December 31, 2017

Mr. Henry Wilkie
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7015

Subject: **Feasibility Study Report**
Chevron Facility #6518040
Former Gulf Oil Terminal
Oceanside, New York
NYSDEC Site #130165

Dear Mr. Wilkie:

On behalf of Chevron Environmental Management Company (CEMC), Leidos, Inc. is submitting this Feasibility Study Report to the New York State Department of Environmental Conservation (NYSDEC) in accordance with the Order on Consent and Administrative Settlement for the former Gulf Oil Terminal in Oceanside, New York (NYSDEC Site #130165).

If you have any questions regarding this Feasibility Study Report or require further information, please do not hesitate to contact me at (717) 901-8829 or steffeh@leidos.com.

Sincerely,

Leidos, Inc.

Heather L. Steffe, P.G., QEP
Senior Project Manager

Attachments: CD

FEASIBILITY STUDY REPORT FOR THE FORMER GULF OIL TERMINAL CHEVRON FACILITY #6518040 NYSDEC Site #130165 Oceanside, New York

December 31, 2017

Prepared for:

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LIST OF ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
AS	Air Sparging
AST	Aboveground Storage Tank
BBL	Blasland, Bouck, and Lee, Inc.
bcgs	Below Current Ground Surface
BCP	Brownfield Cleanup Program
BEHP	Bis(2-Ethylhexyl)Phthalate
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CEMC	Chevron Environmental Management Company
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFI	Cumberland Farms, Inc.
CFR	Code of Federal Regulations
cgs	Current Ground Surface
cis-1,2-DCE	Cis-1,2-Dichloroethene
COC	Constituent of Concern
CVOC	Chlorinated Volatile Organic Compound
DNAPL	Dense Non-Aqueous Phase Liquid
DPT	Direct Push Technology
EC	Engineering Control
ECL	Environmental Conservation Law
EE	Environmental Easement
FS	Feasibility Study
GAC	Granular Activated Carbon
GRA	General Response Action
IC	Institutional Control
IRM	Interim Remedial Measure
ISCO	In-Situ Chemical Oxidation
ISV	In-Situ Vitrification
LNAPL	Light Non-Aqueous Phase Liquid
m^2/g	Square Meters per Gram
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MIP	Membrane Interface Probe
MNA	Monitored Natural Attenuation
MPE	Multi-Phase Extraction
MTBE	Methyl Tertiary-Butyl Ether
NCP	National Oil and Hazardous Substances Contingency Plan
NPV	Net Present Value
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operations and Maintenance
OWS	Oil/Water Separator

LIST OF ACRONYMS

PAH	Polyaromatic Hydrocarbon
PCE	Tetrachloroethene
POTW	Publicly-Owned Treatment Works
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCA	Recycled Concrete Aggregate
RI	Remedial Investigation
ROD	Record of Decision
SCG	Standards, Criteria, or Guidance
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SSD	Sub-Slab Depressurization
SVE	Soil Vapor Extraction
TCE	Trichloroethene
TD	Thermal Desorption
TOGS	Technical and Operational Guidance Series
TPH	Total Petroleum Hydrocarbons
trans-1,2-DCE	Trans-1,2-Dichloroethene
µg/L	Micrograms per Liter
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
UU/UE	Unlimited Use/Unrestricted Exposure
UV	Ultraviolet
VOC	Volatile Organic Compound
VRU	Vapor Recovery Unit

FEASIBILITY STUDY REPORT FOR THE
FORMER GULF OIL TERMINAL
CHEVRON FACILITY #6518040
NYSDEC SITE #130165

1.0 INTRODUCTION

On behalf of Chevron Environmental Management Company (CEMC), Leidos, Inc. respectfully submits to the New York State Department of Environmental Conservation (NYSDEC) this Feasibility Study (FS) Report which evaluates potential remedial alternatives to address constituents of concern (COCs) in soil, groundwater, and soil vapor at the former Gulf Oil Terminal site located at 1 Industrial Place in Oceanside, Township of Hempstead, New York. These impacted media are associated with two sources of contamination at the site: terminal operations, including the operation of the former vapor recovery unit (VRU), and historical fill. Petroleum-related impacts (benzene, toluene, ethylbenzene, and xylenes [BTEX] and methyl tertiary-butyl ether [MTBE]) and historical fill impacts (polyaromatic hydrocarbons [PAHs]) are primarily limited to the fill unit, and impacts from the former VRU, which include chlorinated volatile organic compounds (CVOCs), primarily impact the lower sand unit. There are some petroleum-related impacts in the lower sand unit, including MTBE, and there are some CVOCs at low concentrations detected above NYSDEC Technical and Operational Guidance Series (TOGS) guidance values in the fill unit.

This FS Report presents the development, screening, and evaluation of potential remedial alternatives to address COCs in soil, groundwater, and soil vapor at the former Gulf Oil Terminal site. Development of this FS follows the completion of the Remedial Investigation (RI) and Supplemental RI by Arcardis of New York, Inc. (Arcadis) which collectively provide adequate characterization of the site for assessment of appropriate alternatives capable of remediating the site. This FS Report has been prepared in general accordance with the NYSDEC's Division of Environmental Remediation *Technical Guidance for Site Investigation and Remediation (DER-10)* (NYSDEC 2010a, the National Oil and Hazardous Substances Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] Part 300.430,) and the United States Environmental Protection Agency's (USEPA's) *Guidance for Conducting Remedial Investigations and Feasibility Studies* under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (USEPA, 1988).

This FS Report presents the following information:

- A brief description of the site, site history, and future site use, and background information relevant to the development of the FS report and remedial alternatives evaluated.
- Identification of potentially applicable or relevant and appropriate requirements, site-specific cleanup goals, remedial action objectives, and general response actions for soil, groundwater, and soil vapor. Also discusses the areas and/or volumes of media to be addressed by the remedial alternatives.
- Identification and screening of remedial technologies and process options for soil, groundwater, and soil vapor.

- Development of retained remedial technologies/process options into potential remedial alternatives and screening based on effectiveness, implementability, and cost to reduce the number of alternatives that must undergo a more thorough and extensive evaluation during the detailed analysis step.
- Presentation of the remedy selection criteria established by the NYSDEC.
- Alternative description and detailed and comparative analysis of remedial alternatives developed to address soil, groundwater, and soil vapor.
- Recommended site remedy.

Once the remedy is selected in a final record of decision document, a remedial action work plan (RAWP) would be required for completing the remedial action and shift to site management. The RAWP would include a preliminary schedule, a site management plan (SMP) including a monitoring plan, institutional control/engineering control implementation plans, and operation and maintenance (O&M) plan, and plan for remedial reviews. The NYSDEC's SMP template would be used for the development of the SMP.

2.0 BACKGROUND

2.1 SITE DESCRIPTION

The 7.2-acre site is located at 1 Industrial Place in Oceanside, Township of Hempstead, Nassau County, New York. A site location map is presented on Figure 2-1 and Figure 2-2 presents the regional site setting and identifies the site. The site is currently developed as a Costco Wholesale Warehouse facility. The site is bound to the south by Barnum's Channel, to the east by the Long Island Railroad, to the north by the former Exxon Petroleum Terminal (included as part of the Costco development), and to the west by Hampton Road. A bulkhead borders the site along Barnum's Channel. A vehicle recycling operation and office buildings are located west of Hampton Road, fronting Hog Island Channel. Daly Boulevard is located north of the former Exxon Petroleum Terminal, and Sprague Petroleum Terminal is located north of Daly Boulevard.

2.2 SITE HISTORY

The site consists of three lots, Lots 502, 503, and 504. In 1931, Gulf Oil Corporation developed a portion of the site (Lot 504) as a petroleum storage terminal. Gulf Oil Corporation purchased Lots 503 and 502 in 1950 and 1956, respectively. Chevron acquired Gulf Oil Corporation in the mid-1980s. As part of the purchase agreement, Chevron was required to divest the northeast division. In 1986, Cumberland Farms, Inc. (CFI) purchased the northeast marketing assets of Gulf Oil Corporation from Chevron. The purchase included the Oceanside Terminal, which was transferred to CFI in May 1986. In December 1993, CFI, in a joint venture with Catamount Petroleum LP (Catamount), formed Gulf Oil Limited Partnership (Gulf). CFI owned two-thirds of Gulf as a limited partner, and Catamount owned one-third of Gulf as the general partner. In September 2005, CFI exercised its option to buy out Catamount and reorganized Gulf under a new general partner. However, ownership percentages of Gulf did not change during the reorganization. In 2015, the site was sold to Coremark L.L.C., who has leased the property to Costco. The site is currently developed as a Costco Wholesale Warehouse facility.

Operation of the petroleum storage terminal ceased in the early 1990s. Demolition of the aboveground storage tanks (ASTs) at the former petroleum storage terminal was completed in

2003. The remaining on-site buildings (maintenance building, office building, and several small buildings associated with historical petroleum terminal operations) were demolished in 2005.

The site has undergone extensive investigation and remediation since the 1990s under NYSDEC oversight (Spill No. 92-03883). In January 2007, the NYSDEC accepted Lowe's Home Centers, Inc. (Lowe's) as a volunteer under the Brownfield Cleanup Program (BCP) – Site No. C130165. Following the decision by Lowe's to withdraw from the BCP in 2009, the NYSDEC transferred the site into the Hazardous Waste Program (State Superfund Site). An Order on Consent and Administrative Settlement were executed between the NYSDEC and CEMC on December 23, 2009 (Index # W3-1142-09-08, Site #130165).

