U
Naphthalene	10*	10 UJ	10 UJ	**210 J**	10 UJ	10 U	10 U
Phenanthrene	50*	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Pyrene	50*	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Total Non-carcinogenic PAHs	NE	**3**	0	**218**	0	0	0
Carcinogenic PAHs (ug/L)							
Benz[a]anthracene	0.002*	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Benzo[a]pyrene	NE	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Benzo[b]fluoranthene	0.002*	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Benzo[k]fluoranthene	0.002*	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Chrysene	0.002*	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Dibenz[a,h]anthracene	NE	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Indeno[1,2,3-cd]pyrene	0.002*	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U
Total Carcinogenic PAHs	NE	0	0	0	0	0	0
Total PAHs (ug/L)							
Total PAHs	NE	**3**	0 U	**218**	0 U	0 U	0 U

Table 2
Groundwater Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Notes:

BTEX - Benzene, Toluene, Ethylbenzene, Xylene
VOCs - Volatile Organic Compounds
PAHs - Polycyclic Aromatic Hydrocarbons
NE - Not Established
* - guidance value
J - estimated value
U - not detected to the reporting limit for organic analysis
UJ - not detected, value shown is estimated
ug/L - microgram per liter
NYSDEC SCG - New York State Department of Environmental Conservation Standards, Criteria, and Guidelines
Grey shading indicates concentration exceeds NYSDEC SCG
Bolding indicates detected concentration

Table 3
Stormwater Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID Date Collected	SHSO-101 6/17/2004	SHSO-102 6/17/2004	SHSO-101 5/20/2004
BTEX (ug/L)			
Benzene	10 U	**15 J**	10 U
Ethylbenzene	10 U	**6 J**	10 U
Toluene	10 U	10 U	10 U
Xylene, total	10 U	**5 J**	10 U
Total BTEX	0	**26**	0
Other VOCs (ug/L)			
Acetone	10 UJ	10 UJ	10 U
Bromodichloromethane	10 U	10 U	10 U
Bromoform	10 U	10 U	10 U
Bromomethane	10 UJ	10 UJ	10 U
Butanone,2-	10 UJ	10 UJ	10 UJ
Carbon disulfide	10 U	10 U	10 U
Carbon tetrachloride	10 UJ	10 UJ	10 U
Chlorobenzene	10 U	10 U	10 U
Chloroethane	10 UJ	10 UJ	10 U
Chloroform	10 U	10 U	10 U
Chloromethane	10 UJ	10 UJ	10 U
Dibromochloromethane	10 U	10 U	10 U
Dichloroethane,1,1-	10 U	10 UJ	10 U
Dichloroethane,1,2-	10 UJ	10 U	10 U
Dichloroethene,1,1-	10 U	10 U	10 U
Dichloropropane,1,2-	10 U	10 U	10 U
Dichloropropene, cis-1,3	10 U	10 U	10 U
Dichloropropene, trans-1,3	10 U	10 U	10 U
Hexanone,2-	10 UJ	10 UJ	10 U
Methyl tert-butyl ether	10 UJ	10 UJ	NA
Methyl-2-pentanone,4-	10 UJ	10 UJ	10 U
Methylene chloride	10 UJ	10 UJ	10 U
Styrene	10 U	10 U	10 U
Tetrachloroethane,1,1,2,2-	10 U	10 U	10 U
Tetrachloroethene	10 U	10 U	10 U
Trichloroethane,1,1,1-	10 U	10 U	10 U
Trichloroethane,1,1,2-	10 U	10 U	10 U
Trichloroethene	10 U	10 U	10 U
Vinyl chloride	10 UJ	10 UJ	10 U
PAHs (ug/L)			
Acenaphthene	**1 J**	**7 J**	10 U
Acenaphthylene	10 U	10 U	10 U
Anthracene	10 U	10 U	10 U
Benzo[g,h,i]perylene	10 U	10 U	10 UJ
Fluoranthene	10 U	10 U	10 U
Fluorene	10 U	**1**	10 U
Methylnaphthalene,2-	10 U	**1 J**	10 U
Naphthalene	10 U	10 U	10 U
Phenanthrene	10 U	**1 J**	10 U
Pyrene	10 U	10 U	10 U
Total Noncarcinogenic PAHs	**1**	**10**	0

Table 3
Stormwater Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID Date Collected	SHSO-101 6/17/2004	SHSO-102 6/17/2004	SHSO-101 5/20/2004
Benz[a]anthracene	10 U	10 U	10 U
Benzo[a]pyrene	10 U	10 U	10 U
Benzo[b]fluoranthene	10 UJ	10 UJ	10 U
Benzo[k]fluoranthene	10 U	10 U	10 U
Chrysene	10 U	10 U	10 U
Dibenz[a,h]anthracene	10 U	10 U	10 U
Indeno[1,2,3-cd]pyrene	10 U	10 U	10 U
Total Carcinogenic PAHs	0	0	0
Total PAHs	**1**	**10**	0
Other SVOCs (ug/L)			
Bis(2-chloroethoxy)methane	10 U	10 U	10 U
Bis(2-chloroethyl)ether	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	10 U	10 U	10 UJ
Bis(chloroisopropyl)ether	10 U	10 U	10 U
Bromophenyl phenyl ether,4-	10 U	10 U	10 U
Butyl benzyl phthalate	10 U	**1 J**	10 U
Carbazole	10 U	10 U	10 U
Chloro-3-methylphenol,4-	10 UJ	10 UJ	10 U
Chloroaniline,4-	10 U	10 U	10 U
Chloronaphthalene,2-	10 U	10 U	10 UJ
Chlorophenol,2-	10 UJ	10 UJ	10 U
Chlorophenyl phenyl ether,4-	10 U	10 UJ	10 U
Dibenzofuran	10 U	10 U	10 U
Dichlorobenzene,1,2-	10 U	10 U	10 UJ
Dichlorobenzene,1,3-	10 U	10 U	10 UJ
Dichlorobenzene,1,4-	10 U	10 U	10 UJ
Dichlorobenzidine,3,3-	10 U	10 U	10 U
Dichlorophenol,2,4-	10 U	10 U	10 U
Diethyl phthalate	10 U	10 U	10 U
Dimethyl phthalate	10 U	10 U	10 U
Dimethylphenol, 2,4-	10 U	10 U	10 U
Di-n-butyl phthalate	10 U	10 U	10 U
Dinitro-2-methylphenol,4,6-	25 U	25 U	25 U
Dinitrophenol,2,4-	25 U	25 U	25 U
Dinitrotoluene,2,4-	10 U	10 U	10 U
Dinitrotoluene,2,6-	10 U	10 U	10 U
Di-n-octyl phthalate	10 U	10 U	10 UJ
Hexachlorobenzene	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 UJ
Hexachlorocyclopentadiene	10 UJ	10 UJ	10 UJ
Hexachloroethane	10 U	10 U	10 UJ
Isophorone	10 U	10 U	10 U
Methylphenol, 4-	10 U	10 U	10 U
Methylphenol,2-	10 U	10 U	10 U
Nitroaniline,2-	25 U	25 U	25 U
Nitroaniline,3-	10 U	10 U	10 U
Nitroaniline,4-	25 U	25 U	25 U
Nitrobenzene	10 U	10 U	10 U
Nitrophenol,2-	10 U	10 U	10 U
Nitrophenol,4-	25 UJ	25 UJ	25 U

Table 3
Stormwater Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID Date Collected	SHSO-101 6/17/2004	SHSO-102 6/17/2004	SHSO-101 5/20/2004
N-Nitrosodi-n-propylamine	10 U	10 U	10 U
N-Nitrosodiphenylamine	10 U	10 U	10 U
Pentachlorophenol	25 UJ	25 UJ	25 U
Phenol	10 U	10 U	10 U
Trichlorobenzene,1,2,4-	10 U	10 U	10 U
Trichlorophenol,2,4,5-	25 U	25 U	25 U
Trichlorophenol,2,4,6-	10 U	10 U	10 U

Notes:

BTEX - Benzene, Toluene, Ethylbenzene, Xylene
VOCs - Volatile Organic Compounds
PAHs - Polycyclic Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
J - estimated value
U - not detected to reporting limit for organic analysis
UJ - not detected, value shown is estimated
ug/L - micrograms per liter
NA - Not Analyzed
Bolding indicates a detected concentration

Table 4
Surface-Soil Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID Depth Date of Collection	NYSDEC SCG	SHSS-101 0-2 in 6/1/2004	SHSS-102 0-2 in 6/1/2004	SHSS-103 0-2 in 6/1/2004	SHSS-104 0-2 in 6/1/2004	SHSS-105 0-2 in 6/1/2004
BTEX (mg/kg)						
Benzene	0.06	0.012 U	0.017 U	0.011 U	0.012 U	0.011 U
Ethylbenzene	5.5	0.012 U	0.017 U	0.011 U	0.012 U	0.011 U
Toluene	1.5	0.012 U	0.017 U	0.011 U	0.012 U	0.011 U
Xylene, total	1.2	**0.003 J**	**0.006 J**	0.011 U	0.012 U	0.011 U
Total BTEX	NE	**0.003**	**0.006**	0	0	0
Other VOCs (mg/kg)						
Methyl tert-butyl ether	NE	0.012 U	0.017 U	0.011 U	0.012 U	0.011 U
Non-carcinogenic PAHs (mg/kg)						
Acenaphthene	50	0.39 U	0.56 U	**0.18 J**	**0.21 J**	**0.21 J**
Acenaphthylene	41	**0.28 J**	**0.61**	0.37 U	**0.69**	**0.54**
Anthracene	50	**0.17 J**	**0.27 J**	**0.38**	**0.95**	**0.88**
Benzo[g,h,i]perylene	50	**0.38 J**	**0.93**	**0.36 J**	**0.86**	**0.83 J**
Fluoranthene	50	**0.72**	**0.95**	**3.1**	**4.2**	**4.2**
Fluorene	50	0.39 U	0.56 U	**0.24 J**	0.4 U	**0.28 J**
Methylnaphthalene,2-	36.4	0.39 U	**0.13 J**	0.37 U	**0.085 J**	**0.15 J**
Naphthalene	13	0.39 U	**0.2 J**	0.37 U	**0.12 J**	**0.26 J**
Phenanthrene	50	**0.25 J**	**0.42 J**	**2.2**	**2.9**	**2.8**
Pyrene	50	**0.91**	**1.5**	**2.7**	**5**	**4.5**
Total Non-carcinogenic PAHs	NE	**2.71**	**5.01**	**9.16**	**15.015**	**14.65**
Carcinogenic PAHs (mg/kg)						
Benz[a]anthracene	0.224	**0.44**	**0.75**	**1.2**	**2**	**2.2**
Benzo[a]pyrene	0.061	**0.56**	**1.2**	**1.1**	**2.5**	**2.3 J**
Benzo[b]fluoranthene	1.1	**0.58**	**1.6**	**1.3**	**4.6**	**2.5 J**
Benzo[k]fluoranthene	1.1	**0.43**	**1.3**	**1.5**	0.4 U	**3.8 J**
Chrysene	0.4	**0.51**	**1.2**	**1.5**	**2.8**	**2.9**
Dibenz[a,h]anthracene	0.014	0.39 U	0.56 U	0.37 U	0.4 U	0.36 UJ
Indeno[1,2,3-cd]pyrene	3.2	**0.33 J**	**0.84**	**0.43**	**0.91**	**0.85 J**
Total Carcinogenic PAHs	NE	**2.85**	**6.89**	**7.03**	**12.81**	**14.55**
Total PAHs	NE	**5.56**	**11.9**	**16.19**	**27.825**	**29.2**

Table 4
Surface-Soil Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID Depth Date of Collection	NYSDEC SCG	SHSS-106 0-2 in 6/1/2004	SHSS-107 0-2 in 6/1/2004	SHSS-108 0-2 in 6/1/2004	SHSS-109 0-2 in 6/1/2004	SHSS-110 0-2 in 6/2/2004
BTEX (mg/kg)						
Benzene	0.06	0.012 U	0.011 U	0.011 U	0.01 UJ	0.015 U
Ethylbenzene	5.5	0.012 U	0.011 U	0.011 U	**0.002 J**	0.015 U
Toluene	1.5	0.012 U	0.011 U	0.011 U	0.01 UJ	0.015 U
Xylene, total	1.2	0.012 U	**0.002 J**	0.011 U	**0.01**	0.015 U
Total BTEX	NE	0	**0.002**	0	**0.012**	0
Other VOCs (mg/kg)						
Methyl tert-butyl ether	NE	0.012 U	0.011 U	0.011 U	0.01 U	0.015 U
Non-carcinogenic PAHs (mg/kg)						
Acenaphthene	50	0.39 U	**0.3 J**	0.36 U	0.34 U	**0.17 J**
Acenaphthylene	41	0.39 U	**0.11 J**	**0.073 J**	**0.12 J**	**0.79**
Anthracene	50	0.39 U	**0.72**	0.36 U	**0.089 J**	**0.48 J**
Benzo[g,h,i]perylene	50	0.39 U	**0.25 J**	0.36 UJ	0.34 U	**0.54 J**
Fluoranthene	50	**0.7**	**2.9**	**0.27 J**	**0.57**	**1.4**
Fluorene	50	0.39 U	**0.29 J**	0.36 U	0.34 U	**0.23 J**
Methylnaphthalene,2-	36.4	0.39 U	**0.096 J**	0.36 U	0.34 U	**0.18 J**
Naphthalene	13	0.39 U	**0.13 J**	0.36 U	0.34 U	**0.5**
Phenanthrene	50	**0.45**	**2.3**	**0.13 J**	**0.3 J**	**1.1**
Pyrene	50	**0.73**	**4.4**	**0.42**	**0.72 J**	**3.1**
Total Non-carcinogenic PAHs	NE	**1.88**	**11.496**	**0.893**	**1.799**	**8.49**
Carcinogenic PAHs (mg/kg)						
Benz[a]anthracene	0.224	**0.25 J**	**1.7**	**0.16 J**	**0.26 J**	**1.1**
Benzo[a]pyrene	0.061	**0.26 J**	**1.5 J**	**0.17 J**	**0.31 J**	**1.5 J**
Benzo[b]fluoranthene	1.1	**0.4**	**1.2 J**	**0.18 J**	**0.31 J**	**1.2 J**
Benzo[k]fluoranthene	1.1	**0.37 J**	**2 J**	**0.35 J**	**0.74**	**2.1 J**
Chrysene	0.4	**0.42**	**1.5**	**0.21 J**	**0.46**	**1.2**
Dibenz[a,h]anthracene	0.014	0.39 U	0.37 UJ	0.36 UJ	0.34 U	0.49 UJ
Indeno[1,2,3-cd]pyrene	3.2	0.39 U	**0.37 J**	**0.082 J**	**0.17 J**	**0.52 J**
Total Carcinogenic PAHs	NE	**1.7**	**8.27**	**1.152**	**2.25**	**7.62**
Total PAHs	NE	**3.58**	**19.766**	**2.045**	**4.049**	**16.11**

Notes:

BTEX - Benzene, Toluene, Ethylbenzene, Xylene
VOCs - Volatile Organic Compounds
PAHs - Polycyclic Aromatic Hydrocarbons
NE - Not Established
J - estimated value
U - not detected to reporting limit for organic analysis
UJ - not detected, value shown is estimated
mg/kg - milligrams per kilogram
NYSDEC SCG- New York State Department of Environmental
Conservation Standards, Criteria, and Guidelines
Grey shading - Concentration exceeds NY SCG
Bolding - Detected concentration

Table 5
Indoor/Outdoor Air Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID	SHAA-101A	SHAA-101B	SHAA-101C	SHAA-101D	SHAA-102A	SHAA-102AA	SHAA-102B	SHAA-103A	SHAA-103B
Location	Indoor	Indoor	Indoor	Outdoor	Indoor	Indoor	Outdoor	Indoor	Indoor
Date Collected	5/26/2004	5/26/2004	5/26/2004	5/26/2004	6/1/2004	6/1/2004	6/1/2004	5/26/2004	5/26/2004
BTEX, ppbv									
Benzene	0.73 U	0.73 U	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Toluene	**54**	**53**	**38**	**0.80**	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Ethylbenzene	0.73 U	0.73 U	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Xylene, m,p-	**0.82**	**0.82**	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Xylene, o-	0.73 U	0.73 U	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Other VOCs, ppbv									
Naphthalene	2.9 U	2.9 U	2.9 U	2.8 U	2.8 U	2.7 U	3.0 U	2.7 U	2.9 U
Trimethylbenzene,1,3,5-	0.73 U	0.73 U	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Tetrahydrofuran	0.73 U	0.73 U	0.73 U	0.70 U	**1.4**	0.67 U	0.74 U	0.67 U	0.72 U
Hexane, n-	0.73 U	0.73 U	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Tetrachloroethene	0.73 U	0.73 U	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Heptane, n-	0.73 U	0.73 U	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Methyl tert-butyl ether	0.73 UJ	0.73 UJ	0.73 UJ	0.70 UJ	0.70 U	0.67 U	0.74 U	0.67 UJ	0.72 UJ
2,2,4-Trimethylpentane	0.73 U	0.73 U	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Ethyltoluene, p-	**1.1**	**1.1**	**0.81**	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Ethanol	**10**	**8.8**	**12**	2.8 U	**3.7**	**4.8**	3.0 U	**490 EJ**	**200**
Propanol,2-	**3.5**	**3.4**	**3.0**	2.8 U	2.8 U	2.7 U	3.0 U	2.7 U	**4.7**
Acetone	**19**	**17**	**20**	**3.3**	**4.6**	**6.3**	**2.9 J**	**7.2**	**5.2**
Methylene chloride	0.73 U	0.73 U	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Carbon disulfide	0.73 U	0.73 U	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Dichlorodifluoromethane	**0.94**	**0.95**	**0.98**	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U
Butanone,2-	**1.0**	**0.98**	**0.77**	0.70 U	**0.87**	**0.88**	0.74 U	0.67 U	0.72 U
Trimethylbenzene,1,2,4-	**1.2**	**1.1**	0.73 U	0.70 U	0.70 U	0.67 U	0.74 U	0.67 U	0.72 U

Table 5
Indoor/Outdoor Air Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID	SHAA-103C	SHAA-104A	SHAA-104B	SHAA-104BB	SHAA-104C	SHAA-105A	SHAA-105B	SHAA-105C	SHAA-105D
Location	Outdoor	Indoor	Indoor	Indoor	Outdoor	Indoor	Indoor	Indoor	Outdoor
Date Collected	5/26/2004	6/2/2004	6/2/2004	6/2/2004	6/2/2004	5/27/2004	5/27/2004	5/27/2004	5/27/2004
BTEX, ppbv									
Benzene	0.70 U	0.73 U	1.5 U	1.5 U	0.76 U	**1.2**	**1.2**	**3.5**	0.72 U
Toluene	**1.4**	**1.4**	**6.7**	**6.5**	**0.87**	**5.0**	**4.2**	**13**	0.72 U
Ethylbenzene	0.70 U	**0.73**	1.5 U	1.5 U	0.76 U	0.70 U	0.70 U	**1.4**	0.72 U
Xylene, m,p-	0.70 U	**2.3**	**4.6**	**4.5**	0.76 U	**2.4**	**1.9**	**5.3**	0.72 U
Xylene, o-	0.70 U	0.73 U	**1.6**	**1.6**	0.76 U	**0.92**	**0.74**	**2.0**	0.72 U
Other VOCs, ppbv									
Naphthalene	2.8 U	2.9 U	5.8 U	5.8 U	3.0 U	2.8 U	2.8 U	2.8 U	2.9 U
Trimethylbenzene,1,3,5-	0.70 U	0.73 U	1.5 U	1.5 U	0.76 U	0.70 U	0.70 U	**0.72**	0.72 U
Tetrahydrofuran	**1.0 J**	**0.75**	**7.4**	**8.7**	0.76 U	**0.98 J**	0.70 U	0.70 U	0.72 U
Hexane, n-	0.70 U	0.73 U	1.5 U	1.5 U	0.76 U	**1.4**	**1.5**	**4.6**	0.72 U
Tetrachloroethene	0.70 U	0.73 U	1.5 U	1.5 U	0.76 U	0.70 U	0.70 U	0.70 U	0.72 U
Heptane, n-	0.70 U	0.73 U	1.5 U	1.5 U	0.76 U	0.70 U	0.70 U	**0.92**	0.72 U
Methyl tert-butyl ether	0.70 UJ	0.73 U	**3.2**	**2.9**	0.76 U	0.70 UJ	0.70 UJ	0.70 UJ	0.72 UJ
2,2,4-Trimethylpentane	0.70 U	0.73 U	1.5 U	1.5 U	0.76 U	0.70 U	0.70 U	**0.78**	0.72 U
Ethyltoluene, p-	0.70 U	0.73 U	**2.6**	**2.4**	0.76 U	**1.2**	**0.97**	**2.2**	0.72 U
Ethanol	**16**	**3.3**	**5.7 J**	5.8 U	3.0 U	**23**	**24**	2.8 U	2.9 U
Propanol,2-	**6.8**	2.9 U	5.8 U	5.8 U	3.0 U	2.8 U	2.8 U	2.8 U	2.9 U
Acetone	**6.1**	**6.3**	**96**	**80**	**4.7**	**8.5**	**7.0**	**3.8**	**3.0**
Methylene chloride	0.70 U	0.73 U	1.5 U	1.5 U	0.76 U	0.70 U	0.70 U	**1.0**	0.72 U
Carbon disulfide	**4.9**	0.73 U	1.5 U	1.5 U	0.76 U	0.70 U	0.70 U	0.70 U	0.72 U
Dichlorodifluoromethane	0.70 U	0.73 U	1.5 U	1.5 U	0.76 U	**4.6**	**2.0**	**0.98**	0.72 U
Butanone,2-	**2.4**	**9.2**	**590 EJ**	**560**	**2.7**	**0.99**	0.70 U	0.70 U	0.72 U
Trimethylbenzene,1,2,4-	0.70 U	0.73 U	**2.6**	**2.4**	0.76 U	**1.2**	**0.99**	**2.1**	0.72 U

Table 5
Indoor/Outdoor Air Analytical Results
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Sample ID	SHAA-106A	SHAA-106B	SHAA-106C	SHAA-106D	SHAA-107A	SHAA-107AA	SHAA-107B	SHAA-108A	SHAA-108B
Location	Indoor	Indoor	Indoor	Outdoor	Indoor	Indoor	Outdoor	Indoor	Outdoor
Date Collected	5/27/2004	5/27/2004	5/27/2004	5/27/2004	6/9/2004	6/9/2004	6/9/2004	5/26/2004	5/26/2004
BTEX, ppbv									
Benzene	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	**1.3**	0.70 U
Toluene	**1.1**	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	**1.4**	0.70 U
Ethylbenzene	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	0.67 U	0.70 U
Xylene, m,p-	**0.82**	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	**1.2**	0.70 U
Xylene, o-	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	0.67 U	0.70 U
Other VOCs, ppbv									
Naphthalene	2.8 U	3.0 U	3.1 U	3.2 U	3.0 U	3.2 U	3.2 U	2.7 U	2.8 U
Trimethylbenzene,1,3,5-	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	0.67 U	0.70 U
Tetrahydrofuran	0.70 U	0.76 U	0.78 U	0.79 U	**0.98**	0.79 U	0.80 U	0.67 U	0.70 U
Hexane, n-	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	**1.9**	0.70 U
Tetrachloroethene	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	**0.84**	0.67 U	0.70 U
Heptane, n-	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	0.67 U	0.70 U
Methyl tert-butyl ether	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	0.67 UJ	0.70 UJ
2,2,4-Trimethylpentane	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	0.67 U	0.70 U
Ethyltoluene, p-	0.70 U	0.76 U	0.78 U	0.79 U	**0.81**	0.78 J	0.80 U	0.67 U	0.70 U
Ethanol	2.8 U	**25**	**19**	3.2 U	**14**	**4.0**	3.2 U	**4.2**	2.8 U
Propanol,2-	2.8 U	3.0 U	3.1 U	3.2 U	3.0 U	3.2 U	3.2 U	2.7 U	2.8 U
Acetone	2.8 U	**3.3**	**5.8**	3.2 U	**8.9**	**8.9**	**5.4**	**15**	2.8 U
Methylene chloride	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	**1.8**	0.70 U
Carbon disulfide	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	**1.7**	0.70 U
Dichlorodifluoromethane	0.70 U	0.76 U	0.78 U	0.79 U	0.76 U	0.79 U	0.80 U	0.67 U	0.70 U
Butanone,2-	0.70 U	0.76 U	**0.93**	0.79 U	**1.2**	**1.2**	**0.88**	**0.77**	0.70 U
Trimethylbenzene,1,2,4-	0.70 U	0.76 U	0.78 U	0.79 U	**1.4**	**1.3**	**1.3**	0.67 U	0.70 U

Notes:

BTEX - Benzene, Toluene, Ethylbenzene, and Xylene

VOCs - Volatile Organic Compounds

ppbv - parts per billion per volume

U - not detected

J - estimated value

UJ - not detected, value shown is estimated

Bolding indicates detected concentration

Table 6
Historic Total BTEX Concentrations in Groundwater
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

	Sampling Date			
Monitoring Well ID	**Apr-00**	**May-02**	**May-04**	**Aug-04**
MW-01	68	9	4	0
MW-02	7940	5840	13287	8740
MW-03	1553	1363	2573	NS
MW-04	35	10	208	NS
MW-05	5	102	11600	2938
MW-06	30	91	49	NS
SHMW-01S	1413	874	2102	NS
SHMW-01I	5	0	0	NS
SHMW-02I	26	0	1179	16
SHMW-02D	5	4	0	NS
SHMW-03S	63	0	110	NS
SHMW-03I	0	52	0	NS
SHMW-04S	7490	3154	12180	NS
SHMW-04I	5	0	0	NS
SHMW-05S	37	69	83	NS
SHMW-05I	0	0	0	NS
SHMW-06S	2392	2463	3057	NS
SHMW-06I	0	0	0	NS
SHMW-07S	2011	1562	414	NS
SHMW-07I	0	0	0	NS
SHMW-08S	5	2	9	NS
SHMW-08I	0	0	0	NS
SHMW-09S	1024	506	1100	NS
SHMW-09I	0	0	0	NS
SHMW-10S	NA	0	0	NS
SHMW-10I	NA	0	0	NS
SHMW-11S	NA	0	0	NS
SHMW-11I	NA	0	0	NS
SHMW-12S	NA	59	344	NS
SHMW-12I	NA	0	0	NS
SHMW-13S	NA	0	0	NS
SHMW-13I	NA	0	0	NS

Notes:

Concentrations shown in ug/L - micrograms per liter

NA - Not Applicable (not sampled since wells were installed after April 2000)

NS - Not Sampled (not sampled as part of the August 2004 re-sampling event)

Table 7
Historic Total PAH Concentrations in Groundwater
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

	Sampling Date			
Monitoring Well ID	**Apr-00**	**May-02**	**May-04**	**Aug-04**
MW-01	257	402	30	24
MW-02	5114	10729	25167	5314
MW-03	3433	3774	3522	NS
MW-04	75	0	90	NS
MW-05	101	1160	431600	2049
MW-06	653	258	33	NS
SHMW-01S	4147	2663	2424	NS
SHMW-01I	32	0	0	NS
SHMW-02I	266	0	580200	41
SHMW-02D	308	76	89	NS
SHMW-03S	422	0	295	NS
SHMW-03I	2	320	0	NS
SHMW-04S	4275	5107	5965	NS
SHMW-04I	18	0	0	NS
SHMW-05S	13	170	94	NS
SHMW-05I	0	17	0	NS
SHMW-06S	4130	4694	3024	NS
SHMW-06I	2	0	0	NS
SHMW-07S	7211	6585	2708	NS
SHMW-07I	0	0	0	NS
SHMW-08S	110	71	94	NS
SHMW-08I	13	0	0	NS
SHMW-09S	1787	2472	1697	NS
SHMW-09I	3	0	0	NS
SHMW-10S	NA	22	6	NS
SHMW-10I	NA	0	0	NS
SHMW-11S	NA	0	3	NS
SHMW-11I	NA	0	0	NS
SHMW-12S	NA	60	218	NS
SHMW-12I	NA	0	0	NS
SHMW-13S	NA	0	0	NS
SHMW-13I	NA	0	0	NS

Notes:

Concentrations shown in ug/L - micrograms per liter

NA - Not Applicable (not sampled since wells were installed after April 2000)

NS - Not Sampled (not sampled as part of the August 2004 re-sampling event)

Table 8
DNAPL Measurements in Groundwater Monitoring Wells
Supplemental Field Program
Sag Harbor Former MGP Site
Sag Harbor, New York

Well ID	May 2002 Observations	May 2004 Observations	August 2004 Observations
MW-01	None	Odor	None
MW-02	Approx. 0.16' of DNAPL, sheen on surface	Approx. 0.15' of DNAPL, sheen on surface	Approx. 0.29' of DNAPL
MW-03	Intermittent DNAPL for 1.5'	Approx. 0.03' of DNAPL, naphthalene-like odor	Not Checked
MW-04	None	Approx. 0.02' of DNAPL, naphthalene-like odor	Not Checked
MW-05	Blebs of LNAPL	Approx. 1.0' of DNAPL, naphthalene-like odor	Approx. 0.75' of DNAPL
MW-06	None	Slight naphthalene-like odor	Not Checked
SHMW-01S	None	Slight naphthalene-like odor	Not Checked
SHMW-01I	None	None	Not Checked
SHMW-02I	None	Approx. 4.9' of DNAPL, sheen	Approx. 4.7' of DNAPL
SHMW-02D	None	None	Not Checked
SHMW-03S	None	Odor	Not Checked
SHMW-03I	None	None	Not Checked
SHMW-04S	None	Approx. 0.6' of DNAPL, naphthalene-like odor	Not Checked
SHMW-04I	None	None	Not Checked
SHMW-05S	None	Blebs of DNAPL in purge water, odor	Not Checked
SHMW-05I	None	None	Not Checked
SHMW-06S	Slight sheen and naphthalene-like odor	Naphthalene-like odor	Not Checked
SHMW-06I	None	None	Not Checked
SHMW-07S	Sheen and naphthalene-like odor	Slight odor	Not Checked
SHMW-07I	None	None	Not Checked
SHMW-08S	None	None	Not Checked
SHMW-08I	None	None	Not Checked
SHMW-09S	None	Slight naphthalene-like odor	Not Checked
SHMW-09I	None	None	Not Checked
SHMW-10S	None	None	Not Checked
SHMW-10I	None	None	Not Checked
SHMW-11S	None	None	Not Checked
SHMW-11I	None	None	Not Checked
SHMW-12S	None	Sheen, strong sulfur-like odor	Not Checked
SHMW-12I	None	None	Not Checked
SHMW-13S	None	None	Not Checked
SHMW-13I	None	None	Not Checked

Notes:

DNAPL - Dense Non-aqueous Phase Liquid

LNAPL - Light Non-aqueous Phase Liquid

Figures

SOURCE: MAP CREATED WITH TOPO!™ ©2000
WILDFLOWER PRODUCTIONS (www.topo.com)

0 2000 4000

SCALE, FEET

SUPPLEMENTAL FIELD PROGRAM
SAG HARBOR FORMER MGP SITE
SAG HARBOR, NEW YORK

KEYSPAN CORPORATION

GEI Consultants

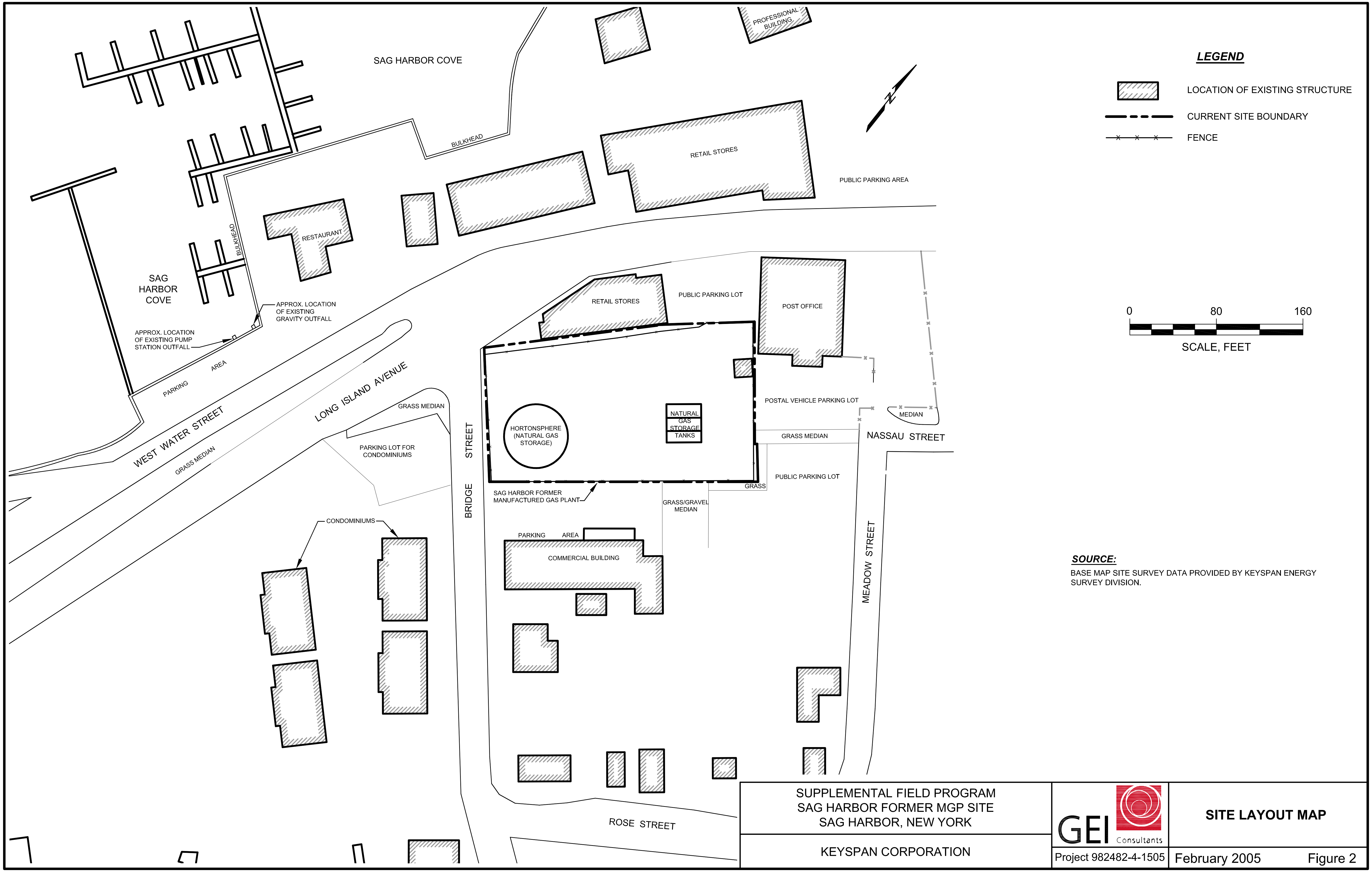
Project 982482-4-1505

SITE LOCATION MAP

February 2005

Figure 1

KEYSPAN\SAG HARBOR\SUPP\SAG-LOC.CDR



SOURCE:
BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION.

SUPPLEMENTAL FIELD PROGRAM
SAG HARBOR FORMER MGP SITE
SAG HARBOR, NEW YORK

KEYSPAN CORPORATION

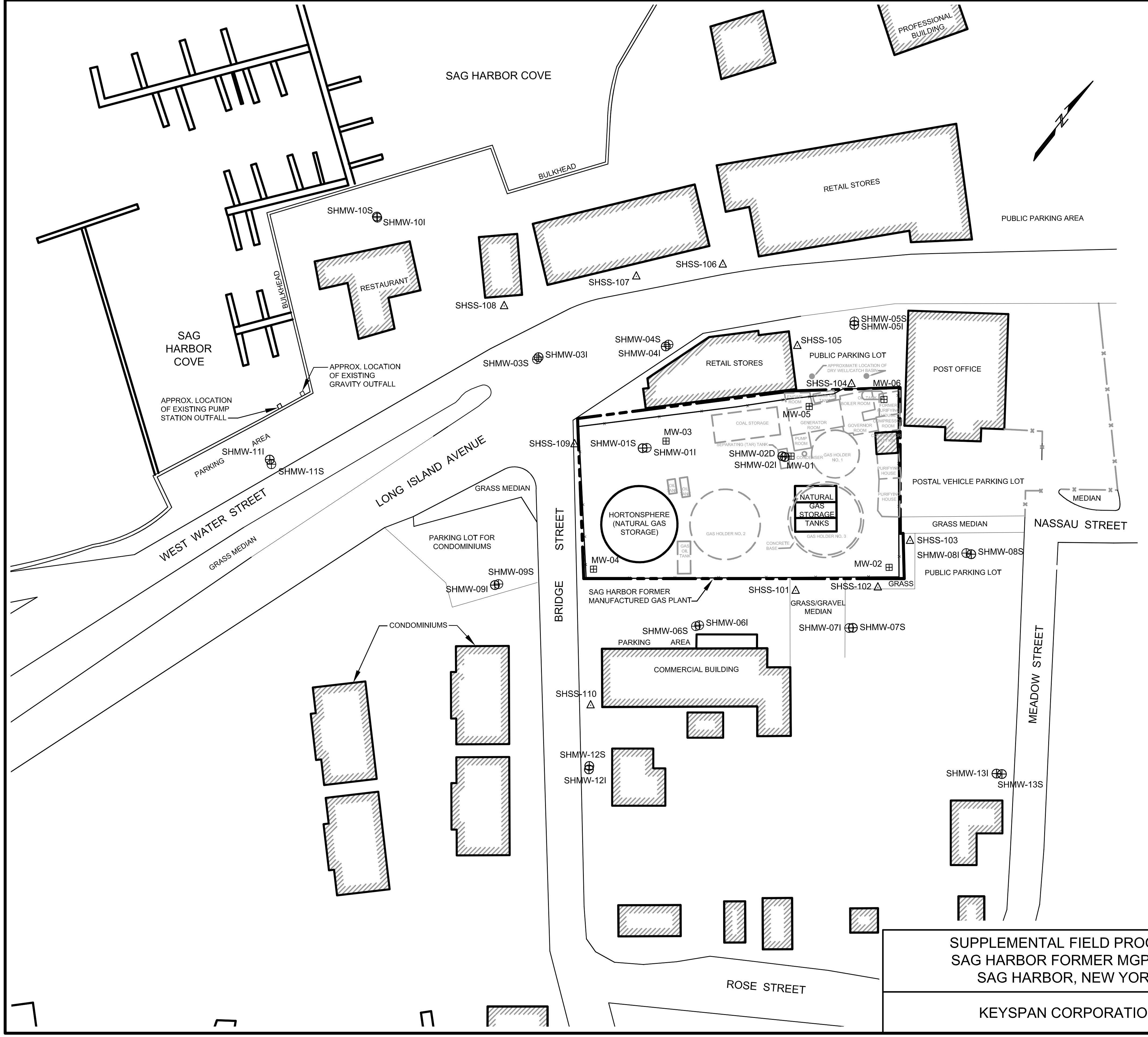
GEI Consultants
Project 982482-4-1505

SITE LAYOUT MAP

February 2005

Figure 2

KEYSPAN\SAG HARBOR\SUPP\SAG-SAMPLES



LEGEND

⬚	APPROXIMATE LOCATION OF FORMER MGP STRUCTURE
▨	LOCATION OF EXISTING STRUCTURE
▬ ▬ ▬	CURRENT SITE BOUNDARY
—x—x—x—	FENCE
SHMW-05S ⊕ MW-01 ⊞	EXISTING MONITORING WELL LOCATION
SHSS-103 △	GEI SURFACE SOIL SAMPLING LOCATION

SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

SUPPLEMENTAL FIELD PROGRAM
SAG HARBOR FORMER MGP SITE
SAG HARBOR, NEW YORK

KEYSPAN CORPORATION

GEI Consultants

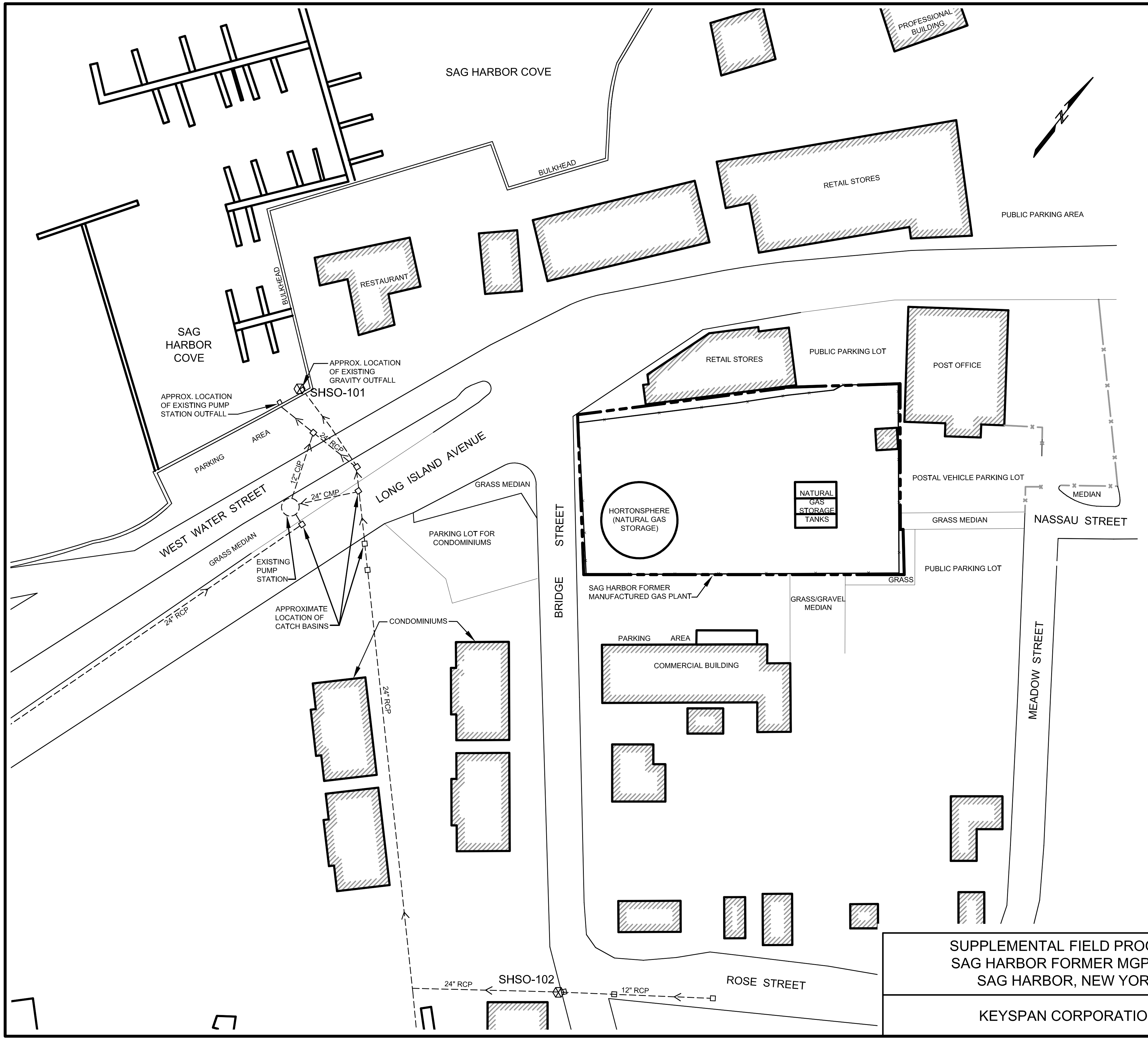
Project 982482-4-1505

GROUNDWATER AND SURFACE SOIL SAMPLE LOCATION MAP

February 2005

Figure 3

KEYSPAN\SAG HARBOR\SUPP\SAG-SAMPLES



LEGEND

▨	LOCATION OF EXISTING STRUCTURE
━ ━ ━	CURRENT SITE BOUNDARY
—×—×—×—	FENCE
- - -<- - -	STORM SEWER LOCATION AND FLOW DIRECTION
□	CATCH BASIN
SHSO-101 ⊗	STORM WATER SAMPLE LOCATION

0 80 160
SCALE, FEET

SOURCE:
BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION.

NOTE:
STORM SEWER LOCATIONS BASED ON STORMWATER COLLECTION PLANS (DATED FEBRUARY 1987 AND JANUARY 1988 BY STORCH ASSOCIATES) OBTAINED FROM VILLAGE OF SAG HARBOR DEPARTMENT OF PUBLIC WORKS.