The following were previously located on the Gulf parcel:

- Nine large-quantity ASTs containing fuel oil, kerosene, and gasoline;
- Two small 550-gallon ASTs containing fuel oil for the on-site garage and office building;
- Three underground storage tanks (USTs) containing fuel oil (one 550-gallon, one 1,000-gallon, and one 5,000-gallon);
- One 1,000-gallon UST containing waste oil;
- A loading rack;
- A retention pond;
- A maintenance garage;
- A VRU; and
- An office complex.

Four of the nine large ASTs were demolished prior to 2000, with the remaining five large ASTs reportedly demolished in 2003. The two 550-gallon ASTs containing fuel oil for the maintenance garage and the office building were demolished in 2005. A site map depicting the approximate locations of the former building, structures, tanks, and monitoring wells is provided as Figure 2-3.

Light non-aqueous phase liquid (LNAPL), consisting of a mixture of No. 2 and No. 4 fuel oil, kerosene, and gasoline, had previously been detected in a monitoring well near the bulkhead at the southern portion of the site at a thickness up to 2.28 feet. LNAPL was also encountered near the former VRU and the former garage building. The observed occurrences of LNAPL and shallow soil impacts were addressed through a series of initial remedial measures. Measurable thicknesses of LNAPL have not been observed at the site since 2004.

In 2015, approximately four to seven feet of recycled concrete aggregate (RCA) fill from an NYSDEC-approved facility was added to the site. To provide a summary of the analytical data in terms of current site conditions, and because some of the analytical data has been collected after the installation of the fill material, the discussion of sample depths in terms of feet below ground surface will be in reference to current ground surface (cgs). A comprehensive survey of the cgs at the site has not yet been completed. To account for the change in ground surface elevation, to be conservative, four feet have been added to excavation depths and sample depth intervals for samples collected prior to 2015. All depth intervals are considered approximate

until a comprehensive survey has been completed. All depths discussed in this text reference the depth from cgs. Both current and historical sample depths for soil and groundwater samples are shown on the tables and figures included with this report.

2.3 FUTURE SITE USE

According to the Real Estate Department of the Town of Hempstead, the property is zoned as industrial (personal conversation, November 30, 2017). The site and the ExxonMobil site to the north are currently developed for commercial use as a Costco Wholesale Warehouse facility. Approximately 82% of the building is located on the ExxonMobil site, with 18% of the building located on the northern edge of the site. A gas station is installed on the southern part of the site, with the remainder of the site covered by a parking lot and landscaping. Future use is anticipated to remain commercial.

2.4 PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS/INTERIM REMEDIAL MEASURES

2.4.1 Summary of Previous Investigation

The former Gulf Oil Terminal site has undergone extensive investigation and remediation since the 1990s. Historical soil and groundwater investigations conducted prior to 2004 indicated that soil impacted with volatile organic compounds (VOCs) at concentrations above NYSDEC Soil Cleanup Objectives (SCOs) were observed primarily in the western and southern portions of the site. VOC-impacts in groundwater had been observed predominantly in the northeastern, central, and southern portions of the site. CVOCs, including trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), and vinyl chloride were also detected in soil and groundwater at the site in proximity to the former VRU. Concentrations of CVOCs in excess of criteria were also observed in groundwater in the meadow mat and the deep sand layer immediately underlying the meadow mat (Arcadis, 2011).

Since 2010, a series of supplemental investigation activities were completed to further characterize the site conditions. An RI was conducted from November 2010 through April 2011 to further characterize the petroleum impacts (including limits of historically observed LNAPL), augment the existing monitoring well network, and develop additional water quality data required to support selection of a remedial technology. RI field activities included the excavation of a series of test pits, drilling of soil borings, installation of new groundwater monitoring wells, and collection of soil and groundwater samples for field and laboratory analyses. Data generated during the RI is documented in the *Remedial Investigation Data Summary Report* (Arcadis, 2011).

In 2016, post 2013-2014 interim remedial measure (IRM), a residual source area investigation was conducted in the former VRU area that included: membrane interface probes (MIPs) advanced in the lower sand unit for the collection of soil data to provide a semi-quantitative delineation of the residual source area and to select the location of the AMW-15 well cluster; drilling of soil borings for the collection of soil samples and grab groundwater samples from select borings to provide additional characterization in the lower sand unit and to support future remedial actions; installation of new groundwater monitoring wells; and three groundwater monitoring events at 31 existing and 11 newly-installed monitoring wells and eight temporary wells. Data generated during the residual source area investigation is documented in the *Supplemental Remedial Investigation Report* (Arcadis, 2017).

Previous investigations indicate that there are two primary sources of contamination at the site: impacts from the historical petroleum terminal operations which occurred from 1931 to the early 1990s, including the operation of the former VRU, and the historical fill used to create the landmass which became the site. Soil impacts from terminal operations and historical fill exist primarily in six areas of the site: the former turbine pump area; the former garage building area; the southwest area which includes a former one-story block building, a former two-story brick building, and a former one-story brick office building; the former loading rack area; the former VRU area; and the former oil/water separator (OWS) area. Isolated soil impacts also exist along Hampton Road.

As shown on figures 7 and 9, included in Appendix A, polyaromatic hydrocarbons (PAHs), including benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, benzo(a)pyrene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were detected in the shallow fill unit at concentrations exceeding Protection of Groundwater SCOs and/or Commercial Use SCOs. Generally, the PAHs are not located within the shallow fill unit where historical terminal operations occurred. The detected PAHs are not volatile and are highly insoluble. These PAHs are primarily pyrogenic in nature or are the result of combustion of fossil fuels. The presence of these PAHs in the shallow fill unit strongly indicates that the terminal operations were not the source of these PAHs.

Fluoranthene to fluoranthene plus pyrene (F:[F+P]) ratios in site soils provide insight to the origins of contamination (Tobiszewski, 2012). Ratios of F:(F+P) less than 0.4 indicate petroleum origins. F:(F+P) ratios greater than 0.4 indicate origins from combustion of fossil fuels, grass, wood, etc. The F:(F+P) ratios for shallow fill unit soil samples are summarized on Table 2-1. A total of 88 soil samples having analyses for both fluoranthene and pyrene were used in the F:(F+P) ratio analysis. Of the 88 soil samples, nine had F:(F+P) ratios less than 0.4 and 79 had F:(F+P) ratios greater than 0.4, suggesting that the source of the PAHs is pyrogenic.

It is evident that the PAH COCs in the soils were historically deposited on the site with the historic fill used to create the landmass which became the site. Thus, PAHs are not considered COCs related to terminal operations for the site and are not carried forward in following discussions.

COCs in soil above SCOs that have not been excavated or remediated include:

- Shallow fill unit - acetone, BTEX, n-butylbenzene, methylene chloride, MTBE, naphthalene, n-propylbenzene, 1,2,4-trimethylbenzene, arsenic, and mercury at concentrations above the Protection of Groundwater SCOs; and arsenic at concentrations above the Commercial Use SCO.
- Meadow mat - benzene, MTBE, cis-1-2-DCE, methylene chloride, and vinyl chloride at concentrations above the Protection of Groundwater SCOs; there are no exceedances of the Commercial Use SCOs.
- Lower sand unit - cis-1-2-DCE, methylene chloride, TCE, vinyl chloride, and phenol at concentrations above the Protection of Groundwater SCOs; there are no exceedances of the Commercial Use SCOs.

COCs in groundwater above TOGS guidance include:

- Shallow fill unit - acetone, BTEX, MTBE, isopropylbenzene, cis-1,2-DCE, bis(2-ethylhexyl)phthalate (BEHP), naphthalene, and phenol.
- Lower sand unit - BTEX, isopropylbenzene, MTBE, acetone, cis-1,2-DCE, trans-1,2-DCE, tetrachloroethene (PCE), chloroform, methylene chloride, TCE, vinyl chloride, BEHP, naphthalene, and phenol.

The data generated during the RI and Supplemental RI were used to evaluate the nature and extent of COCs related to terminal operations and identify potential source areas, and in the development of the alternatives in this FS. Maps and presentation of the data are provided in the *Supplemental Remedial Investigation Report* (Arcadis, 2017).

2.4.2 Summary of Historical Remedial Actions and Interim Remedial Measures

Historical remedial actions implemented prior to 2011 were completed while the site was being addressed under the Spills program. Since 2011, two IRMs have been completed at the site: excavation in the former VRU area and three excavations to address isolated hot spots. A summary of the historical remediation actions and IRMs is provided below.

2.4.2.1 Hotspot Soil Excavation - October 2002

In October 2002, Blasland, Bouck, and Lee, Inc. (BBL) completed four hotspot excavations to remove previously observed LNAPL-impacted soil and areas of elevated petroleum hydrocarbon-contaminated soil. The four excavation areas included the area surrounding the former VRU/small AST pad, an area west of the former garage building, an area southeast of the former truck loading racks, and an area southeast of the former garage building, at the former turbine pump area. The approximate locations of the excavated areas are depicted on Figure 2-3.

The excavations were completed to 8 feet below current ground surface (bcgs). Approximately 438 tons of soil was excavated for off-site disposal. Certified clean fill was used to backfill the excavations. BTEX and naphthalene were detected in post-excavation soil samples at concentrations above the NYSDEC Protection of Groundwater SCOs in each of the four excavations (Arcadis, 2011).