SUPPLEMENTAL FIELD PROGRAM
SAG HARBOR FORMER MGP SITE
SAG HARBOR, NEW YORK

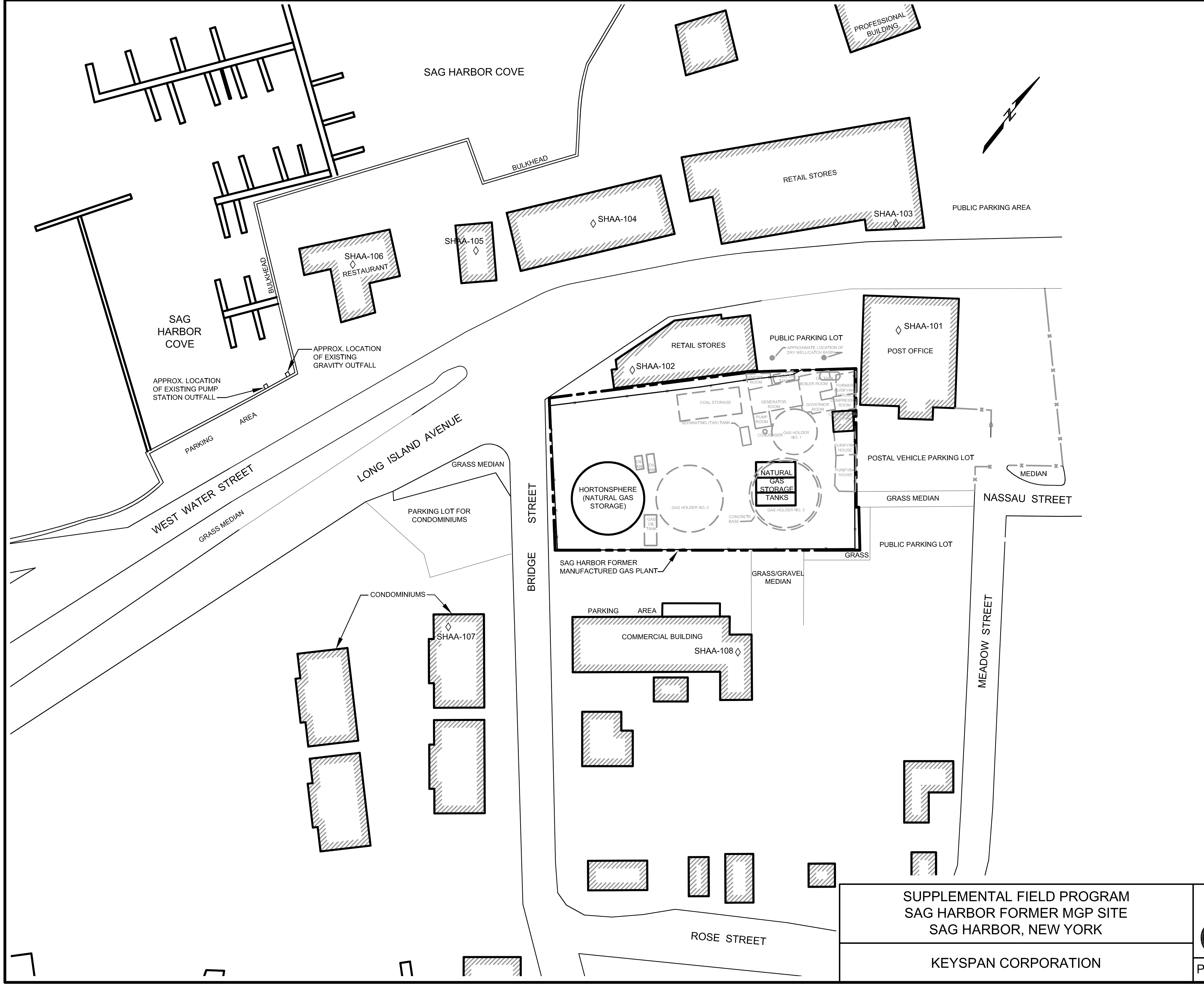
KEYSPAN CORPORATION

GEI Consultants
Project 982482-4-1505

STORMWATER SAMPLE LOCATION MAP

February 2005
Figure 4

KEYSPAN\SAG HARBOR\SUPP\SAG-SAMPLES



LEGEND

⌜ ⌝	APPROXIMATE LOCATION OF FORMER MGP STRUCTURE
▨	LOCATION OF EXISTING STRUCTURE
━ ━ ━	CURRENT SITE BOUNDARY
—×—×—	FENCE
SHAA-101 ◇	SUPPLEMENTAL INDOOR AND OUTDOOR AIR SAMPLE LOCATION

0 80 160

SCALE, FEET

SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

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INDOOR AND OUTDOOR AIR SAMPLE LOCATION MAP

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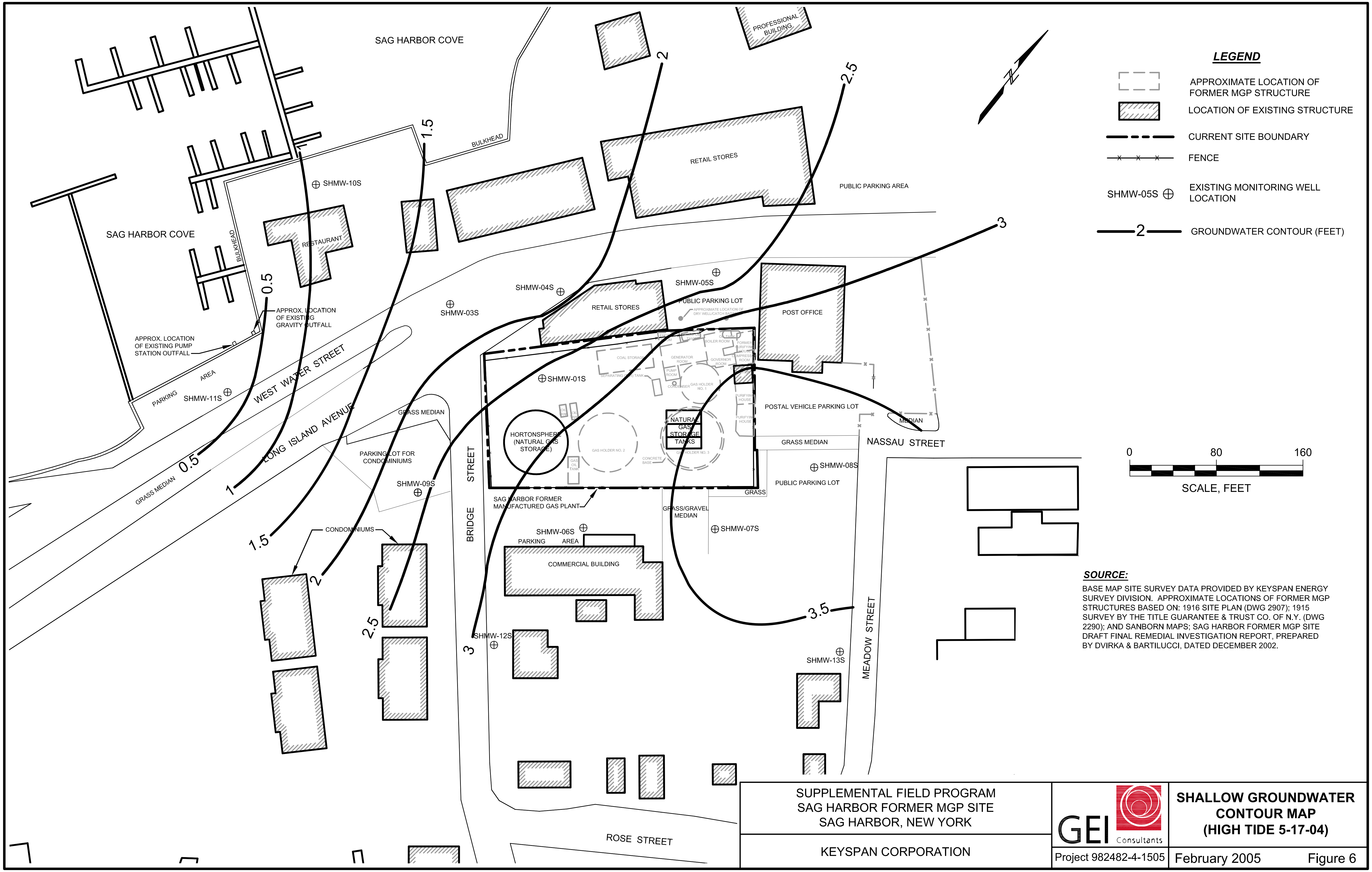
Figure 5

KEYSPAN\SAG HARBOR\SUPP\SAG-SAMPLES



LEGEND

⬚	APPROXIMATE LOCATION OF FORMER MGP STRUCTURE
▨	LOCATION OF EXISTING STRUCTURE
— - —	CURRENT SITE BOUNDARY
—x—x—	FENCE
SHMW-05S ⊕	EXISTING MONITORING WELL LOCATION
—2—	GROUNDWATER CONTOUR (FEET)

SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

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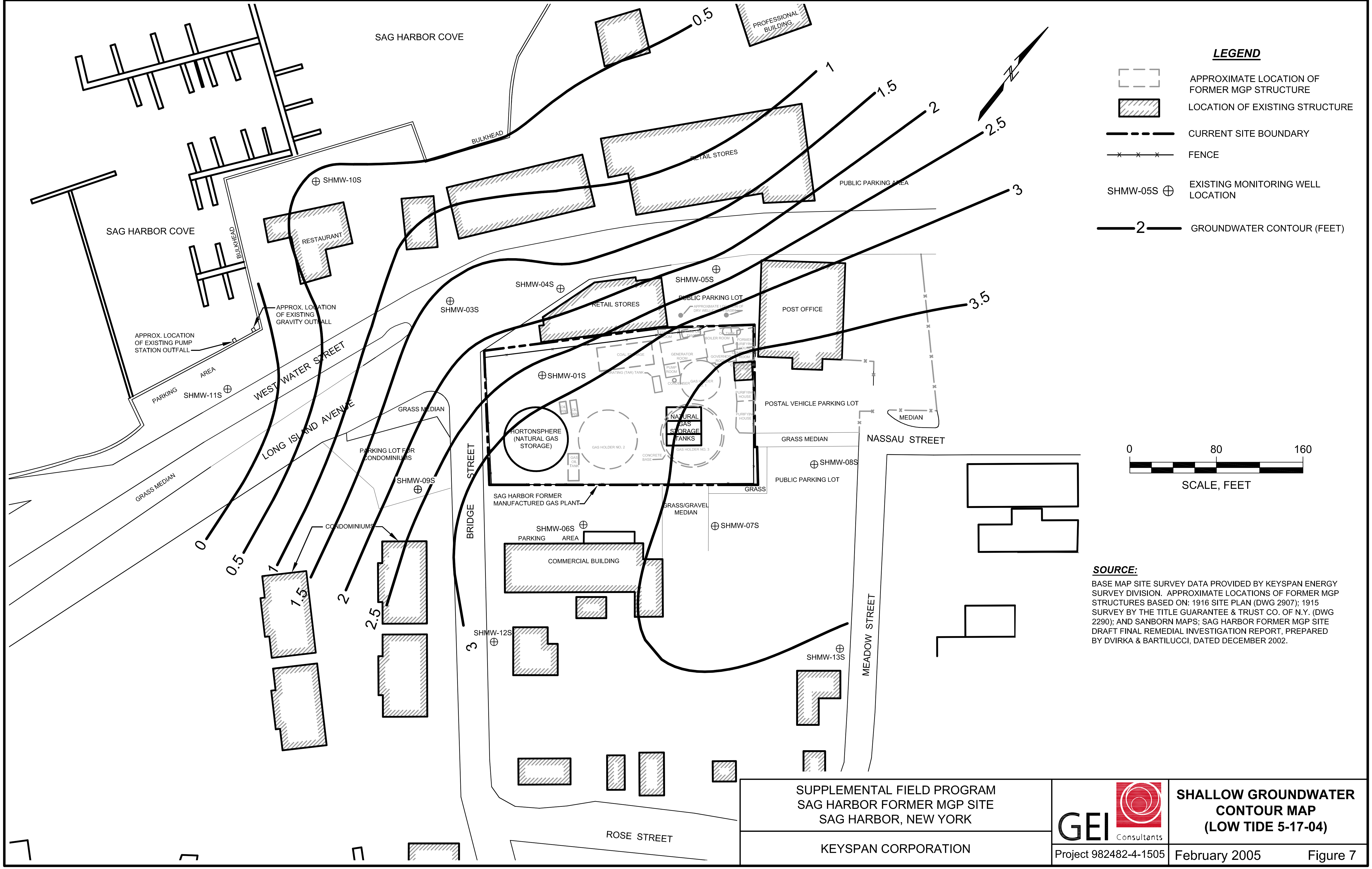
SHALLOW GROUNDWATER CONTOUR MAP (HIGH TIDE 5-17-04)

February 2005

Figure 6

KEYSPAN\SAG HARBOR\SUPP\SAG-GWC 5-17-04



LEGEND

┌ ┐	APPROXIMATE LOCATION OF FORMER MGP STRUCTURE
▨	LOCATION OF EXISTING STRUCTURE
━ ━ ━	CURRENT SITE BOUNDARY
—x—x—x—	FENCE
SHMW-05S ⊕	EXISTING MONITORING WELL LOCATION
——2——	GROUNDWATER CONTOUR (FEET)

SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

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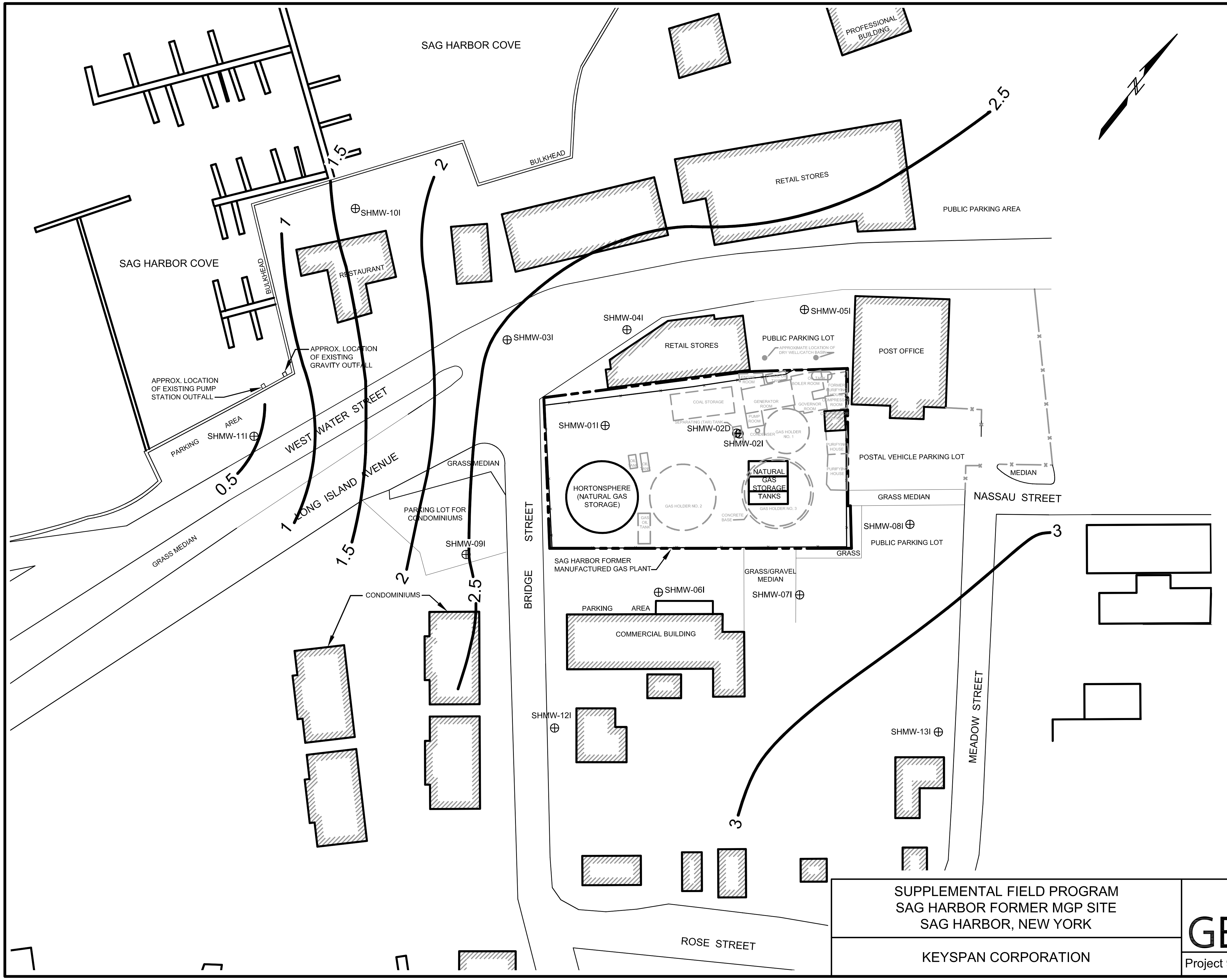
SHALLOW GROUNDWATER CONTOUR MAP (LOW TIDE 5-17-04)

February 2005

Figure 7

KEYSPAN\SAG HARBOR\SUPP\SAG-GWC 5-17-04



LEGEND

▭	APPROXIMATE LOCATION OF FORMER MGP STRUCTURE
▨	LOCATION OF EXISTING STRUCTURE
━ ━ ━	CURRENT SITE BOUNDARY
—x—x—	FENCE
SHMW-05I ⊕	EXISTING MONITORING WELL LOCATION
—2—	GROUNDWATER CONTOUR (FEET)

0 80 160

SCALE, FEET

SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

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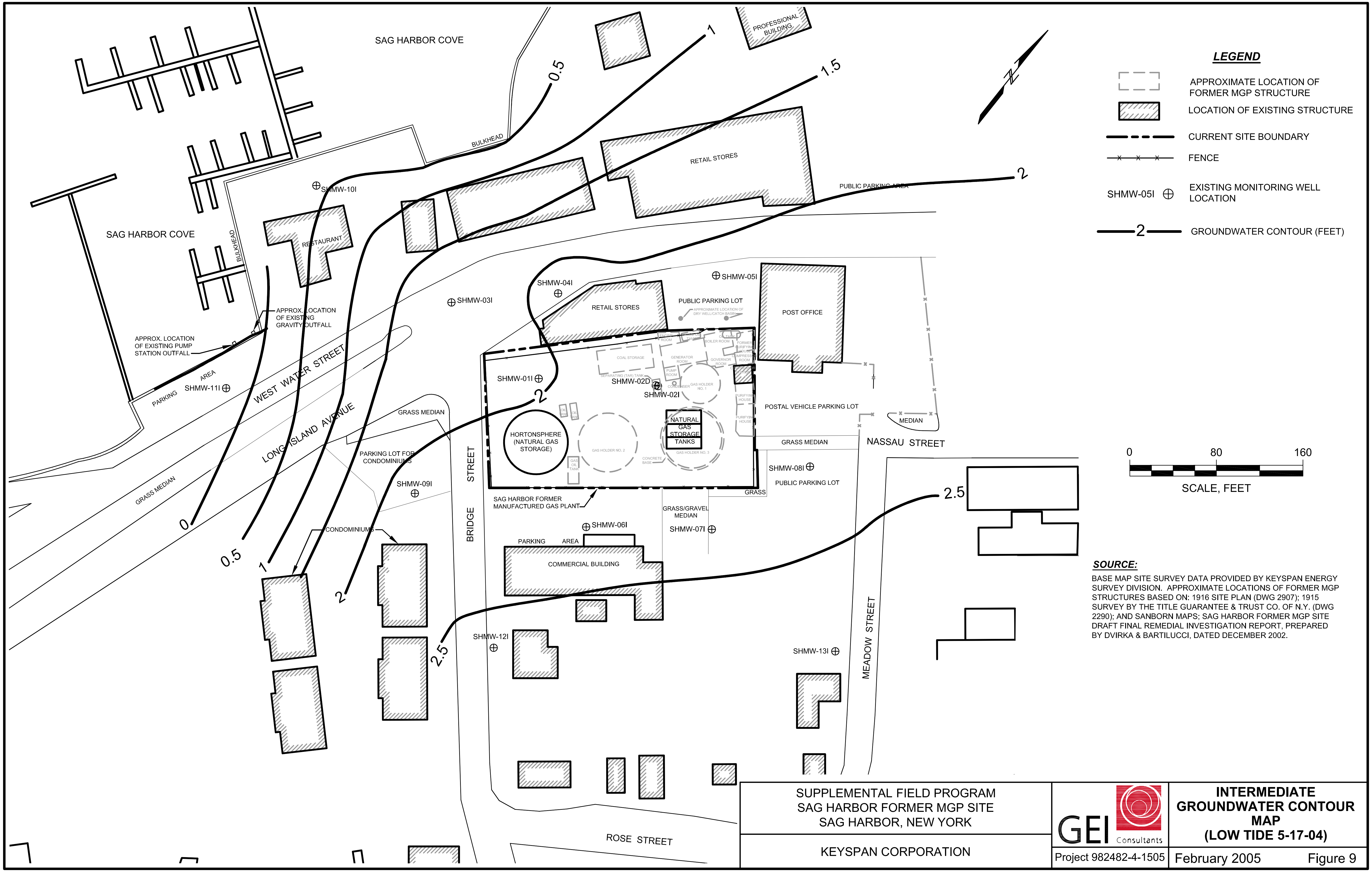
INTERMEDIATE GROUNDWATER CONTOUR MAP (HIGH TIDE 5-17-04)

February 2005

Figure 8

KEYSPAN\SAG HARBOR\SUPP\SAG-GWC 5-17-04



SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

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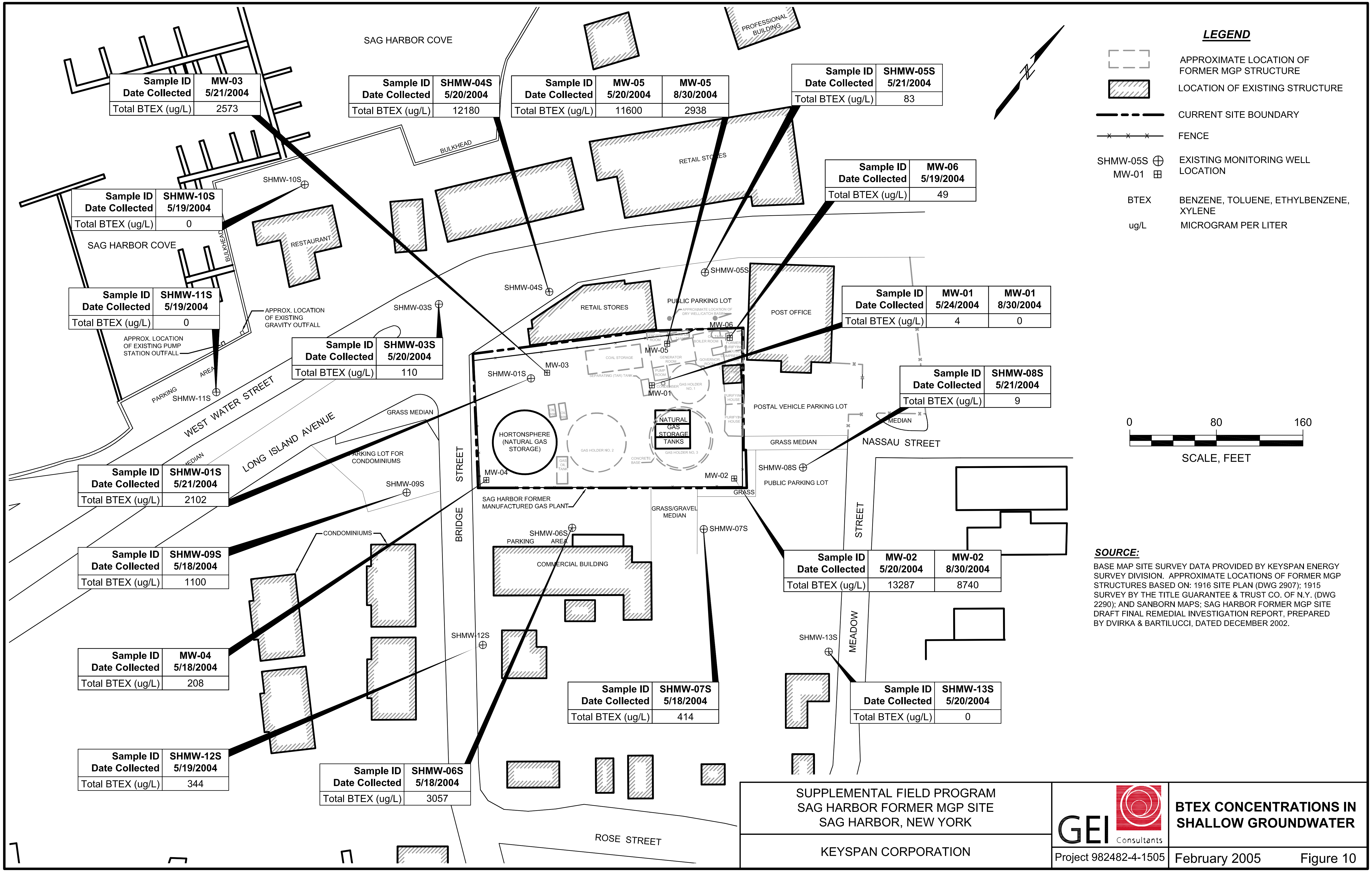
INTERMEDIATE GROUNDWATER CONTOUR MAP (LOW TIDE 5-17-04)

February 2005

Figure 9

KEYSPAN\SAG HARBOR\SUPP\SAG-GWC 5-17-04



Sample ID	MW-03
Date Collected	5/21/2004
Total BTEX (ug/L)	2573

Sample ID	SHMW-04S
Date Collected	5/20/2004
Total BTEX (ug/L)	12180

Sample ID	MW-05	MW-05
Date Collected	5/20/2004	8/30/2004
Total BTEX (ug/L)	11600	2938

Sample ID	SHMW-05S
Date Collected	5/21/2004
Total BTEX (ug/L)	83

Sample ID	MW-06
Date Collected	5/19/2004
Total BTEX (ug/L)	49

Sample ID	SHMW-10S
Date Collected	5/19/2004
Total BTEX (ug/L)	0

Sample ID	SHMW-11S
Date Collected	5/19/2004
Total BTEX (ug/L)	0

Sample ID	SHMW-03S
Date Collected	5/20/2004
Total BTEX (ug/L)	110

Sample ID	MW-01	MW-01
Date Collected	5/24/2004	8/30/2004
Total BTEX (ug/L)	4	0

Sample ID	SHMW-08S
Date Collected	5/21/2004
Total BTEX (ug/L)	9

Sample ID	SHMW-01S
Date Collected	5/21/2004
Total BTEX (ug/L)	2102

Sample ID	SHMW-09S
Date Collected	5/18/2004
Total BTEX (ug/L)	1100

Sample ID	MW-02	MW-02
Date Collected	5/20/2004	8/30/2004
Total BTEX (ug/L)	13287	8740

Sample ID	MW-04
Date Collected	5/18/2004
Total BTEX (ug/L)	208

Sample ID	SHMW-07S
Date Collected	5/18/2004
Total BTEX (ug/L)	414

Sample ID	SHMW-13S
Date Collected	5/20/2004
Total BTEX (ug/L)	0

Sample ID	SHMW-12S
Date Collected	5/19/2004
Total BTEX (ug/L)	344

Sample ID	SHMW-06S
Date Collected	5/18/2004
Total BTEX (ug/L)	3057

LEGEND

⬚	APPROXIMATE LOCATION OF FORMER MGP STRUCTURE
▨	LOCATION OF EXISTING STRUCTURE
▬ ▬ ▬	CURRENT SITE BOUNDARY
—x—x—x—	FENCE
SHMW-05S ⊕ MW-01 ⊞	EXISTING MONITORING WELL LOCATION
BTEX	BENZENE, TOLUENE, ETHYLBENZENE, XYLENE
ug/L	MICROGRAM PER LITER

SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

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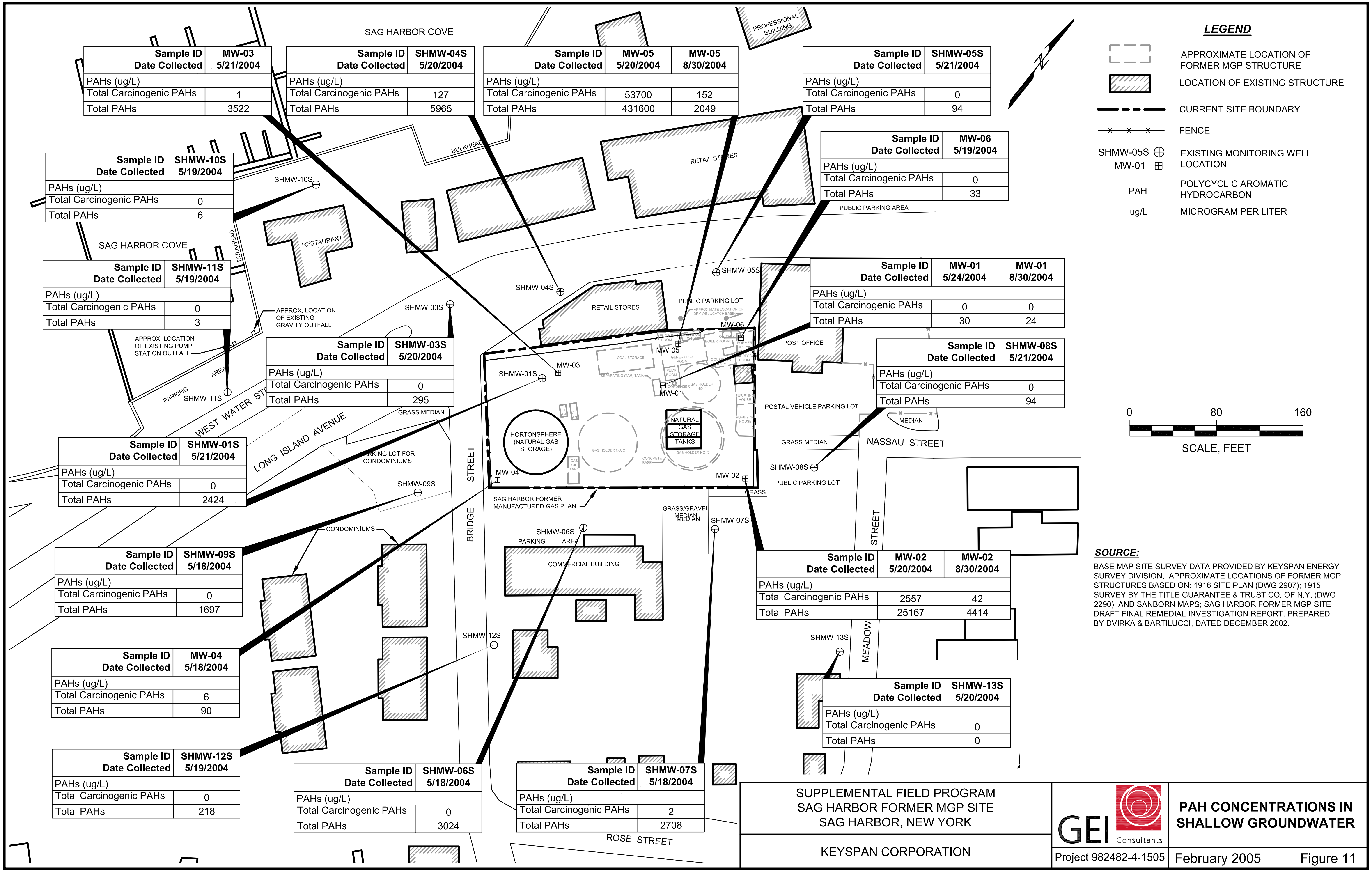
BTEX CONCENTRATIONS IN SHALLOW GROUNDWATER

February 2005

Figure 10

KEYSPAN\SAG HARBOR\SUPP\SAG-BTEX SH GW



Sample ID	MW-03
Date Collected	5/21/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	1
Total PAHs	3522

Sample ID	SHMW-04S
Date Collected	5/20/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	127
Total PAHs	5965

Sample ID	MW-05	MW-05
Date Collected	5/20/2004	8/30/2004
PAHs (ug/L)		
Total Carcinogenic PAHs	53700	152
Total PAHs	431600	2049

Sample ID	SHMW-05S
Date Collected	5/21/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	94

Sample ID	MW-06
Date Collected	5/19/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	33

Sample ID	SHMW-10S
Date Collected	5/19/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	6

Sample ID	SHMW-11S
Date Collected	5/19/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	3

Sample ID	SHMW-03S
Date Collected	5/20/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	295

Sample ID	MW-01	MW-01
Date Collected	5/24/2004	8/30/2004
PAHs (ug/L)		
Total Carcinogenic PAHs	0	0
Total PAHs	30	24

Sample ID	SHMW-08S
Date Collected	5/21/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	94

Sample ID	SHMW-01S
Date Collected	5/21/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	2424

Sample ID	SHMW-09S
Date Collected	5/18/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	1697

Sample ID	MW-02	MW-02
Date Collected	5/20/2004	8/30/2004
PAHs (ug/L)		
Total Carcinogenic PAHs	2557	42
Total PAHs	25167	4414

Sample ID	MW-04
Date Collected	5/18/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	6
Total PAHs	90

Sample ID	SHMW-13S
Date Collected	5/20/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID	SHMW-12S
Date Collected	5/19/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	218

Sample ID	SHMW-06S
Date Collected	5/18/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	3024

Sample ID	SHMW-07S
Date Collected	5/18/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	2
Total PAHs	2708

LEGEND

⬚	APPROXIMATE LOCATION OF FORMER MGP STRUCTURE
▨	LOCATION OF EXISTING STRUCTURE
▬ ▬	CURRENT SITE BOUNDARY
—x—x—	FENCE
SHMW-05S ⊕ MW-01 ⊞	EXISTING MONITORING WELL LOCATION
PAH	POLYCYCLIC AROMATIC HYDROCARBON
ug/L	MICROGRAM PER LITER

SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

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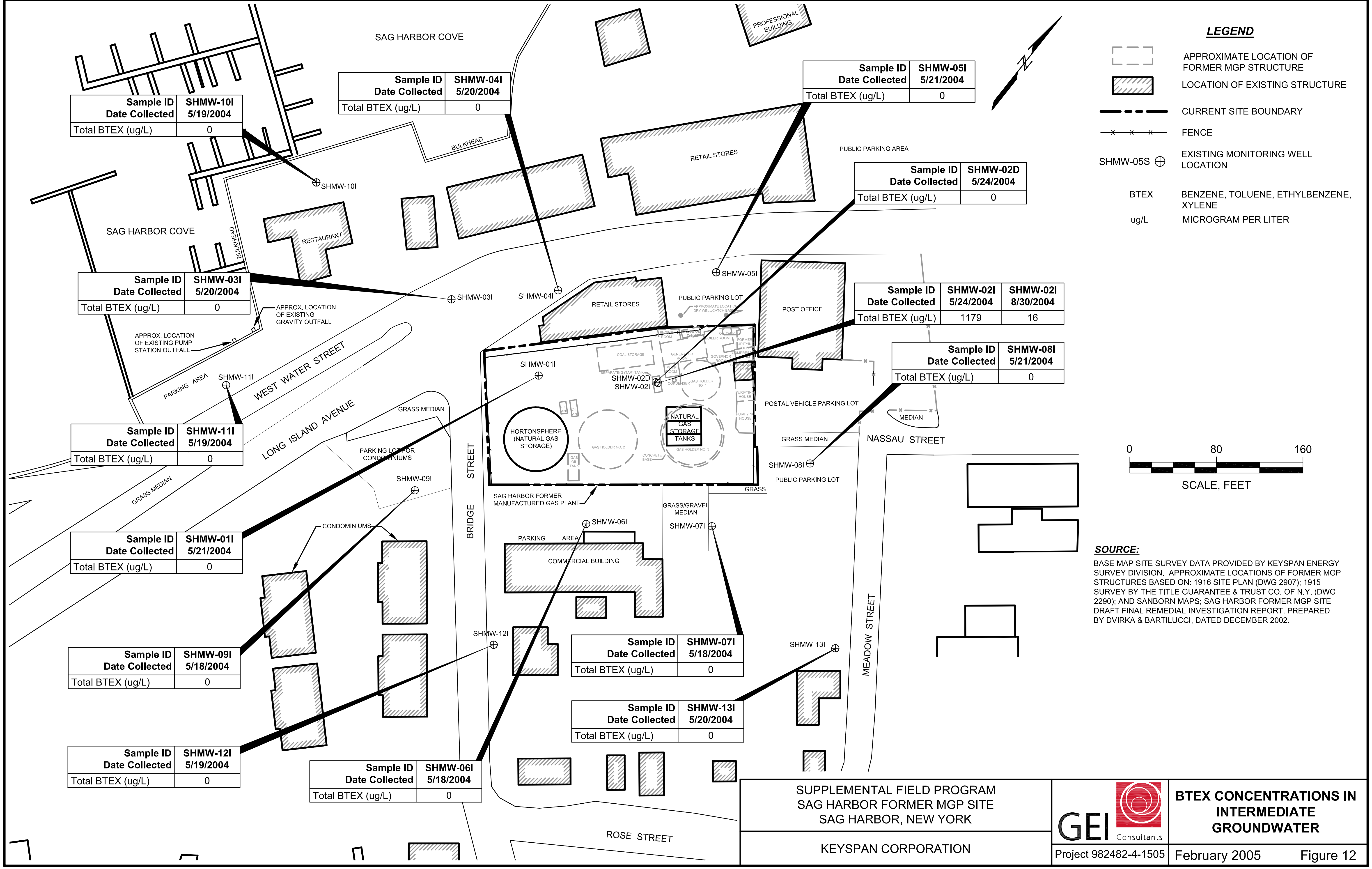
PAH CONCENTRATIONS IN SHALLOW GROUNDWATER

February 2005

Figure 11

KEYSPAN\SAG HARBOR\SUPP\SAG-PAH SH GW



Sample ID Date Collected	SHMW-10I 5/19/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-04I 5/20/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-05I 5/21/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-02D 5/24/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-03I 5/20/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-02I 5/24/2004	SHMW-02I 8/30/2004
Total BTEX (ug/L)	1179	16

Sample ID Date Collected	SHMW-08I 5/21/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-11I 5/19/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-01I 5/21/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-09I 5/18/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-07I 5/18/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-13I 5/20/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-12I 5/19/2004
Total BTEX (ug/L)	0

Sample ID Date Collected	SHMW-06I 5/18/2004
Total BTEX (ug/L)	0

LEGEND

⬚	APPROXIMATE LOCATION OF FORMER MGP STRUCTURE
▨	LOCATION OF EXISTING STRUCTURE
▬ ▬ ▬	CURRENT SITE BOUNDARY
—x—x—	FENCE
SHMW-05S ⊕	EXISTING MONITORING WELL LOCATION
BTEX	BENZENE, TOLUENE, ETHYLBENZENE, XYLENE
ug/L	MICROGRAM PER LITER

SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

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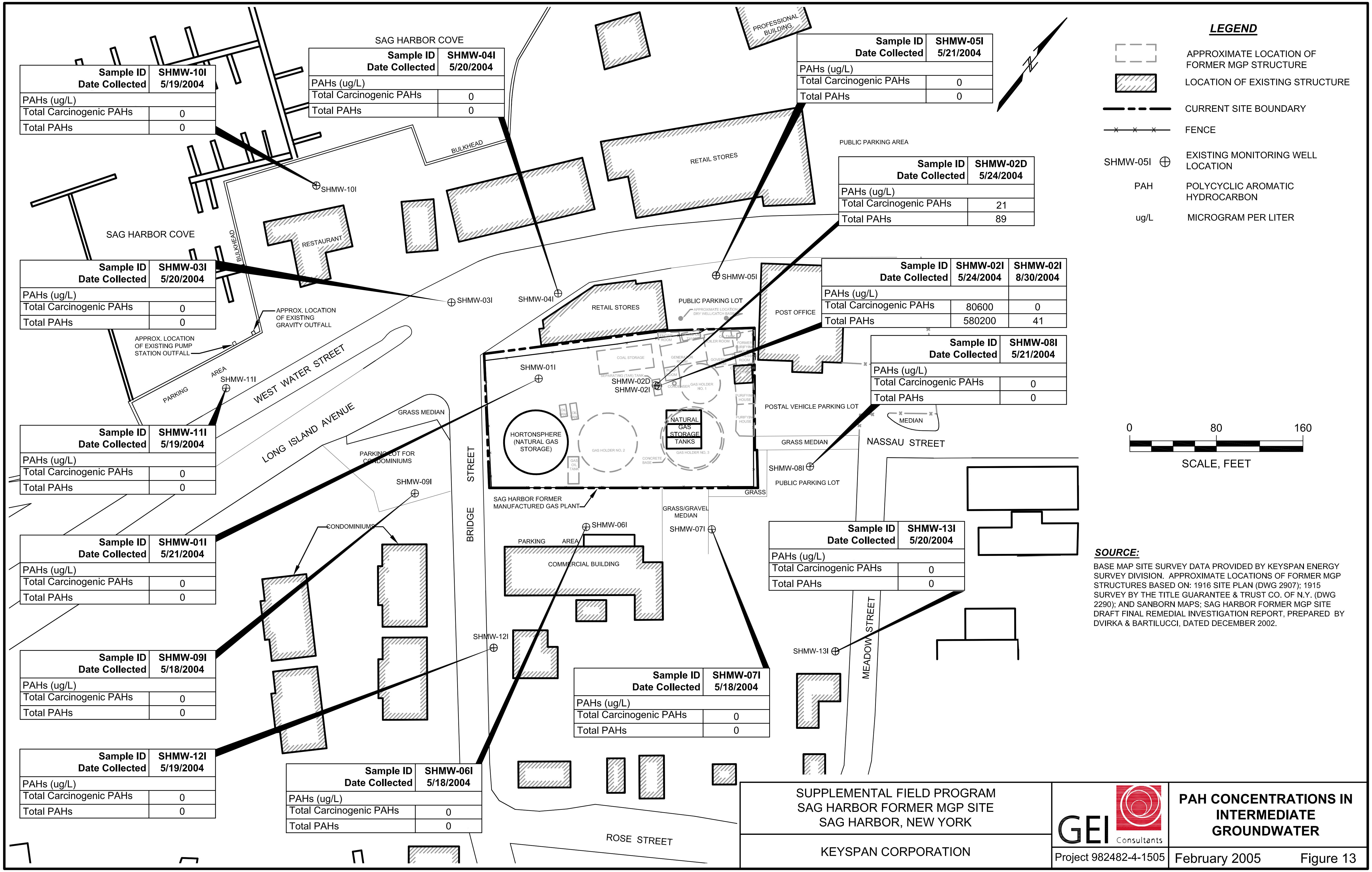
BTEX CONCENTRATIONS IN INTERMEDIATE GROUNDWATER

February 2005

Figure 12

KEYSPAN\SAG HARBOR\SUPP\SAG-BTEX INT GW



Sample ID Date Collected	SHMW-10I 5/19/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-04I 5/20/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-05I 5/21/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-02D 5/24/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	21
Total PAHs	89

Sample ID Date Collected	SHMW-03I 5/20/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-02I 5/24/2004	SHMW-02I 8/30/2004
PAHs (ug/L)		
Total Carcinogenic PAHs	80600	0
Total PAHs	580200	41

Sample ID Date Collected	SHMW-08I 5/21/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-11I 5/19/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-01I 5/21/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-13I 5/20/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-09I 5/18/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-07I 5/18/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-12I 5/19/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

Sample ID Date Collected	SHMW-06I 5/18/2004
PAHs (ug/L)	
Total Carcinogenic PAHs	0
Total PAHs	0

LEGEND

⬚	APPROXIMATE LOCATION OF FORMER MGP STRUCTURE
▨	LOCATION OF EXISTING STRUCTURE
▬ ▬ ▬	CURRENT SITE BOUNDARY
—x—x—x—	FENCE
SHMW-05I ⊕	EXISTING MONITORING WELL LOCATION
PAH	POLYCYCLIC AROMATIC HYDROCARBON
ug/L	MICROGRAM PER LITER

SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

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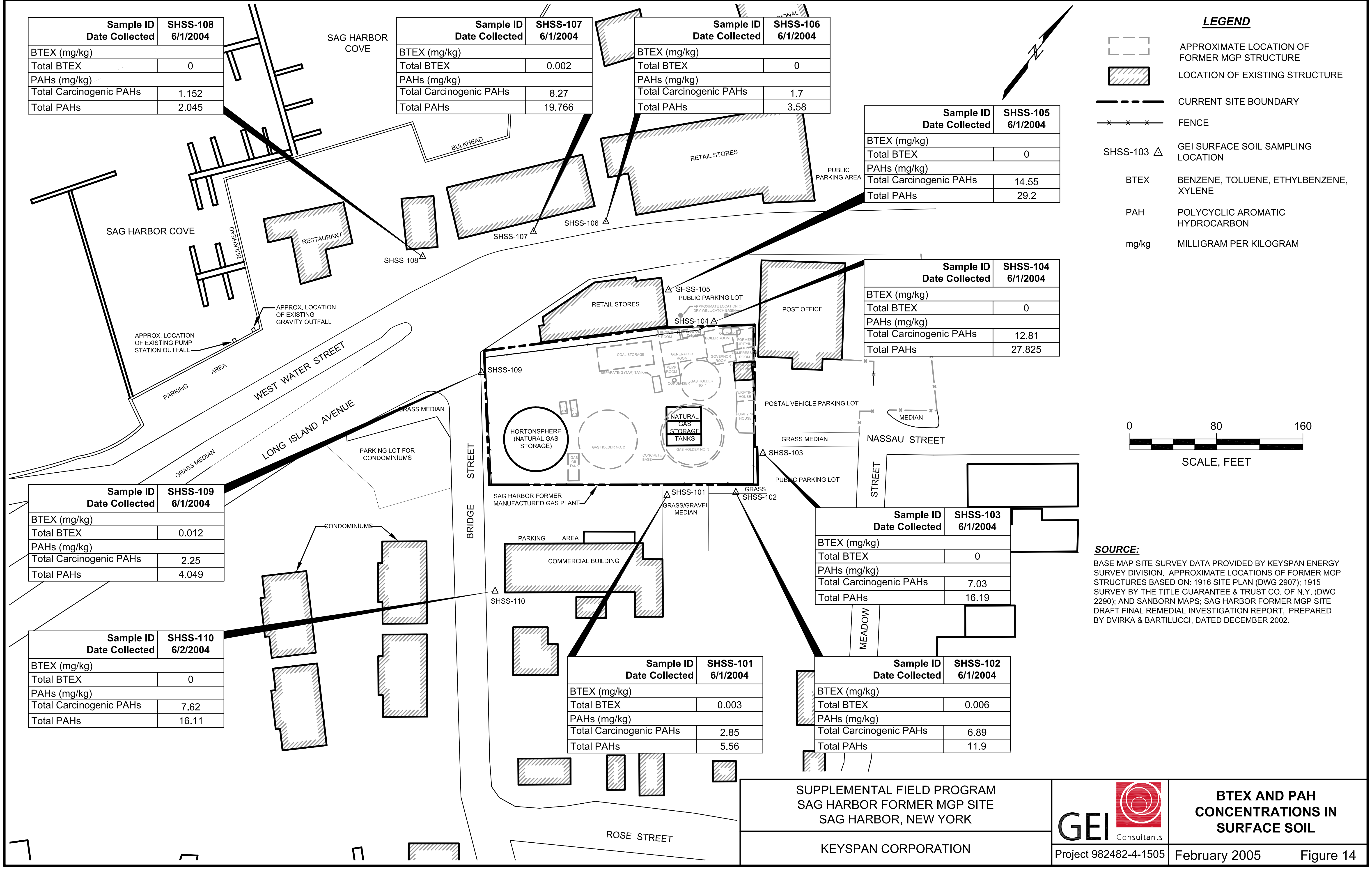
PAH CONCENTRATIONS IN INTERMEDIATE GROUNDWATER

February 2005

Figure 13

KEYSPAN\SAG HARBOR\SUPP\SAG-PAH INT GW



Sample ID	SHSS-108
Date Collected	6/1/2004
BTEX (mg/kg)	
Total BTEX	0
PAHs (mg/kg)	
Total Carcinogenic PAHs	1.152
Total PAHs	2.045

Sample ID	SHSS-107
Date Collected	6/1/2004
BTEX (mg/kg)	
Total BTEX	0.002
PAHs (mg/kg)	
Total Carcinogenic PAHs	8.27
Total PAHs	19.766

Sample ID	SHSS-106
Date Collected	6/1/2004
BTEX (mg/kg)	
Total BTEX	0
PAHs (mg/kg)	
Total Carcinogenic PAHs	1.7
Total PAHs	3.58

Sample ID	SHSS-105
Date Collected	6/1/2004
BTEX (mg/kg)	
Total BTEX	0
PAHs (mg/kg)	
Total Carcinogenic PAHs	14.55
Total PAHs	29.2

Sample ID	SHSS-104
Date Collected	6/1/2004
BTEX (mg/kg)	
Total BTEX	0
PAHs (mg/kg)	
Total Carcinogenic PAHs	12.81
Total PAHs	27.825

Sample ID	SHSS-109
Date Collected	6/1/2004
BTEX (mg/kg)	
Total BTEX	0.012
PAHs (mg/kg)	
Total Carcinogenic PAHs	2.25
Total PAHs	4.049

Sample ID	SHSS-103
Date Collected	6/1/2004
BTEX (mg/kg)	
Total BTEX	0
PAHs (mg/kg)	
Total Carcinogenic PAHs	7.03
Total PAHs	16.19

Sample ID	SHSS-110
Date Collected	6/2/2004
BTEX (mg/kg)	
Total BTEX	0
PAHs (mg/kg)	
Total Carcinogenic PAHs	7.62
Total PAHs	16.11

Sample ID	SHSS-101
Date Collected	6/1/2004
BTEX (mg/kg)	
Total BTEX	0.003
PAHs (mg/kg)	
Total Carcinogenic PAHs	2.85
Total PAHs	5.56

Sample ID	SHSS-102
Date Collected	6/1/2004
BTEX (mg/kg)	
Total BTEX	0.006
PAHs (mg/kg)	
Total Carcinogenic PAHs	6.89
Total PAHs	11.9

LEGEND

⬚	APPROXIMATE LOCATION OF FORMER MGP STRUCTURE
▨	LOCATION OF EXISTING STRUCTURE
— - —	CURRENT SITE BOUNDARY
—x—x—	FENCE
SHSS-103 △	GEI SURFACE SOIL SAMPLING LOCATION
BTEX	BENZENE, TOLUENE, ETHYLBENZENE, XYLENE
PAH	POLYCYCLIC AROMATIC HYDROCARBON
mg/kg	MILLIGRAM PER KILOGRAM

SOURCE:

BASE MAP SITE SURVEY DATA PROVIDED BY KEYSPAN ENERGY SURVEY DIVISION. APPROXIMATE LOCATIONS OF FORMER MGP STRUCTURES BASED ON: 1916 SITE PLAN (DWG 2907); 1915 SURVEY BY THE TITLE GUARANTEE & TRUST CO. OF N.Y. (DWG 2290); AND SANBORN MAPS; SAG HARBOR FORMER MGP SITE DRAFT FINAL REMEDIAL INVESTIGATION REPORT, PREPARED BY DVIRKA & BARTILUCCI, DATED DECEMBER 2002.

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BTEX AND PAH CONCENTRATIONS IN SURFACE SOIL

February 2005

Figure 14

KEYSPAN\SAG HARBOR\SUPP\SAG-BTEX-PAH SS

Appendix A

Chain-of-Custody Forms and Data Validation/Usability Reports - Groundwater

H2M LABS, INC.

11059

EXTERNAL CHAIN OF CUSTODY

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

CLIENT:

H2M SDG NO:

PROJECT NAME/NUMBER: KSE - Sag Harbor Supplemental Field Program 981483 Phase 4

SAMPLERS: (signature)/Client: John Schafer / Dan Burke GEI

DELIVERABLES: NYSDEC June 2000 ASP B070

TURNAROUND TIME: Standard

NOTES:

Project Contact: John Schafer

Phone Number: (516) 369-7377

Post-it® Fax Note 7671
To Greg Garvey
Co./Dept.
Phone #
Fax # 860-537-6347
Date
# of pages ▶
From J. Schafer
Co.
Phone #
Fax #

			Sample Container Description →				40mL vial w/ HCl	1L amber glass	40mL vial w/ HCl	1L amber glass			
				Total No. of Containers	ANALYSIS REQUESTED								
					ORGANIC							INORG.	
DATE	TIME	MATRIX	FIELD I.D.	↓	VOA	BNA	Pest/PCB	BTEX MTBE	PAH	TCL VOC	TCL SVOC	Metal	CN	REMARKS:
5/19/04	1645	H2O	MW-06 ✓	4				2	2					
5/20/04	0610		SH Outfall GEI-01	4						2	2			
	0840		SHMW-04I ✓	4				2	2					
	0950		SHMW-04S ✓	4				2	2					
	1100		SHMW-03I ✓	4				2	2					
	1200		SHMW-03S ✓	4				2	2					
	1415		SHMW-13I ✓	4				2	2					
	1530		SHMW-13S ✓	4				2	2					
	-		TB052004 ✓	2				2	2					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
John N. Schafer	5/20/04	1745		[illegible]	[illegible]
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped___ or Hand Delivered___ Airbill# _______
2. Ambient or chilled
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or N
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

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575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

11060

EXTERNAL CHAIN OF CUSTODY

PROJECT NAME/NUMBER: KSE - Sag Harbor Supplemental Investigation 982482 Phase 4

SAMPLERS: (signature)/Client: John Schafer / D. Burke

DELIVERABLES: NYSDEC 2000 ASP B070

TURNAROUND TIME: Standard

CLIENT:

H2M SDG NO:

NOTES:

Project Contact: John Schafer

Phone Number: (516) 369-7377

Sample Container Description →: 40ml vial w/HCl (BTEX PAH); 1 l amber glass (MTBE)

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ORGANIC VOA	BNA	Pest/PCB	BTEX PAH	MTBE			INORG. Metal	CN	LAB I.D. NO.	REMARKS:
5/21/04	0830	H_2O	SHMW-05I ✓	4				2	2						
5/20/04	1745		MW-02 ✓	4				2	2						
↓	1630		MW-05 ✓	4				2	2						
5/21/04	-		TB052104 ✓	2				2							
	0945		SHMW-05S ✓	4				2	2						
	1110		SHMW-08I ✓	4				4	4						
	1150		SHMW-08S ✓	12				6	6						MS/MSD
	1315		SHMW-01I ✓	4				2	2						
	1350		SHMW-01S ✓	4				2	2						
	1455		MW-03 ✓	4				2	2						
↓	1430	↓	FB052104 ✓	4				2	2						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
John W.	5/21/04	1710		5/21/04	17:10

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped___ or Hand Delivered___ Airbill# ______
2. Ambient or chilled
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or N
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

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Tel: (516) 694-3040 Fax: (516) 420-8436

15152

EXTERNAL CHAIN OF CUSTODY

CLIENT:

H2M SDG NO:

PROJECT NAME/NUMBER
KSE - Sag Harbor Supplemental Investigation
982982 Phase 4

SAMPLERS: (signature)/Client
John Schafer

DELIVERABLES:
NYSDEC 2000 ASP 8070

TURNAROUND TIME:
Standard

NOTES:

Project Contact: John Schafer

Phone Number: 516-369-7377

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To Greg Garvey
From J. Schafer
Co./Dept.
Co.
Phone #
Phone #
Fax # 860-537-6347
Fax #

				Sample Container Description →									
								40ml vial w/ HCl	1L amber glass				
				Total No. of Containers ↓	ANALYSIS REQUESTED								
					ORGANIC							INORG.	
DATE	TIME	MATRIX	FIELD I.D.		VOA	BNA	Pest/PCB	STARS PNT 08	PAH			Metal	CN	REMARKS:
5/24/04	0900	H2O	SHMW-021 ✓	4				2	1					
↓	1030	↓	SHMW-020 ✓	4				2	1					
↓	1150	↓	MW-01 ✓	4				2	1					
↓	-	↓	TB052404 ✓	2				2						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
John W. Schafer	5/24/04	1520		5/24/04	15:20
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped ___ or Hand Delivered ___ Airbill# ______
2. Ambient or chilled
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or N
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

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11057

EXTERNAL CHAIN OF CUSTODY

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

CLIENT:

H2M SDG NO:

PROJECT NAME/NUMBER
KSE - Sag Harbor
Supplemental Field Program
98L 95L Phase 4

SAMPLERS: (signature)/Client
John Schafer / Dan Burke
GEI

DELIVERABLES:
NYSDEC June 2000 ASP B070

TURNAROUND TIME:
Standard

NOTES:

Project Contact: John Schafer

Phone Number: (516)361-7377

Sample Container Description →: 40 mL vial w/ HCl (BTEX MTBE); 1 L amber glass (PAH)

ANALYSIS REQUESTED

					ORGANIC							INORG.			
DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers ↓	VOA	BNA	Pest/PCB	BTEX MTBE	PAH			Metal	CN	LAB I.D. NO.	REMARKS:
5/19/04	0910	H_2O	SHMW-10I ✓	4				2	2						
↓	1105	↓	SHMW-10S ✓	4				2	2						
	1115		SHMW-11I ✓	4				2	2						
	1155		SHMW-11S ✓	12				6	6						
	1440		SHMW-12I ✓	4				2	2						
	1520		FB051904 ✓	4				2	2						
	—		TB051904 ✓	2				2							
	[illegible]		SHMW-12S ✓	4				2	2						

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
John S Schafer	5/19/04	1445		5/19/04	17:45
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped___ or Hand Delivered___ Airbill# ______
2. Ambient or chilled
3. Received in good condition: Y or N
4. Properly preserved: Y or N
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H2M LABS, INC.

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

15151

EXTERNAL CHAIN OF CUSTODY

CLIENT:

H2M SDG NO:

PROJECT NAME/NUMBER: KSF - Sag Harbor Supplemental Field Program 782482 - Task 4

SAMPLERS: (signature)/Client: John Schafer / D. Burke

DELIVERABLES:

TURNAROUND TIME: Standard

Project Contact: John Schafer

Phone Number: (516) 369-7377

NOTES:

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To Greg Garvey	From J. Schafer	
Co./Dept.	Co.	
Phone #	Phone #	
Fax # 860-537-6347	Fax #	

			Sample Container Description →				40ml vial w/HCl	1L amber glass				
				Total No. of Containers	ANALYSIS REQUESTED							
					ORGANIC						INORG.	
DATE	TIME	MATRIX	FIELD I.D.	↓	VOA	BNA	Pest/ PCB	BTEX MTBE	PAH		Metal	CN
5/18/04	0910	H2O	SHMW-07I ✓	4				2	2			
	1000		SHMW-07S ✓	4				2	2			
	1110		SHMW-06I ✓	4				2	2			
	1200		SHMW-06S ✓	4				2	2			
	1345		SHMW-09I ✓	4				2	2			
	1430		SHMW-09S ✓	4				2	2			
	1605		MW-04 ✓	4				2	2			
↓	-	↓	TBC51804 ✓	2				2				

REMARKS:

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
John M. Schafer	5/18/04	1815		5/18/04	18:15
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

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2. Ambient or chilled
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3. COC record present & complete upon sample receipt: Y or N

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Data Usability Summary Report

Project:	Sag Harbor
Laboratory:	H2M Labs, Inc., Melville, NY
Report No.:	GEI009
Reviewer:	Lisa McDonagh/GEI Consultants
Date:	August 10, 2004

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MW-04	0405614-001	BTEX, PAH
SHMW-06I	0405614-002	BTEX, PAH
SHMW-06S	0405614-003	BTEX, PAH
SHMW-07I	0405614-004	BTEX, PAH
SHMW-07S	0405614-005	BTEX, PAH
SHMW-09I	0405614-006	BTEX, PAH.
SHMW-09S	0405614-007	BTEX, PAH
TB051804	0405614-008	BTEX
SHMW-10I	0405662-001	BTEX, PAH
SHMW-10S	0405662-002	BTEX, PAH
SHMW-11I	0405662-003	BTEX, PAH
SHMW-11S	0405662-004	BTEX, PAH
SHMW-12I	0405662-005	BTEX, PAH
SHMW-12S	0405662-006	BTEX, PAH
FB051904	0405662-007	BTEX, PAH
Storage Blank	0405662-008	BTEX
TB051904	0405662-009	BTEX
MW-01	0405784-001	BTEX, PAH
SHMW-02D	0405784-002	BTEX, PAH
SHMW-02I	0405784-003	BTEX, PAH
TB052404	0405784-004	BTEX

Associated QC Samples:	Field/Trip Blanks:	TB051804, FB051904, TB051904, TB052404
	Field Duplicate pair:	None

The above listed aqueous samples were collected on May 18, 19 and 24, 2004 and were analyzed by method SW-846 method 8260 and 8270. The data validation was based on the USEPA Region II Standard Operating Procedure (SOP) for the Validation of Organic Data Acquired using SW-846 Method 8260 and 8270, SOP No. HW-22, Revision 2, June 2001.

The organic data were evaluated based on the following parameters:

*	·	Data Completeness
*	·	Holding Times and Sample Preservation
*	·	Gas Chromatography/Mass Spectrometry (GC/MS) Tunes
	·	Initial and Continuing Calibrations
*	·	Blanks
	·	Surrogate Recoveries
*	·	Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
	·	Internal Standards
	·	Laboratory Control Sample (LCS) Results
NA	·	Field Duplicate Results
	·	Quantitation Limits and Data Assessment
	·	Sample Quantitation, Compound Identification and Data Assessment

* - All criteria were met.

Overall Evaluation of Data and Potential Usability Issues

All results are usable for project objectives.

BTEX

Qualifications applied to the data as a result of analytical error are discussed below.

- Potential uncertainty exists for select BTEX results which were below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) in the associated samples by the laboratory. These results can be used for project objectives as estimated values which may have a minor impact on the data usability.

PAH

Qualifications applied to the data as a result of analytical error are discussed below.

- Potential uncertainty exists for select PAH results which were below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) in the associated samples by the laboratory. These results can be used for project objectives as estimated values which may have a minor impact on the data usability.

- The positive results for benzo(k)fluoranthene were qualified as estimated (J) in samples SHMW-02D and SHMW-02I due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

- The nondetect results for benzo(ghi)perylene were qualified as estimated (UJ) in samples FB051904, SHMW-06S, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I and SHMW-12S due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

- The positive and/or nondetect results for the compounds associated with perylene-d12: benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(123cd)pyrene, dibenzo(ah)anthracene and benzo(ghi)perylene in sample SHMW-06S were qualified as estimated (J/UJ) due to low internal standard recovery. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

- The positive and/or nondetect results for acenaphthene and pyrene were qualified as estimated (J/UJ) in samples FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I and SHMW-12S due to low recoveries of these analytes in the LCS. These results may be biased low. The results can be used for project objectives as estimated values and nondetects with estimated quantitation limits. This qualification may have a minor impact on the data usability.

- The positive and/or nondetect results for naphthalene, 2-methylnaphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(123cd)pyrene, dibenzo(ah)anthracene and benzo(ghi)perylene were qualified as estimated (J/UJ) in samples FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I and SHMW-12S due to low recoveries of these analytes in the LCS. These results may be biased low. The results can be used for project objectives as estimated values and nondetects with estimated quantitation limits. This qualification may have a minor impact on the data usability.

- The positive and/or nondetect results for benzo(b)fluoranthene was qualified as estimated (J/UJ) in sample MW-01, SHMW-02D and SHMW-02I due to low recoveries of these analytes in the LCS. These results may be biased low. The results can be used for project objectives as estimated values and nondetects with estimated quantitation limits. This qualification may have a minor impact on the data usability.

The organic validation recommendations were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP Category B deliverables for the BTEX and PAH analyses.

Holding Times and Sample Preservation

All criteria were met in the BTEX and PAH analyses.

GC/MS Tunes

All criteria were met in the BTEX and PAH analyses.

Initial and Continuing Calibrations

All criteria were met in the BTEX analyses.

Compounds that did not meet criteria in the PAH initial and continuing calibrations are summarized in the following tables.

Instrument ID **HP5973N** **Compound**	**IC** **5/12/04**	**CC** **5/24/04**	**CC** **5/26/04**	**CC** **5/28/04**
benzo(k)fluoranthene	X(21.2%)			
benzo(ghi)perylene			XX(27.5%)	XX(27.9%)
Samples Affected	all listed	MW-04, SHMW-06I, SHMW-07I, SHMW-07S, SHMW-09I, SHMW-09S	QC samples	QC samples

Instrument ID **HP5973N** **Compound**	**IC** **5/12/04**	**CC** **6/1/04**	**CC** **6/1/04**
benzo(k)fluoranthene	X(21.2%)		
benzo(ghi)perylene		XX(25.8%)	
Samples Affected	all listed	SHMW-06S, SHMW-07SDL, SHMW-09SDL, FB051904, SHMW-10S, SHMW-12I, SHMW-12S, SHMW-10I, SHMW-11I, SHMW-11S, SHMW-06SDL	SHMW-02I, MW-01, SHMW-02D, SHMW-12SDL

X = Initial calibration (IC) relative standard deviation (%RSD) > 15; estimate (J) positive and (UJ) blank-qualified nondetect results.

XX = Continuing calibration (CC) percent difference (%D) > 20; estimate (J/UJ) positive and nondetect results.

XXX =Continuing calibration (CC) percent difference (%D) > 90; estimate (J) positive results and reject (R) nondetect results.

+ = Response factor (RRF) < 0.05; Estimate (J) positive results and reject (R) nondetect results.

The nondetect results for the compound benzo(ghi)perylene in samples FB051904, SHMW-06S, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I and SHMW-12S were qualified as estimated (UJ) due to calibration nonconformances. The direction of the bias cannot be determined these nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

The positive results for benzo(k)fluoranthene were qualified as estimated (J) in samples SHMW-02D and SHMW-02I, due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

Blanks

All criteria were met in the BTEX and PAH analyses.

Surrogate Recoveries

All criteria were met in the BTEX analyses.

The following table summarizes the surrogate recoveries that failed to meet the acceptance criteria in the PAH analyses:

Sample ID	Percent Recovery				Action
	DCB 16-110	NBZ 35-114	FBP 43-116	TPH 33-141	
SHMW-07S	-	121	-	-	Not required (NR).
SHMW-06S	-	128	-	-	Not required (NR).