LNAPL was observed seeping into the excavations and was recovered with a vacuum truck until only a sheen remained. A total of 2,300 gallons of LNAPL/water were removed via vacuum truck for off-site disposal (Arcadis, 2011).

2.4.2.2 In-Situ Chemical Oxidation Pilot Test - December 2002/January 2003

An in-situ chemical oxidation (ISCO) pilot test was completed in December 2002 and January 2003. The pilot test consisted of the injection of a 20 percent solution of sodium permanganate into the subsurface at the former excavation surrounding the former VRU/small AST pad. The injection rates in the fill were found to be low. Groundwater sampling was completed in March 2003 to assess the effectiveness of the ISCO pilot test. A significant decrease in the groundwater concentrations was observed within wells reinstalled in the former excavation areas and was attributed to the October 2002 hotspot soil excavation, and a 25 to 100% decrease in CVOCs near the former VRU was noted, suggesting that the ISCO pilot test was effective at treating CVOCs (Arcadis, 2011).

2.4.2.3 In-Situ Chemical Oxidation Pilot Test - November 2004

An ISCO pilot test study was completed in November 2004 within the former turbine pump area. A modified Fenton's reagent consisting of ferrous sulfate, citric acid, and hydrogen peroxide was used for the pilot test. The pilot test used 2 and 4 percent aqueous solutions.

Two types of injection methods were tested. The first method used Geoprobe injection points and the second method used temporary well injection points. The reagent was injected at 20 pounds per square inch pressure in the Geoprobe points, whereas gravity feed was used in the temporary well injection points. Pre- and post-injection soil samples were collected and analyzed; results indicated no significant change (less than 10 percent increase or decrease) to the concentration subsequent to injection. Fenton's reagent was determined to be an ineffective means of delivering the reagent to the soil due to poor reagent-soil mixing (Arcadis, 2011).

2.4.2.4 Former VRU Area – IRM Activities – 2013 and 2014

In fall 2013 and early 2014, an IRM was completed in the former VRU area. The VRU area measured approximately 60 feet by 65 feet and was excavated to a final depth that varied from 13 to 18 feet bcgs. The excavation was performed using a cement-bentonite slurry, which mitigated the need for dewatering and maintained adequate hydraulic pressure to prevent water infiltration and failure of the minimal remaining clay zone above the lower sand. Impacted material was excavated using traditional construction equipment to the limits shown on Figure 2-3. Approximately 3,464 tons of soil were excavated for off-site disposal. The cement-bentonite slurry was left in place upon completion of the excavation to stabilize. The remainder of the open excavation was backfilled with approximately 6 inches of 1- to 2- inch clean stone to match the existing grade. Excavation and removal of soil impacts identified within the pre-defined area successfully facilitated protection of human health and the environment through recovery of contaminant mass and elimination or control of potential exposure.

Field activities associated with the Former VRU IRM, including well decommissioning and pre-characterization soil borings, are documented in the *Interim Remedial Measure Completion Report* (Arcadis, 2014).

2.4.2.5 IRM Addendum Activities – 2014

Three IRM Addendum excavation areas were excavated in 2014 in accordance with NYSDEC conditional approval letter (NYSDEC, 2014): the AMW-5 excavation measured 10 feet by 10 feet and was excavated to 13 feet bcgs; the GS-2/GP-NORTH excavation measured 10 feet by 15 feet and was excavated to 8 feet bcgs; and the GP-6 excavation measured 5 feet by 5 feet and was excavated to 7 feet bcgs. Impacted material was excavated using traditional construction equipment to the limits shown on Figure 2-3. Approximately 110 tons of soil was excavated for off-site disposal. Each excavation was backfilled with acceptable materials. At the AMW-5 and GS-2/GP-NORTH excavations, clean stone was placed in the bottom of the excavation to bridge the saturated zone. The top of each excavation, as well as the entire GP-6 excavation, was backfilled with compacted general fill materials to match the existing grades. Excavation and removal of soil impacts identified within the pre-defined areas successfully facilitated protection of human health and the environment through recovery of contaminant mass and elimination or control of potential exposure (Arcadis, 2014).

In summary, ISCO injections and excavations have addressed the sources of VOCs and CVOCs at the site.

2.5 SITE GEOLOGY/HYDROGEOLOGY

Four geologic units identified at the site during the RIs include:

- Sand and gravel fill from the ground surface to approximately 12 feet bcgs;
- Meadow mat (silt with fibrous organics and trace of clay) to approximately 20 feet bcgs;
- Underlying sand (coarse- to fine-grained sand with trace to some fine gravel) to approximately 90 feet bcgs; and
- Gardiners Clay (clay, silt, and lenses of sand).

With the exception of the bulkhead area, the meadow mat was encountered throughout the site at a thickness ranging from 5 to 12 feet. The meadow mat was not observed in the bulkhead area during the RIs or in previous environmental investigations. The meadow mat in the former VRU area was excavated as part of the IRM.

The underlying sand (lower sand unit) has been divided into three monitoring horizons: monitoring wells in the D1 horizon generally screened between 20 and 30 feet bcgs, monitoring wells in the D2 horizon screened between 30 and 42 feet bcgs, and monitoring wells in the VD horizon screened at the base of the unit (58 to 83 feet bcgs). Cross section locations are shown on Figure 2-4 and cross sections A-A' and B-B' are provided on Figures 2-5 and 2-6, respectively.

Groundwater elevations have historically ranged between 2 and 5 feet above mean sea level (7 to 9 feet bcgs). The site hydrogeology consists of two groundwater zones, shallow fill material and lower sand unit. The meadow mat is positioned between these two water bearing zones. Groundwater elevation in the shallow fill material shows a minimal response to the tidal cycle (less than 0.5 feet), and groundwater flow is consistently to the southwest, regardless of the tidal cycle. Groundwater elevation in the lower sand unit is strongly influenced by the tidal cycle (by as much as 3 feet), and groundwater flow direction can change by as much as 180 degrees in response to the tidal cycle. Groundwater flow in the lower sand unit is generally to the west, varying between northwest and southwest. Recent groundwater contour maps for the lower sand unit on September 7, 2017 (high tide) and October 31, 2017 (low tide) are provided in Appendix B.

Hydraulic conductivity testing on the lower sand unit has not been successful to date. Attempts at slug testing have not been successful because the change in groundwater elevation has been too small and recovery too rapid to be able to distinguish from the tidal elevation changes. In September 2011, an injection test using 2,500 gallons of water was completed; however, the groundwater elevation response was too small in the observation wells to calculate hydraulic conductivity.

Based on groundwater elevation data, the vertical gradients between the D1 and D2 wells are evenly mixed between upwards and downwards at low tide and generally more upward at high tide. The vertical gradient between the D2 and VD wells is generally upward at low tide and mixed at high tide.

2.6 NATURE AND EXENT OF CONTAMINATION

Soil impacts from terminal operations exist primarily in five areas of the site: the former turbine pump area; the former garage building area; the southwest area which includes a former one-story block building, a former two-story brick building, and a former one-story brick office building; the former loading rack area; and the former VRU area. Isolated soil impacts also exist along Hampton Road. Generally, petroleum (BTEX and MTBE) are limited to the shallow fill unit, and impacts from the former VRU, which include CVOCs, primarily exist in the lower sand unit. There are some petroleum-related impacts in the lower sand unit, including MTBE, and there are some CVOCs at low concentrations detected above NYSDEC TOGS guidance values in the fill unit.

This section presents a summary of the nature and extent of contamination in soil in identified impacted areas, and in groundwater and soil vapor at the site to be used in this FS.

2.6.1 Soil Contamination

Since 2004, a total of 227 soil samples have been collected for analysis at this site. Of the 227 soil samples, 162 samples were collected from the shallow fill unit, 10 samples were collected from the meadow mat, and 55 samples were collected from the lower sand unit. The following is a summary of the COCs, that have not been excavated or remediated, that exceed the Protection of Groundwater and/or the Commercial Use SCOs for each of the impacted areas that have been identified at the site. Soil analytical data are summarized in Tables 4 and 5, included in Appendix C.

2.6.1.1 Former Turbine Pump Area

The former turbine pump area is located between the former garage building and the former retention pond. In this area, only the shallow fill unit has been sampled. VOCs (benzene, toluene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene, n-butylbenzene, n-propylbenzene, and naphthalene) and one inorganic (mercury) were detected at concentrations exceeding the Protection of Groundwater SCOs as summarized below. No COCs were detected in the shallow fill unit at concentrations exceeding Commercial Use SCOs.

- Benzene was detected above the Protection of Groundwater SCO of 0.06 milligrams per kilogram (mg/kg) at concentrations ranging from 0.16 to 14 mg/kg in 33 samples collected from depths ranging from 5.5 to 7.5 feet bcgs.
- Ethylbenzene was detected above the Protection of Groundwater SCO of 1 mg/kg at concentrations ranging from 1.1 to 230 mg/kg in 32 samples collected from depths ranging from 5.5 to 7.5 feet bcgs.
- n-Propylbenzene was detected above the Protection of Groundwater SCO of 3.9 mg/kg at concentrations ranging from 4.5 to 40 mg/kg in 29 samples collected from depths ranging from 5.5 to 7.5 feet bcgs.
- Xylenes were detected above the Protection of Groundwater SCO of 1.6 mg/kg at concentrations ranging from 1.8 to 400 mg/kg in 23 samples collected from depths ranging from 5.5 to 7.5 feet bcgs.