- Within control limits

NR- Validation action not required for one semivolatile surrogate outside of control limits.

DCB-1,2-Dichlorobenzene-d4
NBZ- Nitrobenzene-d5

FBP- 2-Fluorobiphenyl
TPH- Terphenyl-d14

The PAH surrogates were outside of the control limits in the following samples SHMW-07SDL, SHMW-09SDL, SHMW-06SDL and SHMW-02I due to sample dilutions. Qualifications were not required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

MS/MSD analyses were performed on sample SHMW-11S for method 8260 and 8270 analyses.

All criteria were met in the BTEX and PAH analyses.

Internal Standards

All criteria were met in the BTEX analyses.

The following table lists the internal standard (IS) areas which were outside of the control limits in the PAH analyses.

Sample	Internal Standard	Area (%)	Validation Action
SHMW-06S	perylene-d12	49	Estimate (J/UJ) the positive and nondetect results for associated compounds .

Affected compounds:
IS perylene-d12 - benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(123cd)pyrene, dibenzo(ah)anthracene, benzo(ghi)perylene

LCS Results

All criteria were met in the BTEX analyses.

The following table lists the compound recoveries found outside of the validation control limits of 60 - 140% or laboratory established control limit (if tighter) in the LCS analyses and the resultant actions in the PAH analyses.

Compound	Recovery	Control Limits	Associated Samples	Actions
acenaphthene	57%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
pyrene	50%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
naphthalene	53%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
2-methylnaphthalene	55%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
acenaphthylene	50%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
acenaphthene	51%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
fluorene	51%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
phenanthrene	54%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I,	Estimate (J/UJ) the positive and/or nondetect results.

Compound	Recovery	Control Limits	Associated Samples	Actions
			SHMW-12S	
anthracene	57%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
fluoranthene	52%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
pyrene	53%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
benzo(a)anthracene	49%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
chrysene	50%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
benzo(b)fluoranthene	56%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
benzo(k)fluoranthene	48%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
benzo(a)pyrene	53%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
indeno(123cd)pyrene	44%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
dibenzo(ah)anthracene	47%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I,	Estimate (J/UJ) the positive and/or nondetect results.

Compound	Recovery	Control Limits	Associated Samples	Actions
			SHMW-11S, SHMW-12I, SHMW-12S	
benzo(ghi)perylene	38%	60-140	FB051904, SHMW-10I, SHMW-10S, SHMW-11I, SHMW-11S, SHMW-12I, SHMW-12S	Estimate (J/UJ) the positive and/or nondetect results.
benzo(b)fluoranthene	59%	60-140	MW-01, SHMW-02D, SHMW-02I	Estimate (J/UJ) the positive and/or nondetect results.

Field Duplicate Results

Field duplicate samples were not associated with this SDG.

Quantitation Limits and Data Assessment

Results were reported which were below the lowest calibration standard level (RL) and above the method detection limit (MDL) in the BTEX and PAH analyses. These results were qualified by the laboratory (J). These results were qualified as estimated (J) due to uncertainty at the low end of calibration.

Sample Quantitation Compound Identification and Data Assessment

Calculations were spot-checked; no discrepancies were noted.

The following results were not reported by the laboratory. The results should be reported when reviewing the spectra and retention time of these compounds.Report results for benzo(b)fluoranthene in samples MW–04, report results for benzo(k)fluoranthene in samples SHMW-02D, SHMW-02I.

Sag Harbor, NY, Project 982482-4-1505

The following table lists the sample dilutions and/or reanalyses which were performed and reported. Quantitation limits were elevated accordingly.

Sample	VOC Analysis Reported	SVOC Analysis Reported
SHMW-02I	Laboratory performed a straight and 4-fold analysis. Report all analytes from the straight analysis with the exception of ethylbenzene and xylene report from the 4-fold analysis.	Laboratory performed a 250-fold analysis. Report all analytes from the 250-fold analysis.
SHMW-06S	Laboratory performed a straight and 10-fold analysis. Report all analytes from the straight analysis with the exception of benzene, ethylbenzene and xylene report from the 10-fold analysis.	Laboratory performed a straight and 100-fold analysis. Report all analytes from the straight analysis with the exception of naphthalene, 2-methylnaphthalene and acenaphthene report from the 100-fold analysis.
SHMW-07S	NA	Laboratory performed a straight and 50-fold analysis. Report all analytes from the straight analysis with the exception of naphthalene, 2-methylnaphthalene and acenaphthene report from the 50-fold analysis.
SHMW-09S	Laboratory performed a straight and 5-fold analysis. Report all analytes from the straight analysis with the exception of benzene and ethylbenzene report from the 5-fold analysis.	Laboratory performed a straight and 50-fold analysis. Report all analytes from the straight analysis with the exception of naphthalene and 2-methylnaphthalene report from the 50-fold analysis.
SHMW-12S	Laboratory performed a straight and 5-fold analysis. Report all analytes from the straight analysis with the exception of benzene report from the 5-fold analysis.	Laboratory performed a straight and 5-fold analysis. Report all analytes from the straight analysis with the exception of naphthalene report from the 5-fold analysis.

Data Usability Summary Report

Project: Sag Harbor
Laboratory: H2M Labs, Inc., Melville, NY
Report No.: GEI010
Reviewer: Lisa McDonagh/GEI Consultants
Date: August 10, 2004

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MW-06	0405711-001	BTEX, PAH
SHMW-03I	0405711-002	BTEX, PAH
SHMW-03S	0405711-003	BTEX, PAH
SHMW-04I	0405711-004	BTEX, PAH
SHMW-04S	0405711-005	BTEX, PAH
SHMW-13I	0405711-006	BTEX, PAH.
SHMW-13S	0405711-007	BTEX, PAH
Storage Blank 5/20	0405711-008	BTEX
TB052004	0405711-009	BTEX
MW-02	0405740-001	BTEX, PAH
MW–03	0405740-002	BTEX, PAH
MW–05	0405740-003	BTEX, PAH
SHMW-01I	0405740-004	BTEX, PAH
SHMW-01S	0405740-005	BTEX, PAH
SHMW-05I	0405740-006	BTEX, PAH
SHMW-05S	0405740-007	BTEX, PAH
SHMW-08I	0405740-008	BTEX, PAH
SHMW-08S	0405740-009	BTEX, PAH
FB052104	0405740-010	BTEX, PAH
TB052104	0405740-011	BTEX

Associated QC Samples:	Field/Trip Blanks:	TB052004, FB052104, TB052104
	Field Duplicate pair:	None

The above listed aqueous samples were collected on May 19, 20 and 21, 2004 and were analyzed by method SW-846 method 8260 and 8270. The data validation was based on the USEPA Region II Standard Operating Procedure (SOP) for the Validation of Organic Data Acquired using SW-846 Method 8260 and 8270, SOP No. HW-22, Revision 2, June 2001.

The organic data were evaluated based on the following parameters:

*	·	Data Completeness
*	·	Holding Times and Sample Preservation
*	·	Gas Chromatography/Mass Spectrometry (GC/MS) Tunes
	·	Initial and Continuing Calibrations
*	·	Blanks
	·	Surrogate Recoveries
*	·	Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
*	·	Internal Standards
	·	Laboratory Control Sample (LCS) Results
NA	·	Field Duplicate Results
	·	Quantitation Limits and Data Assessment
	·	Sample Quantitation, Compound Identification and Data Assessment

*	-	All criteria were met.

Overall Evaluation of Data and Potential Usability Issues

All results are usable for project objectives.

BTEX

Qualifications applied to the data as a result of analytical error are discussed below.

- Potential uncertainty exists for select BTEX results which were below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) in the associated samples by the laboratory. These results can be used for project objectives as estimated values which may have a minor impact on the data usability.

PAH

Qualifications applied to the data as a result of analytical error are discussed below.

- Potential uncertainty exists for select PAH results which were below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) in the associated samples by the laboratory. These results can be used for project objectives as estimated values which may have a minor impact on the data usability.

- The positive results for benzo(k)fluoranthene and benzo(ghi)perylene were qualified as estimated (J) in samples MW-02, MW-05 and SHMW-04S due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

- The nondetect results for benzo(ghi)perylene were qualified as estimated (UJ) in samples FB052104, MW-03, MW-06, SHMW-01I, SHMW-01S, SHMW-03I, SHMMW-03S, SHMW-04I, SHMW-05I, SHMW-05S, SHMW-08I, SHMW-08S and SHMW-13I due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

- The positive and/or nondetect results were qualified as estimated (J/UJ) in sample MW-03 due to poor surrogate recovery. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

- The positive and/or nondetect results for benzo(b)fluoranthene were qualified as estimated (J/UJ) in samples MW-02, MW-03, MW-05, SHMW-01I, SHMW-01S, SHMW-05I, SHMW-05S, SHMW-08I, SHMW-08S and FB052104 due to low recoveries of these analytes in the LCS. These results may be biased low. The results can be used for project objectives as estimated values and nondetects with estimated quantitation limits. This qualification may have a minor impact on the data usability.

The organic validation recommendations were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP Category B deliverables for the BTEX and PAH analyses.

Holding Times and Sample Preservation

All criteria were met in the BTEX and PAH analyses.

GC/MS Tunes

All criteria were met in the BTEX and PAH analyses.

Initial and Continuing Calibrations

All criteria were met in the BTEX analyses.

Compounds that did not meet criteria in the PAH initial and continuing calibrations are summarized in the following tables.

Instrument ID **HP5973N** **Compound**	**IC** **5/12/04**	**CC** **5/28/04**	**CC** **5/28/04**	**CC** **6/1/04**
benzo(k)fluoranthene	X(21.2%)			
benzo(ghi)perylene		XX(27.9%)	XX(21.8%)	XX(25.8%)
Samples Affected	all listed	QC samples	FB052104, SHMW-01I, SHMW-01S, SHMW-05I, SHMW-05S, SHMW-08I, SHMW-08S, SHMW-03I, SHMW-03S, SHMW-04I, MW-06, SHMW-13I, MW-03, MW-02, MW-05, SHMW-04S	SHMW-03SDL, MW-03DL, SHMW-01SDL, MW-02DL

Instrument ID HP5973N Compound	IC 5/12/04	CC 6/1/04
benzo(k)fluoranthene	X(21.2%)	
benzo(ghi)perylene		
Samples Affected	all listed	MW-05DL, SHMW-13S, SHMW-04SDL

X = Initial calibration (IC) relative standard deviation (%RSD) > 15; estimate (J) positive and (UJ) blank-qualified nondetect results.
XX = Continuing calibration (CC) percent difference (%D) > 20; estimate (J/UJ) positive and nondetect results.
XXX = Continuing calibration (CC) percent difference (%D) > 90; estimate (J) positive results and reject (R) nondetect results.
+ = Response factor (RRF) < 0.05; Estimate (J) positive results and reject (R) nondetect results.

The nondetect results for the compound benzo(ghi)perylene in samples FB052104, MW-03, MW-06, SHMW-01I, SHMW-01S, SHMW-03I, SHMMW-03S, SHMW-04I, SHMW-05I, SHMW-05S, SHMW-08I, SHMW-08S and SHMW-13I, were qualified as estimated (UJ) due to calibration nonconformances. The direction of the bias cannot be determined these nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

The positive results for benzo(ghi)perylene were qualified as estimated (J) in samples MW-02 ,MW-05 and SHMW-04S due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

The positive results for benzo(k)fluoranthene were qualified as estimated (J) in samples MW-02 ,MW-05 and SHMW-04S, due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

Blanks

All criteria were met in the BTEX and PAH analyses.

Surrogate Recoveries

All criteria were met in the BTEX analyses.

The following table summarizes the surrogate recoveries that failed to meet the acceptance criteria in the PAH analyses:

Sample ID	Percent Recovery				Action
	DCB 16-110	NBZ 35-114	FBP 43-116	TPH 33-141	
SHMW-04S	133	-	-	-	Not required (NR).
SHMW-01S	-	142	-	-	Not required (NR).
SHMW-05S	-	-	-	31	Not required (NR).
MW-03	-	146	-	28	Estimate (J/UJ) the positive and nondetect results.
MW-02	-	123	-	-	Not required (NR).
SHMW-04S	-	156	-	-	Not required (NR).

- Within control limits
NR- Validation action not required for one semivolatile surrogate outside of control limits.

DCB-1,2-Dichlorobenzene-d4
NBZ- Nitrobenzene-d5
FBP- 2-Fluorobiphenyl
TPH- Terphenyl-d14

The PAH surrogates were outside of the control limits in the following samples MW-05, MW-03DL, SHMW-01SDL, MW-02DL, MW-05DL and SHMW-04SDL due to sample dilutions. Qualifications were not required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

MS/MSD analyses were performed on sample SHMW-08S for method 8260 and 8270 analyses.

All criteria were met in the BTEX and PAH analyses.

Internal Standards

All criteria were met in the BTEX and PAH analyses.

LCS Results

All criteria were met in the BTEX analyses.

The following table lists the compound recoveries found outside of the validation control limits of 60 - 140% or laboratory established control limit (if tighter) in the LCS analyses and the resultant actions in the PAH analyses.

Compound	Recovery	Control Limits	Associated Samples	Actions
benzo(b)fluoranthene	59%	60-140	MW-02, MW-03, MW-05, SHMW-01I, SHMW-01S, SHMW-05I, SHMW-05S, SHMW-08I, SHMW-08S, FB052104	Estimate (J/UJ) the positive and/or nondetect results.

Field Duplicate Results

Field duplicate samples were not associated with this SDG.

Quantitation Limits and Data Assessment

Results were reported which were below the lowest calibration standard level (RL) and above the method detection limit (MDL) in the BTEX and PAH analyses. These results were qualified by the laboratory (J). These results were qualified as estimated (J) due to uncertainty at the low end of calibration.

Sample Quantitation Compound Identification and Data Assessment

Calculations were spot-checked; no discrepancies were noted.

Sag Harbor, NY, Project 982482-4-1505

The following table lists the sample dilutions and/or reanalyses which were performed and reported. Quantitation limits were elevated accordingly.

Sample	VOC Analysis Reported	SVOC Analysis Reported
MW-02	Laboratory performed a straight and 100-fold analysis. Report all analytes from the straight analysis with the exception of benzene, ethylbenzene and xylene report from the 100-fold analysis.	Laboratory performed a 10-fold and 500-fold analysis. Report all analytes from the 10-fold analysis with the exception of naphthalene, 2-methylnaphthalene, acenaphthene, phenanthrene, fluoranthene and pyrene report from the 500-fold analysis.
MW-03	Laboratory performed a straight and 5-fold analysis. Report all analytes from the straight analysis with the exception of benzene, ethylbenzene and xylene report from the 5-fold analysis.	Laboratory performed a straight and 50-fold analysis. Report all analytes from the straight analysis with the exception of naphthalene, 2-methylnaphthalene and acenaphthene report from the 50-fold analysis.
MW-05	Laboratory performed a 10-fold and 100-fold analysis. Report all analytes from the 10-fold analysis with the exception of benzene and ethylbenzene report from the 100-fold analysis.	Laboratory performed a 50-fold and 250-fold analysis. Report all analytes from the straight analysis with the exception of naphthalene, 2-methylnaphthalene and phenanthrene report from the 250-fold analysis.
SHMW-01S	Laboratory performed a straight and 5-fold analysis. Report all analytes from the straight analysis with the exception of benzene and ethylbenzene report from the 5-fold analysis.	Laboratory performed a straight and 50-fold analysis. Report all analytes from the straight analysis with the exception of naphthalene and 2-methylnaphthalene report from the 50-fold analysis.
SHMW-03S	NA	Laboratory performed a straight and 5-fold analysis. Report all analytes from the straight analysis with the exception of naphthalene report from the 5-fold analysis.
SHMW-04S	Laboratory performed a straight and 100-fold analysis. Report all analytes from the straight analysis with the exception of benzene, ethylbenzene and xylene report from the 100-fold analysis.	Laboratory performed a straight and 200-fold analysis. Report all analytes from the straight analysis with the exception of naphthalene, 2-methylnaphthalene, acenaphthene and phenanthrene report from the 200-fold analysis.

Appendix B

Chain-of-Custody Forms and Data Validation/Usability Reports - Stormwater

H2M LABS, INC.

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

11053

EXTERNAL CHAIN OF CUSTODY

CLIENT:

H2M SDG NO:

PROJECT NAME/NUMBER
KSE - Sag Harbor Supplemental Investigation
982481 P4 T 1505

SAMPLERS: (signature)/Client
John Schafer / GEI

DELIVERABLES: NYSDEC 2000 ASP B070

TURNAROUND TIME: Standard

NOTES: -

Project Contact: John Schafer

Phone Number: 516-364-7377

Sample Container Description →

40ml vials w/HCl	1L amber									

ANALYSIS REQUESTED

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	ORGANIC MTBE VOA	BNA	Pest/PCB					INORG. Metal	CN	LAB I.D. NO.	REMARKS:
6/17/04	0445	H2O	SH50-102	12	6	6									MS/MSD
↓	0520	↓	SH50-101	4	2	2									
	0700		FB061704	4	2	2									
	—		TB061704	2	2										

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	6/17/04	9:20		6/17/04	9:20
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped ___ or Hand Delivered ___ Airbill# ______
2. Ambient or chilled
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or N
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT PINK COPY - LABORATORY

Data Usability Summary Report

Project:	Sag Harbor
Laboratory:	H2M Labs, Inc., Melville, NY
Report No.:	GEI011
Reviewer:	Lisa McDonagh/GEI Consultants
Date:	August 10, 2004

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
SHSO-101	0405715-001	VOC, SVOC
Storage Blank	0405715-002	VOC

Associated QC Samples:	Field/Trip Blanks:	None
	Field Duplicate pair:	None

The above listed aqueous samples were collected on May 20, 2004 and were analyzed by method SW-846 method 8260 and 8270. The data validation was based on the USEPA Region II Standard Operating Procedure (SOP) for the Validation of Organic Data Acquired using SW-846 Method 8260 and 8270, SOP No. HW-22, Revision 2, June 2001.

The organic data were evaluated based on the following parameters:

*	·	Data Completeness
*	·	Holding Times and Sample Preservation
*	·	Gas Chromatography/Mass Spectrometry (GC/MS) Tunes
	·	Initial and Continuing Calibrations
*	·	Blanks
*	·	Surrogate Recoveries
*	·	Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
*	·	Internal Standards
	·	Laboratory Control Sample (LCS) Results
NA	·	Field Duplicate Results
	·	Quantitation Limits and Data Assessment
	·	Sample Quantitation, Compound Identification and Data Assessment

*	-	All criteria were met.

Overall Evaluation of Data and Potential Usability Issues

All results are usable for project objectives.

VOC

Qualifications applied to the data as a result of analytical error are discussed below.

- Potential uncertainty exists for select VOC results which were below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) in the associated samples by the laboratory. These results can be used for project objectives as estimated values which may have a minor impact on the data usability.
- The nondetect results for 2-butanone were qualified as estimated (UJ) in samples SHSO-101 and Storage blank due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

SVOC

Qualifications applied to the data as a result of analytical error are discussed below.

- Potential uncertainty exists for select SVOC results which were below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) in the associated samples by the laboratory. These results can be used for project objectives as estimated values which may have a minor impact on the data usability.
- The nondetect results for 2-chloronaphthalene, bis(2-ethylhexyl)phthalate, di-n-octylphthalate and benzo(ghi)perylene were qualified as estimated (UJ) in sample SHSO-101 due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.
- The nondetect results for 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, hexachloroethane, hexachlorobutadiene and hexachlorocyclopentadiene were qualified as estimated (UJ) in sample SHSO-101, due to low recoveries of these analytes in the LCS. These results may be biased low. The results can be used for project objectives as estimated values and nondetects with estimated quantitation limits. This qualification may have a minor impact on the data usability.

The organic validation recommendations were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP Category B deliverables for the VOC and SVOC analyses.

Holding Times and Sample Preservation

All criteria were met in the VOC and SVOC analyses.

GC/MS Tunes

All criteria were met in the VOC and SVOC analyses.

Initial and Continuing Calibrations

Compounds that did not meet criteria in the VOC and SVOC initial and continuing calibrations are summarized in the following tables.

Instrument ID **HP5971** **Compound**	**IC** **4/8/04**	**CC** **5/26/04**
acetone	X(19.4%)	
2-butanone		XX(23.8%)
Samples Affected	all listed	SHSO-101, Storage blank

Instrument ID HP5973N Compound	IC 5/12/04	CC 5/28/04
4-chloroaniline	X(18.1%)	
hexachlorocyclopentadiene	X(21.6%)	
2-chloronaphthalene		XX(20.8%)
2,4-dinitrophenol	X(26.2%)	
bis(2-ethylhexyl)phthalate	X(16.5%)	XX(36.3%)
di-n-octylphthalate		XX(22.2%)
benzo(k)fluoranthene	X(21.2%)	
benzo(ghi)perylene		XX(27.9%)
Samples Affected	all listed	SHSO-101

X = Initial calibration (IC) relative standard deviation (%RSD) > 15; estimate (J) positive and (UJ) blank-qualified nondetect results.

XX = Continuing calibration (CC) percent difference (%D) > 20; estimate (J/UJ) positive and nondetect results.

XXX =Continuing calibration (CC) percent difference (%D) > 90; estimate (J) positive results and reject (R) nondetect results.

+ = Response factor (RRF) < 0.05; Estimate (J) positive results and reject (R) nondetect results.

The nondetect results for 2-butanone were qualified as estimated (UJ) in samples SHSO-101 and Storage blank due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

The nondetect results for 2-chloronaphthalene, bis(2-ethylhexyl)phthalate, di-n-octylphthalate and benzo(ghi)perylene were qualified as estimated (UJ) in sample SHSO-101 due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

Blanks

Sag Harbor, NY, Project 982482-4-1505

All criteria were met in the VOC and SVOC analyses.

Surrogate Recoveries

All criteria were met in the VOC and SVOC analyses.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

Matrix spike/matrix spike duplicate samples were not associated with this SDG.

Internal Standards

All criteria were met in the VOC and SVOC analyses.

LCS Results

All criteria were met in the BTEX analyses.

The following table lists the compound recoveries found outside of the validation control limits of 60 - 140% or laboratory established control limit (if tighter) in the LCS analyses and the resultant actions in the PAH analyses.