- Naphthalene was detected above the Protection of Groundwater SCO of 12 mg/kg at concentrations ranging from 13 to 43 mg/kg in 16 samples collected from depths ranging from 5.5 to 7.5 feet bcgs.
- n-Butylbenzene was detected above the Protection of Groundwater SCO of 12 mg/kg at concentrations ranging from 13 to 30 mg/kg in eight samples collected from depths ranging from 5.5 to 7.5 feet bcgs.
- 1,2,4-Trimethylbenzene was detected above the Protection of Groundwater SCO of 3.6 mg/kg at concentrations ranging from 4.2 to 12 mg/kg in eight samples collected from depths ranging from 5.5 to 7.5 feet bcgs.
- Toluene was detected above the Protection of Groundwater SCO of 0.7 mg/kg at concentrations ranging from 0.72 to 2.1 mg/kg in three samples collected from depths ranging from 5.5 to 7 feet bcgs.
- Mercury was detected above the Protection of Groundwater SCO of 0.73 mg/kg in soil sample TP-12-1 (8.7 feet bcgs) at a concentration 1.35 mg/kg.

2.6.1.2 Former Garage Building Area

In this area, the shallow fill unit and lower sand unit have been sampled. In the shallow fill unit, VOCs (benzene, ethylbenzene, xylenes, methylene chloride, and acetone) were detected at concentrations exceeding the Protection of Groundwater SCOs as summarized below. No COCs were detected in the shallow fill unit at concentrations exceeding Commercial Use SCOs.

- Benzene was detected above the Protection of Groundwater SCO of 0.06 mg/kg at concentrations ranging from 0.12 to 3.5 mg/kg in six samples collected from depths ranging from 6 to 8.5 feet bcgs.
- Ethylbenzene was detected above the Protection of Groundwater SCO of 1 mg/kg at concentrations ranging from 1.2 to 73 mg/kg in five samples collected from depths ranging from 6 to 8.5 feet bcgs.
- Xylenes were detected above the Protection of Groundwater SCO of 1.6 mg/kg at concentrations ranging from 1.9 to 13 mg/kg in four samples collected from depths ranging from 6 to 8.5 feet bcgs.
- Methylene chloride was detected above the Protection of Groundwater SCO of 0.05 mg/kg at concentrations of 0.078 mg/kg in soil sample LB-9 (6.5 - 7 feet bcgs) and 0.086 mg/kg in soil sample TP-11-1 (9 feet bcgs).
- Acetone was detected above the Protection of Groundwater SCO of 0.05 mg/kg at a concentration of 0.058 mg/kg in soil sample TP-11-1 (9 feet bcgs).

In the lower sand unit, COC concentrations were non-detect for the compounds analyzed.

2.6.1.3 Southwest Area

The Southwest Area includes a one-story block building, a two-story brick building, and a one-story office building. In this area, the shallow fill unit, meadow mat, and lower sand unit have been sampled. In the shallow fill unit, VOCs (benzene, ethylbenzene, xylenes, n-propylbenzene, methylene chloride, and acetone) and one inorganic (arsenic) were detected at concentrations exceeding the Protection of Groundwater SCOs. Arsenic was also detected at concentrations exceeding the Commercial Use SCO. SCO exceedances are summarized below.

- Benzene was detected above the Protection of Groundwater SCO of 0.06 mg/kg at concentrations ranging from 8.2 to 23 mg/kg in four samples collected from depths ranging from 5.5 to 7.5 feet bcgs.
- Ethylbenzene was detected above the Protection of Groundwater SCO of 1 mg/kg at concentrations ranging from 3.6 to 13 mg/kg in four samples collected from depths ranging from 5.5 to 7.5 feet bcgs.
- Acetone was detected above the Protection of Groundwater SCO of 0.05 mg/kg at concentrations ranging from 0.055 to 0.18 mg/kg in four samples collected from depths ranging from 8 to 12 feet bcgs.
- Xylenes were detected above the Protection of Groundwater SCO of 1.6 mg/kg at concentrations ranging from 2.1 to 3.6 mg/kg in three samples collected from depths ranging from 5.5 to 7.5 feet bcgs.
- n-Propylbenzene was detected above the Protection of Groundwater SCO of 3.9 mg/kg at concentrations ranging from 4.6 to 6.7 mg/kg in three samples collected from depths ranging from 5.5 to 7.5 feet bcgs.
- Methylene chloride was detected above the Protection of Groundwater SCO of 0.05 mg/kg at concentrations of 0.082 mg/kg in soil sample TP-8-1 (8.5 feet bcgs) and 0.11 mg/kg in soil sample TP-5-2 (9.5 feet bcgs).
- Arsenic was detected above the Protection of Groundwater SCO and Commercial Use SCO of 16 mg/kg at concentrations ranging from 16.2 to 28.1 mg/kg in four soil samples collected from depths ranging from 6 to 10 feet bcgs.

In the meadow mat and lower sand unit, detected concentrations were below both the Protection of Groundwater SCOs and Commercial Use SCOs for the compounds analyzed.

2.6.1.4 Former Loading Rack Area

In this area, the shallow fill unit and lower sand unit have been sampled. In the shallow fill unit, VOCs (benzene and ethylbenzene) were detected at concentrations exceeding the Protection of Groundwater SCOs as summarized below.

- Benzene was detected above the Protection of Groundwater SCO of 0.06 mg/kg at concentrations of 0.066 mg/kg in soil sample PX-C6 (6 - 7 feet bcgs) and 0.23 mg/kg in soil sample PX-C5 (6 - 7 feet bcgs).
- Ethylbenzene was detected above the Protection of Groundwater SCO of 1 mg/kg at concentrations ranging from 1.4 to 20 mg/kg in five samples collected from depths ranging from 6 to 7 feet bcgs.

In the lower sand unit, methylene chloride was detected above the Protection of Groundwater SCO of 0.05 mg/kg at a concentration of 0.12 mg/kg in soil sample MW-30-VD (72 - 74 feet bcgs). No COCs were detected in the lower sand unit at concentrations exceeding Commercial Use SCOs.

2.6.1.5 Former VRU Area

In this area, the shallow fill unit, the meadow mat, and the lower sand unit have been sampled. In the shallow fill unit, VOCs (benzene, toluene, ethylbenzene, xylenes, and methylene chloride)

were detected at concentrations exceeding the Protection of Groundwater SCOs as summarized below. No COCs were detected in the shallow fill unit at concentrations exceeding Commercial Use SCOs.

- Ethylbenzene was detected above the Protection of Groundwater SCO of 1 mg/kg at concentrations ranging from 2.0 to 98 mg/kg in 12 samples collected from depths ranging from 4 to 10 feet bcgs.
- Xylenes were detected above the Protection of Groundwater SCO of 1.6 mg/kg at concentrations ranging from 4.2 to 160 mg/kg in nine samples collected from depths ranging from 4 to 10 feet bcgs.
- Benzene was detected above the Protection of Groundwater SCO of 0.06 mg/kg at concentrations ranging from 0.082 to 5.4 mg/kg in seven samples collected from depths ranging from 6 to 10 feet bcgs.
- Toluene was detected above the Protection of Groundwater SCO of 0.7 mg/kg at a concentration of 1.9 mg/kg in soil sample PX-A7 (6 - 7 feet bcgs).
- Methylene chloride was detected above the Protection of Groundwater SCO of 0.05 mg/kg at a concentration of 0.062 mg/kg in soil sample AMW-3 (8 - 10 feet bcgs).

In the meadow mat, VOCs (benzene, MTBE, methylene chloride, cis-1,2-DCE, and vinyl chloride) were detected at concentrations exceeding the Protection of Groundwater SCOs as summarized below. No COCs were detected in the meadow mat at concentrations exceeding Commercial Use SCOs.

- Methylene chloride was detected above the Protection of Groundwater SCO of 0.05 mg/kg at concentrations ranging from 0.051 to 0.24 mg/kg in five samples collected from depths ranging from 12 to 22 feet bcgs.
- Vinyl chloride was detected above the Protection of Groundwater SCO of 0.02 mg/kg at concentrations ranging from 0.026 to 0.42 mg/kg in five samples collected from depths ranging from 13.5 to 17 feet bcgs.
- Benzene was detected above the Protection of Groundwater SCO of 0.06 mg/kg at concentrations ranging from 0.083 to 0.76 mg/kg in three samples collected from depths ranging from 14.5 to 17 feet bcgs.
- cis-1,2-DCE was detected above the Protection of Groundwater SCO of 0.25 mg/kg at concentrations ranging from 0.27 to 2.2 mg/kg in three samples collected from depths ranging from 12 to 17 feet bcgs.
- MTBE was detected above the Protection of Groundwater SCO of 0.93 mg/kg at concentrations of 2.2 mg/kg in soil sample VRU-4 (13.5-14 feet bcgs) and 18 mg/kg in soil sample VRU-4 (14.5-15 feet bcgs).

In the lower sand unit, VOCs (methylene chloride, cis-1,2-DCE, TCE, and vinyl chloride) and the SVOC phenol were detected at concentrations exceeding the Protection of Groundwater SCOs as summarized below. No COCs were detected in the lower sand unit at concentrations exceeding Commercial Use SCOs.

- Vinyl chloride was detected above the Protection of Groundwater SCO of 0.02 mg/kg at concentrations ranging from 0.061 to 0.58 mg/kg in five samples collected from depths ranging from 20.5 to 30 feet bcgs.
- cis-1,2-DCE was detected above the Protection of Groundwater SCO of 0.25 mg/kg at concentrations ranging from 0.26 to 2.7 mg/kg in four samples collected from depths ranging from 21.5 to 30 feet bcgs.
- Methylene chloride was detected above the Protection of Groundwater SCO of 0.05 mg/kg at concentrations of 0.077 mg/kg in soil sample ASB-4 (28 - 30 feet bcgs) and 0.12 mg/kg in soil sample MW-25-D3 (25 - 27 feet bgs).
- TCE was detected above the Protection of Groundwater SCO of 0.47 mg/kg at concentrations of 1.3 mg/kg in soil sample LB-1(21.5 - 22 feet bcgs) and 2.9 mg/kg in soil sample LB-6 (22.5 - 23 feet bcgs).
- Phenol was detected above the Protection of Groundwater SCO of 0.33mg/kg at a concentration of 0.58 mg/kg in soil sample ASB-5 (20.5 - 21 feet bgs).

2.6.1.6 Along Hampton Road

In this area, the shallow fill unit and lower sand unit have been sampled. In the shallow fill unit, VOCs (benzene and MTBE) were detected at concentrations exceeding the Protection of Groundwater SCOs. Benzene (0.16 mg/kg) and MTBE (0.99 mg/kg) were detected at concentrations exceeding their respective Protection of Groundwater SCO in soil sample LB-13 (7.5 - 8 feet bcgs). In the lower sand unit, methylene chloride (0.11 mg/kg) was detected above the Protection of Groundwater SCO of 0.05 mg/kg in soil sample MW-29-VD (23 - 25 feet bcgs).

2.6.2 Groundwater Contamination

2.6.2.1 Post-IRM Groundwater Sampling

Post-IRM groundwater sampling identified acetone, BTEX, MTBE, isopropylbenzene, cis-12-DCE, BEHP, naphthalene, and phenol at concentrations exceeding the NYSDEC TOGS 1.1.1 Water Guidance Values in the shallow fill unit. BTEX, isopropylbenzene, MTBE, acetone, cis-1,2-DCE, trans-1,2-DCE, PCE, chloroform, methylene chloride, TCE, vinyl chloride, BEHP, naphthalene, and phenol exceeded TOGS Water Guidance Values in the lower sand unit. The following is a summary of the COCs that exceed TOGs Water Guidance Values in the shallow fill and lower sand units. The analytical results for the groundwater samples collected for the supplemental RIs between 2011 to 2016 are summarized in Table 6, included in Appendix D; a full set of historical groundwater analytical results are also provided in Appendix D.

Shallow Fill Unit

A total of 10 groundwater samples were collected from five monitoring wells (AMW-3, AMW-7, AMW-12, P-18R, MW-18R) and three temporary wells TW-1 through TW-3) screened in the shallow fill unit during sampling events completed in 2016. Four groundwater samples were collected in September 2013 from four monitoring wells (AMW-4, AMW-5, AMW-11, and P-10) that were decommissioned/destroyed prior to 2016. A summary of the exceedances of the TOGS Water Guidance Values based on the most recent sampling event for each well is provided below.

- Benzene (26 micrograms per liter [µg/L]), toluene (9.6 µg/L), ethylbenzene (13 µg/L), xylenes (32 µg/L), isopropylbenzene (15 µg/L), and naphthalene (170 µg/L) were detected above their respective TOGS Water Guidance Values in AMW-11. Benzene (310 µg/L), MTBE (65 µg/L), isopropylbenzene (14 µg/L), cis 1,2-DCE (14 µg/L), and phenol (1.9 µg/L) were detected above their respective TOGS Water Guidance Values in MW-18R. BEHP (120 µg/L) and phenol (1.3 µg/L) were detected above their respective TOGS Water Guidance Values in P-10. AMW-11, MW-18R, and P-10 are located in the eastern portion of the site in the vicinity of the former retention pond, former OWSs, and former AST 111, respectively.
- Acetone (98 µg/L), benzene (1.1 - 97 µg/L), ethylbenzene (930 µg/L), xylenes (6.2 - 5,600 µg/L), isopropylbenzene (6.3 - 21 µg/L), naphthalene (13 - 49 µg/L), and/or phenol (6.3 - 200 µg/L) were detected above their respective TOGS Water Guidance Values in three monitoring wells (AMW-4, AMW-5, and AMW-7) and three temporary wells (TW-1, TW-2 and TW-3), located within the southwest area of the site.
- Benzene (80 µg/L and 42 µg/L), MTBE (32 µg/L and 19 µg/L), and isopropylbenzene (24 µg/L and 16 µg/L) were detected above their respective TOGS Water Guidance Values in AMW-12 and P-18R, respectively. AMW-12 and P-18R are located in the former loading rack area.

Lower Sand Unit

A total of 67 groundwater samples were collected from 33 monitoring wells and 5 temporary wells screened in the lower sand unit during sampling events completed in 2016. A summary of the exceedances of the TOGS Water Guidance Values based on the most recent 2016 sampling event for each well is provided below.

<u>Wells in the vicinity of the Former VRU Area</u>

- Benzene (1.8 - 160 µg/L), toluene (6.4 - 17 µg/L), ethylbenzene (6.7 - 92 µg/L), and xylenes (6.5 - 68 µg/L) were detected above their respective TOGS Water Guidance Values, with the highest concentrations detected in MW-27-D2. Isopropylbenzene (38 µg/L) was also detected above the TOGS Water Guidance Value in monitoring well MW-27-D2.
- Cis-1,2-DCE (5.6 - 1,900 µg/L), methylene chloride (5.7 - 330 µg/L), TCE (10 - 2,100 µg/L), and trans-1,2-DCE (7.8 - 13 µg/L) were detected above their respective TOGS Water Guidance Values, with the highest concentrations detected in temporary well ASB-4. PCE (6.7 µg/L) was also detected above the TOGS Water Guidance Value in temporary well ASB-4.
- MTBE (13 - 640 µg/L) was detected above the TOGS Water Guidance Value in 17 monitoring wells and two temporary wells, with the highest concentration detected in OW-1-D1.
- Vinyl Chloride (3.5 - 2,100 µg/L) was detected above the TOGS Water Guidance Value in 11 monitoring wells and all five temporary wells, with the highest concentration detected in AMW-14-D1.
- Chloroform (14 - 21 µg/L) was detected above the TOGS Water Guidance Value in three temporary wells, with the highest concentration detected in temporary well ASB-7.

- Acetone (170 µg/L) was detected above the TOGS Water Guidance Value in MW-26-VD.
- BEHP was detected above the TOGS Water Guidance Value at concentrations of 7 µg/L and 11 µg/L in MW-26-VD in MW-26-D1, respectively.
- Naphthalene (24 - 88 µg/L) was detected above the TOGS Water Guidance Value in three monitoring wells, with the highest concentration detected in MW-27-D2.
- Phenol (56 µg/L) was detected above the TOGS Water Guidance Value in MW-27-D2.

Wells in the Vicinity of the Former Loading Rack Area

- Benzene (1.1 µg/L) was detected above the TOGS Water Guidance Value in MW-31-D1R.
- MTBE (53 µg/L) was detected above the TOGS Water Guidance Value in MW-30-D1.
- BEHP (7.5 - 11 µg/L) was detected above the TOGS Water Guidance Value in three monitoring wells, with the highest concentration detected in MW-30-VD.
- Phenol (29 µg/L) was detected above the TOGS Water Guidance Value in MW-31-D1R.

Wells Along Hampton Road

- Benzene (6.3 µg/L) and isopropylbenzene (5.4 µg/L) were detected above their respective TOGS Water Guidance Values in MW-29-D1.
- MTBE was detected above the TOGS Water Guidance Value in MW-29-D1 and MW-29-D2 at concentrations of 23 µg/L and 51 µg/L, respectively.
- Acetone (280 µg/L) was detected above the TOGS Water Guidance Value in MW-28-D1.

2.6.2.2 Post-RI Groundwater Sampling

A total of 37 monitoring wells (three shallow fill, one meadow mat, and 33 lower sand wells) are currently at the site. Of these, nine wells were damaged and six relevant wells are still damaged: two of the three shallow fill wells (AMW-7 and MW-18R), the meadow mat well (MW-DR), and three of the lower sand wells (MW-24-D1, MW-27-D1, and OW-3-D1).

Following the IRM activities and the RI, Leidos evaluated the monitoring well network for each water-bearing horizon, the shallow fill unit and lower sand unit. As a result of this evaluation, the well network was reduced to focus on source, centerline, and downgradient wells to evaluate plume conditions and monitored natural attenuation parameters. Twenty-one monitoring wells (AMW-7 and MW-18R, screened in the shallow fill unit, and AMW-14-D1, AMW-14-D2, AMW-14-VD, AMW-15-D1, AMW-15-D2, AMW-15-D3, AMW-15-VD, MW-23-D1R, MW-23-D2R, MW-24-D1, MW-24-D2, MW-24-VD, MW-26-D1, MW-26-D2, MW-27-D1, MW-27-D2, MW-28-D1, MW-28-D2R, and MW-29-D1, screened in the lower sand unit) were proposed for sampling using Hydrasleeve™ no-purge sampling as part of a monitored natural attenuation (MNA) program. Four of these wells (AMW-7, MW-18R, MW-24-D1, and MW-27-D1) are damaged and one (MW-24-VD) was abandoned during the remediation of the former VRU. Monitoring well OW-3-D1 needs to be added to the MNA program and was also damaged. These six wells will be re-installed as part of the selected remedy for the site and added to the MNA program.