Compound	Recovery	Control Limits	Associated Samples	Actions
1,3-dichlorobenzene	57%	60-140	SHSO-101	Estimate (UJ) the nondetect results.
1,4-dichlorobenzene	58%	60-140	SHSO-101	Estimate (UJ) the nondetect results.
1,2-dichlorobenzene	55%	60-140	SHSO-101	Estimate (UJ) the nondetect results.
hexachloroethane	55%	60-140	SHSO-101	Estimate (UJ) the nondetect results.
hexachlorobutadiene	57%	60-140	SHSO-101	Estimate (UJ) the nondetect results.
hexachlorocyclopentadiene	47%	60-140	SHSO-101	Estimate (UJ) the nondetect results.

Field Duplicate Results

Field duplicate samples were not associated with this SDG.

Quantitation Limits and Data Assessment

Results were reported which were below the lowest calibration standard level (RL) and above the method detection limit (MDL) in the BTEX and PAH analyses. These results were qualified by the laboratory (J). These results were qualified as estimated (J) due to uncertainty at the low end of calibration.

Sample Quantitation Compound Identification and Data Assessment

Calculations were spot-checked; no discrepancies were noted.

Data Usability Summary Report

Project: Sag Harbor
Laboratory: H2M Labs, Inc., Melville, NY
Report No.: GEI017
Reviewer: Lisa McDonagh/GEI Consultants
Date: August 10, 2004

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
SHSO-101	0406624-001	VOC, SVOC
SHSO-102	0406624-002	VOC, SVOC
FB061704	0406624-003	VOC, SVOC
Storage blank	0406624-004	VOC
TB061704	0406624-005	VOC

Storage blank

Associated QC Samples: Field/Trip Blanks: FB061704, TB061704
Field Duplicate pair: None

The above listed aqueous samples were collected on June 17, 2004 and were analyzed by method SW-846 method 8260 and 8270. The data validation was based on the USEPA Region II Standard Operating Procedure (SOP) for the Validation of Organic Data Acquired using SW-846 Method 8260 and 8270, SOP No. HW-22, Revision 2, June 2001.

The organic data were evaluated based on the following parameters:

*	·	Data Completeness
*	·	Holding Times and Sample Preservation
*	·	Gas Chromatography/Mass Spectrometry (GC/MS) Tunes
	·	Initial and Continuing Calibrations
	·	Blanks
*	·	Surrogate Recoveries
	·	Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
*	·	Internal Standards
	·	Laboratory Control Sample (LCS) Results
NA	·	Field Duplicate Results

- Quantitation Limits and Data Assessment
- Sample Quantitation, Compound Identification and Data Assessment

* - All criteria were met.

Overall Evaluation of Data and Potential Usability Issues

All results are usable for project objectives.

VOC

Qualifications applied to the data as a result of analytical error are discussed below.

- Potential uncertainty exists for select VOC results which were below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) in the associated samples by the laboratory. These results can be used for project objectives as estimated values which may have a minor impact on the data usability.

- The nondetect results for chloromethane, bromomethane, vinyl chloride, chloroethane, methylene chloride, acetone, methyl-tert butyl ether, 2-butanone, carbon tetrachloride, 4-methyl-2-pentanone, 2-hexanone were qualified as estimated (UJ) in samples SHSO-101, SHSO-102, FB061704, Storage blank and TB061704 due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

- The positive result for the compound benzene in sample SHSO-102 was qualified as estimated (J) due to matrix spike nonconformances. The direction of the bias cannot be determined these nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

- The nondetect results for 1,1-dichloroethane were qualified as estimated (UJ) in samples SHSO-101, SHSO-102, FB061704, Storage blank and TB061704 due to low recoveries of these analytes in the LCS. These results may be biased low. The results can be used for project objectives as estimated values and nondetects with estimated quantitation limits. This qualification may have a minor impact on the data usability.

SVOC

Qualifications applied to the data as a result of analytical error are discussed below.

- Potential uncertainty exists for select SVOC results which were below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) in the associated samples by the laboratory. These results can be used for project objectives as estimated values which may have a minor impact on the data usability.
- The nondetect results for benzo(b)fluoranthene were qualified as estimated (UJ) in samples SHSO-101, SHSO-102 and FB061704 due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.
- The nondetect results for 2-chlorophenol, 4-chloro-3-methylphenol, 4-nitrophenol, pentachlorophenol and hexachlorocyclopentadiene were qualified as estimated (UJ) in samples SHSO-101, SHSO-102 and FB061704 due to low recoveries of these analytes in the LCS. These results may be biased low. The results can be used for project objectives as estimated values and nondetects with estimated quantitation limits. This qualification may have a minor impact on the data usability.

The organic validation recommendations were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP Category B deliverables for the VOC and SVOC analyses.

Holding Times and Sample Preservation

All criteria were met in the VOC and SVOC analyses.

GC/MS Tunes

All criteria were met in the VOC and SVOC analyses.

Initial and Continuing Calibrations

Compounds that did not meet criteria in the VOC and SVOC initial and continuing calibrations are summarized in the following tables.

Instrument ID **HP5971** **Compound**	**IC** **6/16/04**
acetone	X(25.1%)
2-butanone	X(15.2%)
Samples Affected	QC samples

Instrument ID **HP5973-1** **Compound**	**IC** **6/23/04**	**CC** **6/24/04**
chloromethane		XX(25.1%)
bromomethane		XX(28.3%)
vinyl chloride	X(16.6%)	XX(24.2%)
chloroethane		XX(24.7%)
methylene chloride		XX(24.6%)
acetone		XX(23.0%)
methyl-tert butyl ether		XX(21.5%)
2-butanone	X(15.2%)	XX(25.6%)
carbon tetrachloride	X(19.0%)	XX(26.3%)
bromoform	X(23.1%)	
4-methyl-2-pentanone	X(28.4%)	XX(27.8%)
2-hexanone	X(35.4%)	XX(33.7%)
Samples Affected	all listed	SHSO-101, SHSO-102, FB061704, Storage blank, TB061704

Instrument ID HP5972 Compound	**IC 6/17/04**	**CC 6/22/04**
2,4-dinitrophenol	X(28.7%)	
4-nitrophenol	X(15.6%)	
4,6-dinitro-2-methylphenol	X(27.1%)	
pentachlorophenol	X(24.7%)	
fluoranthene	X(15.3%)	
3,3'-dichlorobenzidine	X(18.5%)	
benzo(b)fluoranthene	X(26.7%)	XX(22.4%)
benzo(k)fluoranthene	X(19.3%)	
benzo(a)pyrene	X(22.4%)	
indeno(123cd)pyrene	X(20.5%)	
dibenzo(ah)anthracene	X(21.4%)	
benzo(ghi)perylene	X(18.1%)	
Samples Affected	all listed	SHSO-101, SHSO-102, FB061704

X = Initial calibration (IC) relative standard deviation (%RSD) > 15; estimate (J) positive and (UJ) blank-qualified nondetect results.

XX = Continuing calibration (CC) percent difference (%D) > 20; estimate (J/UJ) positive and nondetect results.

XXX =Continuing calibration (CC) percent difference (%D) > 90; estimate (J) positive results and reject (R) nondetect results.

+ = Response factor (RRF) < 0.05; Estimate (J) positive results and reject (R) nondetect results.

The nondetect results for chloromethane, bromomethane, vinyl chloride, chloroethane, methylene chloride, acetone, methyl-tert butyl ether, 2-butanone, carbon tetrachloride, 4-methyl-2-pentanone, 2-hexanone were qualified as estimated (UJ) in samples SHSO-101, SHSO-102, FB061704,

Storage blank and TB061704 and the nondetect results for benzo(b)fluoranthene were qualified as estimated (UJ) in samples SHSO-101, SHSO-102 and FB061704 due to calibration nonconformances. The results can be used for project objectives as estimated values. This qualification may have a minor impact on the data usability.

Blanks

All criteria were met in the SVOC analyses.

Target compounds were detected in the VOC method blanks. The following table summarizes the method blank contamination.

Compound	Type of Blank	Associated Samples	Maximum Concentration	Blank Action Level
Methylene chloride	VBLK062504 Method	QC samples	3 ug/L	30 ug/L

Blank Actions

If the sample concentration ≤ QL and ≤ blank action level, qualify the result as not detected (U6) at the QL.
If the sample concentration > QL and ≤ blank action level, qualify the result as not detected (U6) at the reported value.
If the sample concentration > blank action level, report the value unqualified.

Qualifications were not required.

Surrogate Recoveries

All criteria were met in the VOC and SVOC analyses.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

MS/MSD analyses were performed on sample SHSO-102 for the VOC and SVOC analyses. The following table lists the analyte MS/MSD recoveries and/or %RPDs which were outside of the laboratory established control limits.

Compound	**MS/MSD %R**	**RPD %**	**QC Limits**	**Action**
benzene	- , -	13	<11	Estimate (J) the positive result.
4-nitrophenol	87, 84	-	10-80	No action required.

- Within control limits

Internal Standards

All criteria were met in the VOC and SVOC analyses.

LCS Results

The following table lists the compound recoveries found outside of the validation control limits of 60 - 140% or laboratory established control limit (if tighter) in the LCS analyses and the resultant actions in the VOC and SVOC analyses.

Compound	Recovery	Control Limits	Associated Samples	Actions
1,1-dichloroethane	76%	77-114	SHSO-101, SHSO-102, FB061704, Storage blank, TB061704	Estimate (UJ) the nondetect results.
2-chlorophenol	48%	60-140	SHSO-101, SHSO-102, FB061704	Estimate (UJ) the nondetect results.
4-chloro-3-methylphenol	41%	60-140	SHSO-101, SHSO-102, FB061704	Estimate (UJ) the nondetect results.
4-nitrophenol	36%	60-140	SHSO-101, SHSO-102, FB061704	Estimate (UJ) the nondetect results.
pentachlorophenol	54%	60-140	SHSO-101, SHSO-102, FB061704	Estimate (UJ) the nondetect results.
hexachlorocyclopentadiene	47%	60-140	SHSO-101, SHSO-102, FB061704	Estimate (UJ) the nondetect results.

Field Duplicate Results

Field duplicate samples were not associated with this SDG.

Quantitation Limits and Data Assessment

Results were reported which were below the lowest calibration standard level (RL) and above the method detection limit (MDL) in the VOC and SVOC analyses. These results were qualified by the laboratory (J). These results were qualified as estimated (J) due to uncertainty at the low end of calibration.

Sample Quantitation Compound Identification and Data Assessment

Sag Harbor, NY, Project 982482-4-1505

Calculations were spot-checked; no discrepancies were noted.

Appendix C

Chain-of-Custody Forms and Data Validation/Usability Reports – Surface Soil

H2M LABS, INC.

15202

EXTERNAL CHAIN OF CUSTODY

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

CLIENT: KGL-GEI

H2M SDG NO:

PROJECT NAME/NUMBER: KSE- Sag Harbor Supplemental Investigation 987484 P-4 T 1515

SAMPLERS: (signature)/Client: John Schafer

DELIVERABLES:

TURNAROUND TIME: Standard

NOTES:

Project Contact: John Schafer

Phone Number: [illegible]

Sample Container Description: [illegible]

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	VOA	BNA	Pest/PCB					Metal	CN	REMARKS:
6/1/04	1115	Soil	SHSS-101	2	1	1								
↓	1130	↓	SHSS-102	2	1	1								
	1140		SHSS-103	2	1	1								
	1150		SHSS-104	2	1	1								
	1200		SHSS-105	2	1	1								
	1210		SHSS-106	2	1	1								
	1220		SHSS-107	2	1	1								
	1230		SHSS-108	2	1	1								
	1240		SHSS-109	6	1	1								ms/msd
6/1/04	1515		SHSS-110	2	1	1								
6/1/04	[illegible]	H_2O	FB060104	[illegible]										[illegible]

Post-it® Fax Note 7671

To Dan Burke		From John Schafer	
Co./Dept.		Co.	
Phone #		Phone #	
Fax # 860-537-6347		Fax # 516-931-6549	
		Date	# of pages ▸ 1

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
John M. Schafer	[illegible]	[illegible]		[illegible]	[illegible]
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped ___ or Hand Delivered ___ Airbill# ______
2. Ambient or chilled
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or N
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT PINK COPY - LABORATORY

Data Usability Summary Report

Project:	KeySpan MGP Program
Site Name:	Sag Harbor, New York
Laboratory:	H2M Laboratories, Melville, NY
Report No.:	KEY-GEI013/0406121
Reviewer:	Lorie MacKinnon/GEI Consultants
Date:	August 2, 2004

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
SHSS-101	0406121-01	BTEX, PAH
SHSS-102	0406121-02	BTEX, PAH
SHSS-103	0406121-03	BTEX, PAH
SHSS-104	0406121-04	BTEX, PAH
SHSS-105	0406121-05	BTEX, PAH
SHSS-106	0406121-06	BTEX, PAH
SHSS-107	0406121-07	BTEX, PAH
SHSS-108	0406121-08	BTEX, PAH
SHSS-109	0406121-09	BTEX, PAH
SHSS-110	0406121-10	BTEX, PAH
FB060104	0406121-11	BTEX, PAH

Associated QC Samples:	Field Blanks:	FB060104
	Field Duplicate pair:	None associated

The above listed samples were collected on June 1 and 2, 2004 and were analyzed for BTEX volatile organic compounds (VOCs) by SW-846 method 8260B and polynuclear aromatic hydrocarbon (PAH) semivolatile organic compounds (SVOCs) by SW-846 method 8270C under CLP statement of work OLM04.2. The data validation was based on the USEPA Region II Standard Operating Procedure (SOP) for the Validation of Organic Data Acquired using SW-846 Method 8260B, SOP No. HW-24, Revision 1, June 1999 and USEPA Region II Standard Operating Procedure (SOP) for the Validation of Organic Data Acquired using SW-846 Method 8270C, SOP No. HW-22, Revision 2, June 2001.

The organic data were evaluated based on the following parameters:

* · Data Completeness
* · Holding Times and Sample Preservation

*	·	Gas Chromatography/Mass Spectrometry (GC/MS) Tunes
	·	Initial and Continuing Calibrations
*	·	Blanks
	·	Surrogate Recoveries
	·	Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
	·	Internal Standards
*	·	Laboratory Control Sample (LCS) Results
NA	·	Field Duplicate Results
*	·	Moisture Content
	·	Quantitation Limits and Data Assessment
*	·	Sample Quantitation and Compound Identification

*	-	All criteria were met.

NA - A field duplicate was not associated with this sample group.

All results are usable for project objectives.

BTEX

Qualifications were not applied as a result of sampling error. Qualifications applied to the data as a result of analytical error are discussed below.

C Potential uncertainty exists for select BTEX results which were below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) in the associated samples by the laboratory. These results can be used for project objectives as estimated values which may have a minor impact on the data usability.

· The nondetect results for benzene and toluene in sample SHSS-109 were qualified as estimated (UJ) due to matrix spike nonconformances. The result for benzene may be biased low. The direction of the bias cannot be determined for toluene from this nonconformance. The results are usable for project objectives as nondetects with estimated quantitation limits which may have a minor impact on the data usability.

PAH

Qualifications were not applied as a result of sampling error. Qualifications applied to the data as a result of analytical error are discussed below.

C Potential uncertainty exists for select PAH results which were below the lowest calibration standard and quantitation limit. These results were qualified as estimated (J) in the associated samples by the laboratory. These results can be used for project objectives as estimated values which may have a minor impact on the data usability.

- The positive result for pyrene in sample SHSS-109 was qualified as estimated (J) due to high recoveries in the MS/MSD analyses. The result may be biased high. The result is usable for project objectives as an estimated value which may have a minor impact on the data usability.

- The positive and nondetect results for benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(123-cd)pyrene, dibenzo(ah)anthracene, and benzo(ghi)perylene were qualified as estimated (J/UJ) in samples SHSS-105, SHSS-107, SHSS-108, and SHSS-110 due to low internal standard areas. The results can be used for project objectives as estimated values and nondetects with estimated quantitation limits. This qualification may have a minor impact on the data usability.

The validation findings were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP Category B deliverables for the BTEX and PAH analyses.

Holding Times and Sample Preservation

All criteria were met in the BTEX and PAH analyses.

GC/MS Tunes

All criteria were met in the BTEX and PAH analyses.

Initial and Continuing Calibrations

All criteria were met in the PAH analyses.

Compounds that did not meet criteria in the BTEX initial calibrations are summarized in the following table.

Instrument ID HP5970-3 Compound	IC 4/20/04
Benzene	X (20.9%)
Toluene	X (16.8%)
Samples Affected	All soils

X = Initial calibration (IC) relative standard deviation (%RSD) > 15; estimate (J) positive and (UJ) blank-qualified nondetect results.
XX = Continuing calibration (CC) percent difference (%D) > 20; estimate (J/UJ) positive and nondetect results.
XXX = Continuing calibration (CC) percent difference (%D) > 90; estimate (J) positive results and reject (R) nondetect results.
+ = Response factor (RRF) < 0.05; Estimate (J) positive results and reject (R) nondetect results.

Validation actions were not required for benzene and toluene due to initial calibration nonconformances as the results were nondetect in all samples.

Blanks

Target compounds were not detected in the BTEX and PAH method and field blanks.

Surrogate Recoveries

All criteria were met in the BTEX analyses.

The following table summarizes the surrogate recoveries that failed to meet the acceptance criteria in the PAH analyses:

Sample ID	Percent Recovery				Action
	NBZ 23-120	2-FBP 30-115	TP-D14 18-137	1,2-DCB 20-130	
SHSS-105	-	-	151%	-	No action required for one SVOC surrogate outside of control limits.
SHSS-107	-	-	157%		No action required for one SVOC surrogate outside of control limits.
SHSS-107 RE	-	-	142%	-	No action required for one SVOC surrogate outside of control limits.
SHSS-108	-	-	178%	-	No action required for one SVOC surrogate outside of control limits.
SHSS-108 RE	-	-	145%	-	No action required for one SVOC surrogate outside of control limits.
SHSS-109 MS/MSD	-	-	146%, 177%	-	Within limits in the unspiked sample. No action required for one semivolatile surrogate out.
SHSS-110	-	-	177%	-	No action required for one SVOC surrogate outside of control limits.
SHSS-110 RE	-	-	154%	-	No action required for one SVOC surrogate outside of control limits.

- Within control limits

NBZ- Nitrobenzene-d5
2-FBP - 2-Fluorobiphenyl
TP-d14 - 4-Terphenyl-d14
1,2-DCB - 1,2-Dichlorobenze-d4

MS/MSD Results

MS/MSD analyses were performed on sample SHSS-109 for the BTEX and PAH analyses. The following table lists the analyte MS/MSD recoveries and/or %RPDs which were outside of the laboratory established control limits.

Compound	MS/MSD %R	RPD %	QC Limits	Action
Benzene Toluene	MSD 64 -	- 22	66-142/21 59-139/21	Estimate (UJ) the nondetect results for benzene and toluene in sample SHSS-109.
Pyrene	147, 145	-	35-142/36	Estimate (J) the positive result for pyrene in sample SHSS-109.

- Within control limits-

Internal Standards

All criteria were met in the BTEX analyses

The following table lists the internal standard (IS) areas which were outside of the control limits in the PAH analyses.

Sample	Internal Standard	Area (%)	Validation Action
SHSS-109 MS/MSD	Perylene-d12	35, 25	Validation action was not required; IS areas were acceptable in the unspiked sample.
SHSS-105	Perylene-d12	31.8	Estimate (J/UJ) the affected positive and nondetect results.
SHSS-107	Perylene-d12	25.4	Interference was confirmed in the reanalyses. Report reanalysis results due to better IS areas.
SHSS-107 RE	Perylene-d12	44.1	Estimate (J/UJ) the affected positive and nondetect results.
SHSS-108	Perylene-d12	23.6	Interference was confirmed in the reanalyses. Report reanalysis results due to better IS areas.
SHSS-108 RE	Perylene-d12	45.6	Estimate (J/UJ) the affected positive and nondetect results.

Sample	Internal Standard	Area (%)	Validation Action
SHSS-110	Perylene-d12	21.4	Interference was confirmed in the reanalyses. Report reanalysis results due to better IS areas.
SHSS-110 RE	Perylene-d12	30.8	Estimate (J/UJ) the affected positive and nondetect results.

Affected compounds:

IS Perylene-d12 - benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(123-cd)pyrene, dibenzo(ah)anthracene, and benzo(ghi)perylene

LCS Results

All criteria were met in the BTEX and PAH analyses.

Field Duplicate Results

A field duplicate pair was not associated with this sample group. Validation action was not required on this basis.

Moisture Content

All criteria were met.

Quantitation Limits and Data Assessment

Results were reported which were below the lowest calibration standard level (RL) and above the method detection limit (MDL) in the BTEX and PAH analyses. These results were qualified by the laboratory (J). These results were qualified as estimated (J) due to uncertainty at the low end of calibration.

The following table lists the sample dilutions and/or reanalyses which were performed and reported.

Sample	VOC Analysis Reported	SVOC Analysis Reported
SHSS-105	NR	Report result for pyrene from 3-fold dilution and remaining compounds from undiluted analysis.
SHSS-107	NR	The sample was reanalyzed due to poor IS areas in the initial analysis. The reanalysis was reported due to better IS areas.
SHSS-108	NR	The sample was reanalyzed due to poor IS areas in the initial analysis. The reanalysis was reported due to better IS areas.

Sample	VOC Analysis Reported	SVOC Analysis Reported
SHSS-110	NR	The sample was reanalyzed due to poor IS areas in the initial analysis. The reanalysis was reported due to better IS areas.

NR- Dilution/reanalysis not required

Sample Quantitation and Compound Identification

Calculations were spot-checked; no discrepancies were noted.