Sixteen monitoring wells (AMW-14-D1, AMW-14-D2, AMW-14-VD, AMW-15-D1, AMW-15-D2, AMW-15-D3, AMW-15-VD, MW-23-D1R, MW-23-D2R, MW-24-D2, MW-26-

D1, MW-26-D2, MW-27-D2, MW-28-D1, MW-28-D2R, and MW-29-D1) are currently sampled as part of monitoring program to evaluate MNA and plume trends. Hydrasleeves™ are removed, a minimum of two weeks after installation, and analyzed for VOCs, total iron, total manganese, sodium, and general chemistry parameters, including alkalinity, carbon dioxide, chloride, ethane, ethene, methane, ferric and ferrous iron, nitrate and nitrite, total organic carbon, sulfate, and sulfide to evaluate the potential for remaining COCs to attenuate naturally at the site. Post-RI sampling is used to provide the current nature and extent of groundwater contamination in the lower sand unit in the vicinity of the former VRU area at the site.

Post-RI groundwater sampling from October 2016 through October 2017 indicate concentrations of acetone, BTEX, MTBE, isopropylbenzene, cis-1,2-DCE, methylene chloride, trans-1,2-DCE, TCE, and/or vinyl chloride above the NYSDEC TOGS 1.1.1 Water Guidance Values in lower sand unit wells AMW-14-D1, AMW-14-D2, AMW-15-D1, AMW-15-D2, AMW-15-D3, MW-23-D1R, MW-23-D2R, MW-24-D1, MW-24-D2, MW-26-D1, MW-26-D2, MW-27-D1, MW-28-D1, and MW-29-D1. Analytical results for post-RI groundwater samples are summarized in Table 2-2 and on Figure 2-7.

As of October 2017, concentrations exceeding the TOGS Water Guidance Values were detected in groundwater samples analyzed from 10 of the 16 monitoring wells sampled (AMW-14-D1, AMW-14-D2, AMW-15-D1, AMW-15-D2, MW-23-D1R, MW-23-D2R, MW-24-D2, MW-26-D2, MW-28-D1, and MW-29-D1). The reported groundwater results from monitoring wells AMW-14-VD, AMW-15-D3, AMW-15-VD, MW-26-D1, MW-27-D2, and MW-28-D2R did not exhibit concentrations above TOGS Water Guidance Values. Exceedances of the TOGS Water Guidance Values are summarized below:

- Concentrations exceeding the TOGS Water Guidance Value for benzene (1 µg/L) were detected in groundwater samples analyzed from AMW-14-D1 (4.7 µg/L), AMW-15-D1 (11 µg/L), AMW-15-D2 (2.7J µg/L), MW-28-D1 (3.7J µg/L), and MW-29-D1 (4.3 µg/L). Results flagged "J" are estimated values less than the reporting limit but greater than or equal to the method detection limit.
- A concentration exceeding the TOGS Water Guidance Value for ethylbenzene (5 µg/L) was detected in the groundwater sample analyzed from AMW-14-D1 (7.2 µg/L).
- A concentration exceeding the TOGS Water Guidance Value for isopropylbenzene (5 µg/L) was detected in the groundwater sample analyzed from MW-29-D1 (5.8 µg/L).
- Concentrations exceeding the TOGS Water Guidance Value for MTBE (10 µg/L) were detected in groundwater samples analyzed from AMW-14-D1 (170 µg/L), AMW-14-D2 (48 µg/L), AMW-15-D1 (290 µg/L), AMW-15-D2 (160 µg/L), MW-23-D1R (150 µg/L), MW-23-D2R (140 µg/L), MW-24-D2 (60 µg/L), MW-26-D2 (14 µg/L), and MW-29-D1 (20 µg/L). Migration of MTBE from up-gradient, off-site, potential sources is being evaluated.
- A concentration exceeding the TOGS Water Guidance Value for toluene (5 µg/L) was detected in the groundwater sample analyzed from AMW-15-D1 (5.9 µg/L).
- Concentrations exceeding the TOGS Water Guidance Value for trans-1,2-DCE (5 µg/L) were detected in groundwater samples analyzed from AMW-14-D1 (13 µg/L) and AMW-15-D1 (13 µg/L).

- Concentrations exceeding the TOGS Water Guidance Value for vinyl chloride (2 µg/L) were detected in groundwater samples analyzed from AMW-14-D1 (3.2 µg/L), AMW-15-D1 (24 µg/L), AMW-15-D2 (25 µg/L), and MW-24-D2 (18 µg/L).
- Concentrations exceeding the TOGS Water Guidance Value for xylenes (5 µg/L) were detected in groundwater samples analyzed from AMW-14-D1 (20 µg/L) and AMW-15-D1 (12 µg/L).

It should be noted that PCE was not detected in any well during Post-RI groundwater sampling and TCE was only detected twice, in AMW-15-D1 in October 2016 and in AMW-15-D3 in August 2017.

Declining trends for CVOCs in most wells indicate the CVOCs are naturally attenuating. Post-source removal static to increasing trends for MTBE in wells AMW-14-D1, AMW-15-D1, MW-23-D1R, and MW-23-D2R suggest less attenuation for MTBE. Hydrographs showing groundwater concentrations and groundwater elevations versus time for select wells are included as Appendix E.

2.6.3 Soil Vapor Contamination

There is no soil vapor sampling data available for the site. The soil vapor pathway will be addressed in the remedial alternatives developed in this FS.

2.7 MIGRATION PATHWAYS

A preliminary assessment of the potential migration pathways for each media of potential concern in connection with the site is summarized below.

- The site and surrounding area utilize public water. Current deed restrictions only allow groundwater use for remediation and limits land use to commercial. The potential for groundwater to serve as a complete pathway to receptors is further mitigated by the fact that groundwater in the site vicinity has been demonstrated to have chloride and/or total solids concentrations which exceed the non-potable GSB classification criteria of 1,000 milligrams per liter (mg/L) and 2,000 mg/L, respectively (Langan 2007). These conditions prohibit usage of the groundwater for potable uses currently and in the future.
- Barnum's Channel is located immediately south of the site. Concentrations of COCs at the surface water/groundwater interface do not indicate the contaminant migration pathway to surface water is complete.
- Soil vapor has the potential to serve as a pathway for volatile COCs within the subsurface (including BTEX and CVOCs) to migrate into onsite buildings. However, the potential for a complete pathway to receptors within the building are unlikely. The Costco warehouse building is very large, approximately 158,775 square feet, and is of significant height. The floor is concrete and serves as a cap. Additionally, a Liquid Boot® vapor intrusion barrier is installed across the warehouse floor, and certified. A sub- slab depressurization (SSD) system is also installed at the Costco facility and can be made operational, if needed. Further actions to address the potential for soil vapor to migrate into the Costco warehouse building will be discussed in this FS.
- The potential for direct contact with impacted soil or groundwater is unlikely because the grade of the site was raised in 2015 through the placement of four to seven feet of

acceptable RCA fill across the entire site, and the surface is paved as a parking lot or covered by buildings. While direct contact still represents a potential pathway of concern for utility and excavation workers, this pathway can be effectively mitigated through an SMP requiring that excavations will be completed under an appropriate health and safety plan to protect workers.

- Based on the current site conditions and use of the site as a Costco Wholesale Warehouse facility, the potential risk to ecological receptors is considered limited due to the low-quality habitat at the site and in the surrounding area.

3.0 DEVELOPMENT OF REMEDIAL ALTERNATIVES

This section documents the development of remedial alternatives for soil, groundwater, and soil vapor at the site. The first step in the FS process is the determination of applicable or relevant and appropriate requirements (ARARs), the development of remedial action objectives (RAOs), the identification of general response actions (GRAs), and a discussion of the areas of residual contamination to be addressed by the remedial alternatives. RAOs are medium-specific or site-specific goals for protecting human health and the environment. RAOs form the basis for the FS by providing overall goals for site remediation. The RAOs are considered during the identification of appropriate remedial technologies and development of remedial alternatives for the site, and later during the evaluation of remedial alternatives. GRAs are media-specific actions which may, either alone or in combination, form alternatives to satisfy the RAOs and site-cleanup goals. The next step in the FS process is the identification and screening of remedial technologies and the development of alternatives by combing technology types and process options retained for further evaluation during the screening process.

3.1 IDENTIFICATION OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

ARARs are environmental and public health statutes used in identifying site contamination that may pose human health or environmental concerns at a site. ARARs are Federal and state human health and environmental-based requirements and guidelines used to determine the appropriate levels of site cleanup; define and formulate remedial action alternatives; and govern implementation and operation of the selected remedial action.

There are three types of ARARs: chemical-specific, location-specific, and action-specific. Chemical-specific ARARs are health- or risk-based numerical values that limit contaminant concentrations found in, or discharged to the ambient environment. These ARARs govern the extent of site cleanup by providing cleanup levels or a basis for calculating cleanup levels. Location-specific ARARs set restrictions on activities based on the site setting or locations (e.g., within or adjacent to wetlands, floodplains, navigable waters, and places of historical or archaeological significance). Action-specific ARARs set controls or restrictions on particular types of remedial actions once the remedial actions have been identified as part of a remedial alternative. The identification of potential ARARs is provided in Table 3-1.