Appendix D

Chain-of-Custody Forms and Data Validation/Usability Reports - Air

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CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

Page 1 of 1

Contact Person John Schafer
Company GEI Consultants, Inc
Address ______ City ______ State ___ Zip ______
Phone (516) 369-7377 FAX ______
Collected By: Signature John M Schafer

Project info:
P.O. # ______
Project # 951482 84 T-1505
Project Name KSE - Sag Harbor Supplemental Investigation

Turn Around Time:
☐ Normal
☒ Rush 7 days Specify
mw 6/5/04

Lab I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum Initial	Final	Receipt
01A	SHAA-102A	6/1/04 1345-1550	TO-14 w/ Naphthalene	30	2.5	1.0"Hg
02A	SHAA-102B	↓ 1430-1600	" " " "	29.5	4	3.0"Hg
~~04A~~ 03A Chg	SHAA-102AA	↓ 1345-1550	" " " "	30	1	0"Hg

Relinquished By: (Signature) Date/Time John M Schafer 6/3/04 1000
Received By: (Signature) Date/Time
Relinquished By: (Signature) Date/Time
Received By: (Signature) Date/Time Laura Thomas 6/4/04 945
Relinquished By: (Signature) Date/Time
Received By: (Signature) Date/Time

Notes: Please Send Invoice to Greg Garvey @ the Colchester CT office

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Temp. (°C)	Condition:	Custody Seals Intact?	Work Order #
	FedEx	847012326378		—	Good	Yes No [✓ None]	0406089

Form 1293 rev. 59

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CHAIN-OF-CUSTODY RECORD

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180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

Page 1 of 2

Contact Person John Schafer
Company GEI Consultants, Inc.
Address ______ City ______ State ___ Zip ______
Phone (516) 369-7377 FAX ______
Collected By: Signature ______

Project info:
P.O. # ______
Project # 981492 P-4T-1505
Project Name KSE - Sag Harbor Supplemental Investigation

Turn Around Time:
☒ Normal
☐ Rush ______ Specify

MW 6/3/04

Lab I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum Initial	Final	Receipt
01A	SHAA-105 A	5/27/04 1400-1600	TO-14 w/ Naphthalene	30	1	1.5"Hg
02A	SHAA-105 B	1400-1600	" " " "	29	0	1.5"Hg
03A	SHAA-105 C	1400 1605	" " " "	27.5	0	1.0"Hg
04A	SHAA-105 D	1405-1555	" " " "	28.5	2	2.0"Hg
05A	SHAA-101 A	5/26/04 1130-1310	" " " "	30	2.5	2.5"Hg
06A	SHAA-101 B	1135-1315	" " " "	30	2.5	2.5"Hg
07A	SHAA-101 C	1130-1310	" " " "	30	2	2.5"Hg
08A	SHAA-101 D	1135-1310	" " " "	29	1	1.0"Hg
						~~0.9"Hg~~
						~~2.0"Hg~~ 60

Relinquished By (Signature) Date/Time	Received By: (Signature) Date/Time
John W. Schafer 5/28/04 1600	
Relinquished By (Signature) Date/Time	Received By: (Signature) Date/Time Laurel Thomas ATL 6/1/04 955
Relinquished By (Signature) Date/Time	Received By: (Signature) Date/Time

Notes:
Please Send Bill to Greg Garvey at the Colchester, CT office

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	FedEx	840745178868		—	Good	[✓ Yes] No None	0406009

Form 1293 rev. 09

LOADED INTO db (temp)

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CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice

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(916) 985-1000 FAX: (916) 985-1020

Page 2 of 2

Contact Person John Schafer
Company GEI Consultants, Inc
Address ______ City ______ State ___ Zip ______
Phone (516) 369-7377 FAX ______
Collected By: Signature John W. Schafer

Project info:
P.O. # ______
Project # 982461 P-4 F1505
Project Name KSE - Sag Harbor Supplemental Investigation

Turn Around Time:
☒ Normal
☐ Rush ______ Specify

MW 6/3/04

Lab I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum Initial	Final	Receipt
09A	SHAA-103 A	5/26/04 1350-1540	TO-14 w/ Naphthalene	~~30~~ 28	0.0	0"Hg
10A	SHAA-103 B	1350-1540	" " " "	30	0.5	2.0"Hg
11A	SHAA-103 C	1355-1540	" " " "	30	1	1.0"Hg
12A	SHAA-108 B	1650-1830	" " " "	30	4	2.5"Hg
13A	SHAA-108A	1650-1830	" " " "	29	0	0"Hg

JV

Relinquished By: (Signature) Date/Time John W. Schafer 5/28/04 1600
Received By: (Signature) Date/Time Laurel Thomas ATL 6/1/04 955
Relinquished By: (Signature) Date/Time
Received By: (Signature) Date/Time
Relinquished By: (Signature) Date/Time
Received By: (Signature) Date/Time

Notes:
Please Send Bill to Greg Garvey @ Colchester, CT office

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	FedEx	8407 4517 8868		—	Good	[✓ Yes] No None	0406009

Form 1293 rev. 09

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice

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180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

Page 1 of 1

Contact Person John Schafer
Company GEI Consultants, Inc
Address ______ City ______ State ___ Zip ______
Phone (516) 369-7377 FAX ______
Collected By: Signature

Project info:
P.O. # ______
Project # 981481 P4 T-1515
Project Name KSE - Sag Harbor Supplementary Investigation

Turn Around Time:
☐ Normal
☒ Rush 7 day
Specify

MW6B14

Lab. I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum Initial	Final	Receipt
01A	SHAA-104 A	6/1/04 1215-1405	TO-14 w/ Naphthalene	28.5	1.5	2.5" Hg
02A	SHAA-104 B	1225-1405	" " " "	29.5	3.5	2.5" Hg
03A	SHAA-104 BB	1225-1415	" " " "	28.5	1.5	2.5" Hg
04A	SHAA-104 C	1230-1410	" " " "	22.5	1	3.5" Hg

Relinquished By: (Signature) Date/Time	Received By: (Signature) Date/Time
6/1/04 1600	
	ATL 6/3/04 1000

Notes:
Please Send Bill to Greg Garvey @ the Colchester CT office

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	F-Ex	8470 2232 7227	CA	—	Good	Yes No [✓ None]	0406069

Form 1293 rev. 05

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CHAIN-OF-CUSTODY RECORD

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Page 1 of 1

Contact Person John Schafer
Company GEI Consultants, Inc.
Address ______ City ______ State ____ Zip ______
Phone (516) 369-7377 FAX ______
Collected By: Signature

Project info:
P.O. # ______
Project # 951981 P-4 T-1501
Project Name KSE- Sag Harbor

Turn Around Time:
☒ Normal
☐ Rush ______ Specify

mw 6/1/04

Lab I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum Initial	Final	Receipt
01A	SH AA-106 A	5/27/04 1235-1415	TO-14 w/ Naphthalene	29.5	1	1.0"Hg
02A	SH AA-106 B	↓ 1320-1350	↓	30	4	3.5"Hg
03A	SH AA-106 C	↓ 1220-1350	↓	30	3	4.0"Hg
04A	SH AA-106 D	↓ 1215-1350	↓	29.5	4.5	4.5"Hg

Relinquished By: (Signature) Date/Time 5/27/04 1600 Received By: (Signature) Date/Time
Relinquished By: (Signature) Date/Time Received By: (Signature) Date/Time Laurel Thomas AL 5/28/04 945
Relinquished By: (Signature) Date/Time Received By: (Signature) Date/Time

Notes: Please Bill to Greg Garvey @ the Colchester CT office.

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	FedEx	940745175879		—	Good	Yes No [✓ None]	0405501
							0405501

Form 1293 rev. 09

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CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice

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FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

Page 1 of 1

Contact Person John Schafer
Company GEI Consultants, Inc.
Address ______ City ______ State ______ Zip ______
Phone (516) 369-7377 FAX ______
Collected By: Signature Errol Kitt

Project info:
P.O. # 982452 P4 T-1505
Project # ______
Project Name KSE - Sag Harbor Supplemental Investigation

Turn Around Time:
☐ Normal
☒ Rush 7 days
Specify

Lab I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum Initial	Final	Receipt
	SHAA-107A	6/9/04 1525	TO-14 w/naphthalene	29.5	3.5	
	SHAA-107AA	6/9/04 1525	" " " "	28.0	3.5	
	SHAA-107B	6/9/04 1527	" " " "	27.5	4.0	

Relinquished By: (Signature) Date/Time	Received By: (Signature) Date/Time
John W. Schafer 6/11/04 1000	
Relinquished By: (Signature) Date/Time	Received By: (Signature) Date/Time
Relinquished By: (Signature) Date/Time	Received By: (Signature) Date/Time

Notes: Please send Invoice to Greg Garvey @ the Colchester, CT office

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
						Yes No None	0406246

Form 1293 rev. 09

SUMMARY OF THE ANALYTICAL DATA VALIDATION
For KeySpan

Modified TO-14
Samples Collected: May 27, 2004
Samples Received: May 28, 2004
Sample Delivery Group: 0405501
Laboratory Reference Numbers:

01A	SH AA-106A
02A	SH AA-106B
03A	SH AA-106C
03AA	SH AA-106C Duplicate
04A	SH AA-106D
05A	Lab Blank
05B	Lab Blank
06A	CCV
06B	CCV
07A	LCS
07B	LCS

Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
  - Calibrations
* - Laboratory Blanks
* - Surrogate Compound Recoveries
* - Internal Standard Recoveries
  - Laboratory Control Sample
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The laboratory's case narrative states:

> *"The daily calibration standard (CCV) analyzed on 6/10/04 did not meet laboratory required acceptance criteria of 70-130% for bromoform. Recovery was high and no hits were detected in the associated samples. There was no impact on sample results.*

Naphthalene was one of the target compounds, but it was not included in the laboratory control sample associated with either continuing calibration. Naphthalene was not detected in any of the samples.

No other problems were found with this sample delivery group.

Holding Times

All samples were analyzed within the contractual holding time from time of collection.

Tunes

All of the tunes met the required method limits.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the required quality assurance limits.

Calibrations

Two sets of calibrations were associated with this sample delivery group:

The %RSD of all of the initial calibration standards analyzed on 2/20/04 were less than the 30% quality assurance limit with the one exception of naphthalene (38%). Samples 01A (SH AA-106A) and 02A (SH AA-106B) were associated with the first calibration.

Naphthalene was not detected in any of the samples associated with this initial calibration. The naphthalene data were not qualified since the compound was not detected in any of the samples and the %RSD was less than 60%.

No problems were found with the continuing calibration associated with the analyses of samples 01A (SH AA-106A) and 02A (SH AA-106B).

This compound was not detected in either of these samples and the data were not qualified for the slightly high recovery.

The %RSD of all of the initial calibration standards analyzed on 4/28/04 were less than the 30% quality assurance limit. Samples 03A and it field duplicate (SH AA-106C) and 04A (SH-AA-106D) were associated with this calibration.

The laboratory's case narrative states:

> *"The daily calibration standard (CCV) analyzed on 6/10/04 did not meet laboratory required acceptance criteria of 70-130% for bromoform. Recovery was high and no hits were detected in the associated samples. There was no impact on sample results.*

The percent difference of bromoform in this continuing calibration was 32%. This continuing calibration was associated with the analyses of samples 03A and it field duplicate (SH AA-106C) and 04A (SH-AA-106D).

None of the compounds were required to be qualified for any of the minor problems with the calibrations.

Duplicate Analysis

Sample 03A (SH AA-106C) was analyzed in duplicate. All RPDs were less than 25%.

Laboratory Control Sample

Several minor problems were found with the laboratory control samples:

> All recoveries were within the required limits in the LCS associated with the 2/20 initial calibration with the exception of chloroethane (131%) which was over the quality assurance limit of 130%.
>
> All recoveries were within the required limits in the LCS associated with the 4/29 initial calibration with the exceptions of chloroethane (134%) and trans-1,3-dichloropropene (132%) were over the quality assurance limit of 130%.
>
> All recoveries were within the required limits in the LCS associated with the 6/3 continuing calibration with the exception of vinyl chloride (66%) which was under the quality assurance limit of 70%.
>
> All recoveries were within the required limits in the LCS associated with the 6/5 continuing calibration with the exception of trans-1,3-dichloropropene (134%) which was over the quality assurance limit of 130%.

None of these compounds were detected in any of the samples and the data were not qualified for these slightly high or low recoveries.

Naphthalene was one of the target compounds, but it was not included in the laboratory control sample associated with either continuing calibration. Naphthalene was not detected in any of the samples.

Method Blanks

No compounds were detected in either of the two the method blanks.

Internal Standard Recoveries

All of the internal standard recoveries were within the laboratory's quality assurance limits (+/- 40% of the internal standard area, +/- 0.33 minutes of the standard RT).

Sample Results

No other problems were found with the reported results of any of the samples of this delivery group.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
For Keyspan

Modified TO-14
Samples Collected: May 27, 2004
Samples Received: June 1, 2004
Sample Delivery Group: 0406009
Laboratory Reference Numbers:

01A	SHAA-105A
01AA	SHAA-105A Duplicate
02A	SHAA-105B
03A	SHAA-105C
04A	SHAA-105D
05A	SHAA-101A
06A	SHAA-101B
07A	SHAA-101C
08A	SHAA-101D
09A	SHAA-103
09AA	SHAA-103 Duplicate
10A	SHAA-103B
11A	SHAA-103C
12A	SHAA-108B
13A	SHAA-108A
14A	Lab Blank
15A	CCV
16A	LCS

Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
- Calibrations
* - Laboratory Blanks
* - Surrogate Compound Recoveries
* - Internal Standard Recoveries
- Laboratory Control Sample
- Field Duplicate
* - Compound Identification
- Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The laboratory's case narrative states:

> *"The following compound, methyl tert-butyl ether, indicated low bias (less than 70% recovery) in the daily CCV analyzed on 06/07/04. Associated non-detects in all samples were flagged [UJ] to indicate estimated results with low bias."*

The 65% recovery of methyl tert-butyl ether did not significantly affect the end use of the data.

The concentration of ethanol in sample 09A (Lab. #: SHAA-103) and its field duplicate (490E ppbv) were above the linear range of the analysis.

> The ethanol data in these two samples is highly estimated. The ethanol data were flagged with the "J" qualifier.

Two minor problems were detected with the tetrahydrofuran data.

> The %RSD of tetrahydrofuran in the initial calibration (31%) was just above the 30% quality assurance limit.
>
> The RPD of tetrahydrofuran (31%) in the duplicate analysis of sample 01A (Lab. #: SHAA-105A) was above the 25% quality assurance limit.
>
> Tetrahydrofuran was only detected in sample 01A (Lab. #: SHAA-105A), its field duplicate and sample 11A (SHAA-103C). The data for this compound in these three samples were flagged with the "J" qualifier and footnoted with "IC" & "FD". These minor problems did not affect the end use of the data.

No other problems were found with this sample delivery group.

Holding Times

All samples were analyzed within the contractual holding time from time of collection.

Tunes

All of the tunes met the required method limits.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the required quality assurance limits.

Calibrations

The %RSD of all of the initial calibration standards were less than the 30% quality assurance limit with the exceptions of tetrahydrofuran (31%).

> Whenever this compound was detected in a sample it was flagged with the "J-IC" qualifier. The slightly high %RSD did not significantly affect the end use of the data.
>
> Nondetects were not qualified for the high %RSD since the %RSD was less than 60%.

Three compounds had a percent difference above just above the 30% quality assurance limit in the one continuing calibration associated with the analyses of the samples: chloroethane (30.5%), MTBE (36%) and vinyl acetate (30.5%).

> None of these compounds were detected in any of the samples and the chloroethane and vinyl acetate data were not qualified.

The laboratory's case narrative states:

> *"The following compound, methyl tert-butyl ether, indicated low bias (less than 70% recovery) in the daily CCV analyzed on 06/07/04. Associated non-detects in all samples were flagged [UJ] to indicate estimated results with low bias."*
>
> The 65% recovery methyl tert-butyl ether of did not significantly affect the end use of the data.

Duplicate Analysis

Samples 01A (Lab. #: SHAA-105A) and 09A (Lab. #: SHAA-103A) were analyzed in duplicate. All RPDs were less than 25% with the exception of tetrahydrofuran (31%) in sample 01A (Lab. #: SHAA-105A).

> The tetrahydrofuran concentrations in both samples were less than 1 ppbv.
>
> When tetrahydrofuran was detected in a sample, it was flagged with the "J" qualifier and footnoted with "FD".
>
> Tetrahydrofuran was only detected at 1.0 ppbv in sample 11A (SHAA-103C).

Laboratory Control Sample

All recoveries were within the required limits in the LCS associated with the 10/13 initial calibration with the one exception of chloroethane (131%) which was over the quality assurance limit of 130%. This compound was not detected in any of the samples and the data were not qualified for the high recovery.

All recoveries were within the required limits in the LCS associated with the continuing calibration

Method Blanks

No compounds were detected in the method blank.

Internal Standard Recoveries

All of the internal standard recoveries were within the laboratory's quality assurance limits (+/- 40% of the internal standard area, +/- 0.33 minutes of the standard RT).

Sample Results

The concentration of ethanol in sample 09A (Lab. #: SHAA-103) and its field duplicate (490E ppbv) were above the linear range of the analysis.

> The ethanol data in these two samples should be considered to be highly estimated. The ethanol data were flagged with the "J" qualifier.

No other problems were found with the reported results of any of the samples of this delivery group.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
For Keyspan

Modified TO-14
Samples Collected: June 2, 2004
Samples Received: June 3, 2004
Sample Delivery Group: 0406069
Laboratory Reference Numbers:

01A	SHAA-104A
02A	SHAA-104B
03A	SHAA-104BB
04A	SHAA-104C
05A	Lab Blank
06A	CCV
07A	LCS

Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
  - Calibrations
* - Laboratory Blanks
* - Surrogate Compound Recoveries
* - Internal Standard Recoveries
  - Laboratory Control Sample
* - Compound Identification
  - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The laboratory's case narrative states:

> *"The daily calibration standard (CCV) analyzed on 6/10/04 did not meet laboratory required acceptance criteria of 70-130% for bromoform. Recovery was high and no hits were detected in the associated samples. There was no impact on sample results.*

The concentration of 2-butanone in sample 02A (SHAA-104B) (590E ppbv) was just above the linear range of the analysis. The 2-butanone concentration prior to correction for the 2.92 dilution factor was 203 ppbv, just above the 200 ppbv linear range. The 2-butanone data in this sample should be considered to be estimated. The ethanol data was flagged with the "J" qualifier.

The raw data for the initial calibration tune was not found in the sample delivery group.

No other problems were found with this sample delivery group.

Holding Times

All samples were analyzed within the contractual holding time from time of collection.

Tunes

All of the tunes met the required method limits.

The raw data for the initial calibration tune was not found in the sample delivery group.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the required quality assurance limits.

Calibrations

The %RSD of all of the initial calibration standards were less than the 30% quality assurance limit.

The laboratory's case narrative states:

> *"The daily calibration standard (CCV) analyzed on 6/10/04 did not meet laboratory required acceptance criteria of 70-130% for bromoform. Recovery was high* [132%] *and no hits were detected in the associated samples. There was no impact on sample results.*

Duplicate Analysis

A duplicate was not analyzed with this sample delivery group.

Laboratory Control Sample

All recoveries were within the required limits in the LCS associated with the 4/30 initial calibration with the exceptions of chloroethane (134%) and trans, 1,3-dichloropropene (132%) which were over the quality assurance limit of 130%. These compounds were not detected in any of the samples and the data were not qualified for the high recoveries.

All recoveries were within the required limits in the LCS associated with the 6/10 continuing calibration with the exceptions of chloroethane (130.3%), trans-1,3-dichloropropene (134%), tetrachloroethene (132%), 1,2,4-trichlorobenzene (130.6%) and hexachlorobutadiene (130.2%) which were over the quality assurance limit of 130%. These compounds were not detected in any of the samples and the data were not qualified for the high recoveries.

Method Blanks

No compounds were detected in the method blank.

Internal Standard Recoveries

All of the internal standard recoveries were within the laboratory's quality assurance limits (+/- 40% of the internal standard area, +/- 0.33 minutes of the standard RT).

Sample Results

The concentration of 2-butanone in sample 02A (SHAA-104B) (590E ppbv) was just above the linear range of the analysis.

> The 2-butanone concentration prior to correction for the 2.92 dilution factor was 203 ppbv, just above the 200 ppbv linear range.
>
> The 2-butanone data in this sample should be considered to be estimated. The ethanol data was flagged with the "J" qualifier.

No other problems were found with the reported results of any of the samples of this delivery group.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
For Keyspan

Modified TO-14
Samples Collected: June 1, 2004
Samples Received: June 4, 2004
Sample Delivery Group: 0406089
Laboratory Reference Numbers:

01A	SHAA-102A
02A	SHAA-102B
03A	SHAA-102AA
04A	Lab Blank
05A	CCV
06A	LCS

Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
- Calibrations
* - Laboratory Blanks
* - Surrogate Compound Recoveries
* - Internal Standard Recoveries
- Laboratory Control Sample
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

Naphthalene was one of the target compounds, but it was not included in the laboratory control sample associated with the continuing calibration. Naphthalene was not detected in any of the samples.

The laboratory's case narrative states:

> *"The daily calibration standard (CCV) analyzed on 6/10/04 did not meet laboratory required acceptance criteria of 70-130% for bromoform. Recovery was high and no hits were detected in the associated samples. There was no impact on sample results.*

The raw data for the initial calibration tune was not found in the sample delivery group.

No other problems were found with this sample delivery group.

Holding Times

All samples were analyzed within the contractual holding time from time of collection.

Tunes

The raw data for the initial calibration tune was not found in the sample delivery group.

All of the tunes met the required method limits.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the required quality assurance limits.

Calibrations

The %RSD of all of the initial calibration standards were less than the 30% quality assurance limit.

The laboratory's case narrative states:

> *"The daily calibration standard (CCV) analyzed on 6/10/04 did not meet laboratory required acceptance criteria of 70-130% for bromoform. Recovery was high and no hits were detected in the associated samples. There was no impact on sample results.*

Duplicate Analysis

A duplicate was not analyzed with this sample delivery group.

Laboratory Control Sample

All recoveries were within the required limits in the LCS associated with the 4/30 initial calibration with the exceptions of chloroethane (34%) and trans, 1,3-dichloropropene (132%) which were over the quality assurance limit of 130%. These compounds were not detected in any of the samples and the data were not qualified for the high recoveries.

All recoveries were within the required limits in the LCS associated with the 6/10 continuing calibration with the exceptions of trans-1,3-dichloropropene (134%) and tetrachloroethane (132%) which were over the quality assurance limit of 130%. These compounds were not detected in any of the samples and the data were not qualified for the high recoveries.

Naphthalene was one of the target compounds, but it was not included in the laboratory control sample associated with the continuing calibration. Naphthalene was not detected in any of the samples.

Method Blanks

No compounds were detected in the method blank.

Internal Standard Recoveries

All of the internal standard recoveries were within the laboratory's quality assurance limits (+/- 40% of the internal standard area, +/- 0.33 minutes of the standard RT).

Sample Results

No problems were found with the reported results of any of the samples of this delivery group.