The identification of ARARs is an iterative process to be considered throughout the remedial response; therefore, the list of identified requirements and their relevance may change as more information is obtained, the preferred alternative is chosen, and the design and approach to remediation becomes more refined.

3.1.1 Site-Specific Cleanup Goals for Soil

The SCOs established for this site include the Restricted Use Commercial SCOs and the Protection of Groundwater SCOs, which is consistent with the current property zoning and the use of this site as a commercial Costco Wholesale Warehouse facility. The SCOs are based on the NYSDEC TOGS for Soil, Subpart 375-6: Remedial Program Soil Cleanup Objectives (effective December 14, 2006) (NYSDEC 2006).

Acetone, BTEX, n-butylbenzene, methylene chloride, MTBE, naphthalene, n-propylbenzene, 1,2,4-trimethylbenzene, TCE, cis-1-2-DCE, vinyl chloride, phenol, arsenic, and mercury were found at concentrations exceeding the Protection of Groundwater SCOs, and arsenic was found at concentrations exceeding the Commercial Use SCO in site soil samples. SCOs for COCs in soil are summarized in Table 3-2(a).

3.1.2 Site-Specific Cleanup Goals for Groundwater

Groundwater analytical data have been compared to NYSDEC TOGS for Groundwater (standard), Section 703.6 (effective August 4, 1999) (NYSDEC 1999). Acetone, BTEX, MTBE, isopropylbenzene, cis-1,2-DCE, trans-1,2-DCE, PCE, chloroform, methylene chloride, TCE, vinyl chloride, naphthalene, phenol, and BEHP are found in site groundwater samples, at concentrations exceeding TOGS guidance. NYSDEC TOGS Water Guidance Values for COCs in groundwater are summarized in Table 3-2(b).

3.1.3 Site-Specific Cleanup Goals for Soil Vapor

Although there were no soil vapor sampling data available for the site, this will be addressed in the remedial alternatives developed in this FS. The New York State Department of Health (NYSDOH) Soil Vapor Intrusion Guidance (NYSDOH, 2006) provides guidance for evaluating soil vapor intrusion, and air guideline values derived by NYSDOH for methylene chloride, PCE, and TCE. NYSDOH updated ambient air guidelines for PCE and TCE in September 2013 and August 2015, respectively. Air guidance values are not available for the remaining volatile COCs in soil and groundwater. Current NYSDOH ambient air guideline values are summarized in Table 3-2(c).

3.2 REMEDIAL ACTION OBJECTIVES

RAOs were developed for site soils, groundwater, and soil vapor using guidelines found in the remedy selection process in 6 NYCRR Part 375 and DER-10. RAOs are media-specific or site-specific goals for protecting human health and the environment. RAOs are based on engineering judgement, potential contaminant-specific standards, criteria, or guidance, and migration potential. Additionally, the current, intended and reasonably anticipated future land use of the site and its surroundings, the nature and extent of COCs exceeding site cleanup goals, and potential impact(s) to nearby sites were considered during the development of the RAOs for site media.

RAOs are developed as guidelines for the development and evaluation of remedial alternatives. The evaluation of alternatives will focus on mitigating risk associated with the impacted soil and groundwater identified at the site, and potential impacts to ambient air.

Based on-site conditions, the nature of contaminants, contaminant migration pathways, and potential receptors, the RAOs developed for the site are as follows:

Soil RAOs for Public Health Protection:

- Prevent, or reduce to the extent practicable, ingestion and direct contact with contaminated soil.
- Prevent, or reduce to the extent practicable, inhalation of or exposure to contaminants volatilizing from contaminated soil.

Soil RAOs for Environmental Protection:

- Prevent, or reduce to the extent practicable, migration of contaminants that would result in surface and groundwater contamination.
- Prevent, or reduce to the extent practicable, adverse impacts to biota from ingestion of or direct contact with contaminated soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Groundwater RAOs for Public Health Protection:

- Prevent, or reduce to the extent practicable, ingestion of groundwater with contaminant levels exceeding Class GA water quality standards.
- Prevent, or reduce to the extent practicable, contact with, or inhalation of VOCs from contaminated groundwater.

Groundwater RAOs for Environmental Protection:

- Restore, to the extent practicable, groundwater quality to pre-release conditions.
- Prevent, or reduce to the extent practicable, the offsite migration of groundwater containing site-related COCs exceeding Class GA water quality standards.
- Prevent, to the extent practicable, discharge of groundwater contaminants to surface water.

Soil Vapor RAOs for Public Health Protection:

- Mitigate impacts to public health associated with potential soil vapor intrusion into the buildings at the site.

3.3 GENERAL RESPONSE ACTIONS

GRAs are media-specific actions which may, either alone or in combination, form alternatives to satisfy the RAOs and site cleanup goals. Some response actions may prove to be more effective than others. GRAs identified for soil, groundwater, and soil vapor based on the RAOs, are summarized as follows:

- No Action – "No action" must be considered in the FS, as specified in the NCP (40 CFR Part 300.430). Under the "no action" general response, the current state of the impacted media is unchanged.
- Limited Action – This response action option includes institutional controls designed to prevent access to, or use of, contaminated media until remedial goals are met by treatment and/or natural processes.

- Containment – This response action option includes technologies that involve little or no treatment, but provides protection to human health and the environment by reducing the mobility of the contaminants and/or prevents human exposure to the contaminants (i.e., capping, slurry walls).
- Ex-Situ Actions – Ex-situ or aboveground response actions involve the removal of contaminated media either for off-site disposal or for on-site treatment. Ex-situ options include excavation and off-site disposal of soil (i.e., landfill), on-site ex-situ treatment of soil (i.e., thermal desorption, incineration, biocell), and extraction and treatment of groundwater (i.e., pump and treat). Some technologies are combined with other remedies in a treatment train that destroys or removes the contaminants from the media (i.e., granular activated carbon [GAC], ultraviolet [UV] oxidation, air stripping).
- In-Situ Actions – In-situ response actions involve the remediation of contaminated media without removing the contaminated media from the subsurface. This includes remedies ranging from MNA to biological treatment (i.e., enhanced bioremediation), or physical treatment (i.e., soil vapor extraction [SVE], vapor phase recovery, air sparging, multi-phase extraction [MPE], in-well air stripping, chemical oxidation, permeable reactive barrier, co-solvent flushing, surfactant enhanced remediation).

3.4 AREAS OF RESIDUAL CONTAMINATION

3.4.1 Soil

In October 2002, four hotspot excavations were completed that removed approximately 438 tons of previously observed LNAPL-impacted soil and elevated petroleum hydrocarbon-contaminated soil. The four hotspot excavation areas included the area surrounding the former VRU/small AST pad, an area west of the former garage building, an area southeast of the former truck loading racks, and an area southeast of the former garage building, at the former turbine pump area. In fall 2013 and early 2014, the meadow mat below the former VRU area, the primary source of COCs in the lower sand unit, was excavated, removing approximately 3,464 tons of soil impacts. In 2014, three additional areas around monitoring well AMW-5, and soil sampling locations GS-2/GP-NORTH and GP-6, were excavated in accordance with NYSDEC conditional approval letter (NYSDEC, 2014), removing an additional 110 tons of soil. The approximate locations of the excavated areas are depicted on Figure 2-3. Soil impacts (greater than one order of magnitude above the Commercial Use SCOs) were excavated as part of these IRMs.

Generally, petroleum-related soil impacts, at concentrations above the Protection of Groundwater SCOs, remain in the shallow fill unit at various depths ranging from 4 to 11 feet bcgs in six areas of the site: the former turbine pump area; the former garage building area; the southwest area; the former loading rack area; the former VRU area; and along Hampton Road. Arsenic, at concentrations less than one order of magnitude above the Commercial Use SCO, remains in isolated areas of the southwest area. Remaining Protection of Groundwater and Commercial Use SCO exceedances in the shallow fill unit are depicted in Figure 3-1.

Soil impacts remaining in the meadow mat and lower sand unit are generally associated with the former VRU, which include CVOCs (TCE, cis-1,2-DCE, methylene chloride, vinyl chloride) at concentrations above the Protection of Groundwater SCOs. Petroleum-related COCs (benzene and MTBE) are also present in the former VRU area at concentrations above the Protection of

Groundwater SCOs. Soil impacts remain at various depths ranging from 12 to 30 feet bcgs. Remaining Protection of Groundwater SCO exceedances in the meadow mat and lower sand unit are depicted in Figure 3-2.

3.4.2 Groundwater

Petroleum-related COCs, primarily BTEX and MTBE, have been detected in groundwater in the shallow fill unit at concentrations above the TOGS guidance values in the last 5 years. The highest concentrations of petroleum COCs in groundwater are located in the eastern portion of the site in the vicinity of the former OWSs and retention pond, in the southwest area of the site, and near the former truck loading rack area. Naphthalene and/or phenol in groundwater, above the TOGS guidance values, are also located in the eastern portion of the site in the vicinity of the former OWSs and retention pond, and in the southwest area of the site. The current extent of residual BTEX in the shallow fill unit is visually illustrated in the figures presented in Appendix F.

Primarily CVOCs (TCE, cis-1,2-DCE, vinyl chloride) exist in groundwater in the lower sand unit in the vicinity of the former VRU at concentrations above the TOGS guidance values; however, petroleum-related COCs, primarily BTEX and MTBE, also co-exist at concentrations above the TOGS guidance values. Benzene and MTBE also exist in groundwater in the lower sand unit in the vicinity of the former loading rack area and along Hampton Road. Although other VOCs were detected in the lower sand unit at concentrations above the TOGS guidance values, the discussion of the extent of the plumes will be limited to vinyl chloride and MTBE because they are most representative of conditions in the lower sand unit; remaining COC TOGS exceedances fall within the footprints of the plumes discussed.

Concentrations of TCE in groundwater decreased from 340,000 µg/L in MW-25-D2 in August 2013 to 2,100 µg/L in temporary well ASB-4 in June 2016. Post-RI groundwater sampling conducted between October 2016 and October 2017 shows that TCE has decreased further to concentrations ranging from non-detect to 140 µg/L; TCE was not detected in October 2017. Concentrations of vinyl chloride decreased from 6,300 µg/L in MW-25-D1 in August 2013 to 2,100 µg/L in AMW-14-D1 in July 2016. Post-RI groundwater sampling shows that vinyl chloride has decreased further to concentrations ranging from non-detect to 600 µg/L; vinyl chloride was detected at a maximum concentration of 25 µg/L in October 2017. Concentrations of MTBE decreased from 2,300 µg/L in MW-25-D2 in August 2013 to 640 µg/L in OW-1-D1 in January 2016. Post-RI groundwater sampling shows that MTBE has decreased further to concentrations ranging from non-detect to 390 µg/L; MTBE was detected at a maximum concentration of 290 µg/L in October 2017. Below is a summary of the current extent of the plumes in the lower sand unit.

The vinyl chloride plume is approximately 180 feet long and extends from the base of the meadow mat at 20 feet bcgs to 45 feet bcgs (D2 horizon). In October 2017, the maximum concentration of vinyl chloride in the D1 horizon was 24 µg/L in AMW-15-D1, and the maximum concentration in the D2 horizon was 25 µg/L in AMW-15-D2. Vinyl chloride was not detected in the VD horizon monitoring wells. The TOGS guidance value is 2 µg/L for vinyl chloride.

MTBE was detected in all three horizons in the lower sand unit. In October 2017, the maximum concentration in the D1 horizon in the source area was 290 µg/L in AMW-15-D1. In October 2017, the maximum concentration in the D2 horizon in the source area was 160 µg/L in AMW-

15-D2. MTBE was detected in the VD horizon monitoring wells in the source area at concentrations below the TOGs guidance value of 10 µg/L. In October 2017, MTBE concentrations at the property downgradient limits were 150 µg/L and 140 µg/L in MW-23-D1R and MW-23-D2R, respectively, and non-detect and 14 µg/L in MW-26-D1 and MW-26-D2, respectively, showing a decreasing trend towards the downgradient limits of the property.

The current extent of residual vinyl chloride and MTBE in the lower sand unit is visually illustrated in a series of isoconcentration figures presented in Appendix F.

3.5 IDENTIFICATION AND SCREENING OF REMEDIAL TECHNOLOGIES AND PROCESS OPTIONS

This section discusses the identification and screening of technologies for soil, groundwater, and soil vapor at the site. Remedial alternatives for soil, groundwater, and soil vapor at the site were identified according to the aforementioned GRAs. Table 3-3 presents a list of technologies for each of the GRAs that are considered applicable for treatment of the COCs in site media.

3.5.1 No Action

There are no remedial response activities with respect to impacted soil and groundwater identified at the site, and potential impacts to ambient air under this GRA. Under this GRA option, COCs continue to exist in their current state with no attempt to either prevent or minimize impacts on human health or the environment. This response action was retained for further consideration as specified in the NCP (40 CFR Part 300.430) and in accordance with NYSDEC requirements for a baseline analysis.

3.5.2 Institutional Controls

Institutional controls (ICs) are a "limited action" general response. This GRA does not directly address the source of soil or groundwater contamination but limits potential risks to human health through the development and implementation of ICs.

If a site cannot be returned to Unlimited Use/Unrestricted Exposure (UU/UE) conditions using engineered remedial actions, then non-engineered controls, such as ICs, may be used to limit exposures. The NYSDEC's Guidance on ICs (DER-33) describes ICs as follows:

> **""Institutional controls"** are any non-physical means of enforcing a restriction on the use of real property that limits human or environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of site management activities at or pertaining to a remedial site. [*also see 6 NYCRR 375-1.2(aa)*]", and
>
> "**…**some of DEC's remedial program objectives are predicated on future site use when return to a condition where no restrictions are required is not feasible, or when a remedial party agrees to restrict future use of a site resulting in reduced opportunity for human exposure. Where a remedy will limit future use, ICs play an important role in minimizing the potential for exposure, protecting engineered remedies and providing appropriate notice to potentially impacted individuals.

> "The use of ICs is not an alternative to an active remedy, but rather part of a balanced, practical approach to site cleanup that relies on both engineered and non-engineered remedies. Remedies in New York State are not inconsistent with the NCP. The NCP emphasizes that ICs are meant to supplement engineering controls during all phases of cleanup and may be a necessary component of the completed remedy. The NCP cautions against the use of ICs as the sole remedy unless active response measures are determined to be impractical. These same principles apply to remedies in New York State."

DER-33 cites Environmental Easements, Deed Restrictions and Environmental Notices as the most common ICs employed by the NYSDEC. ICs are non-engineered solutions used to protect human health and the environment. They are divided into four categories:

- Proprietary Controls—including:
  - Environmental Easements (EE), and
  - Restrictive Covenants are two common proprietary controls.
- Governmental Controls—that impose governmental authority to restrict land use. Examples of Governmental Controls include:
  - Land use zoning,
  - Application of building codes,
  - Prohibition or regulation of activities (e.g. a ban on private wells, or groundwater use, and
  - Fishing bans.
- Enforcement and Permit Tools—Legal tools, including:
  - Administrative Orders,
  - Consent Decrees, and
  - Permits.
- Informational Devices—
  - Environmental Deed Notices,
  - State Contaminated Site Registries,
  - Fishing Advisories, and
  - Educational Notices.

If the site cannot be returned to UU/UE conditions by engineering controls (ECs), then ICs may be used to make future occupants of the site aware of the COC hazards that remain. Enforceable ICs can also ensure that maintenance of remaining ECs is continued, or that future activities employ precautions to minimize human or environmental exposures to the COCs that remain. ICs may prohibit some activities at the site.

For this GRA an EE is the instrument for memorializing land use restrictions. The EE runs with the land in favor of the State, subject to the provisions of Environmental Conservation Law

(ECL) Article 71, Title 36, and contains the use restriction(s) and/or any prohibition(s) on the use of land in a manner inconsistent with ECs. The emplacement of an EE provides an effective and enforceable means of encouraging the reuse and redevelopment of a controlled property in a manner that is consistent with the remedial program and ensuring the performance of operation, maintenance, and/or monitoring requirements. The EE would apply to the entire area and volume of petroleum and chlorinated COCs in site media.

ICs are retained for further evaluation.

3.5.3 Containment

This response includes technologies that involve little or no treatment to reduce the volume or toxicity of the COCs remaining at the site, but provide protection to human health and the environment by reducing the mobility of the contaminants and/or preventing human exposure to the contaminants. Containment response actions prevent completion of contaminant pathways by isolating receptors from the COCs with physical barriers.

3.5.3.1 Capping

The most effective caps are composed of concrete or asphalt. The site is already 99% covered with a large Costco building and asphalt paved parking lots so there is little chance for soils to erode or soil constituents to migrate. Additionally, the entire site is covered with four to seven feet of acceptable RCA fill. All site impacted soils are presently effectively isolated from human and ecological receptor contact. Capping provided by the Costco building and pavement also minimizes rainwater infiltration through contaminated soils. Infiltrated rainwater can carry organic contaminants into groundwater. Capping also prevents vapor intrusion into the buildings from potential volatile compound vapors generated by the COCs in soil and groundwater. However, if not inspected, there is no verification that the cap remains in place. Due to existing site features and fill effectively capping the underlying impacted soils, capping is retained for further evaluation.

3.5.3.2 Slurry Walls

Slurry walls are used to contain contaminated groundwater, divert contaminated groundwater from a drinking water intake or from a surface water body, divert uncontaminated groundwater flow, and/or provide a barrier for a groundwater treatment system. These subsurface barriers consist of a vertically excavated trench that is filled with slurry, usually a mixture of bentonite and water. The slurry hydraulically shores the trench to prevent collapse and forms a filter cake to reduce groundwater flow. Slurry walls are often used where the waste mass is too large for treatment and where soluble and mobile constituents pose an imminent threat to a source of drinking water or to a surface water body.

Slurry walls are difficult to install, costly, and involve a large amount of above grade disturbance and infrastructure during construction. There is a potential for slurry walls to degrade or deteriorate over time and do not guarantee that further remediation in the future may not be necessary. Because there is no evidence that site groundwater COCs are creating unacceptable risks to offsite receptors and there is no imminent threat to a source of drinking water or surface water body, slurry walls are not retained for further evaluation.

3.5.4 Ex-Situ Actions

3.5.4.1 Excavation

Excavation involves the physical removal of source materials with mechanized equipment or via hand digging. Excavation is applicable for most organic contaminants, including petroleum-related hydrocarbons and CVOCs as found at the site. Significant soil impacts (greater than one order of magnitude above Commercial Use SCOs) have been previously excavated as part of the IRMs (refer to Sections 2.4.2.1, 2.4.2.4, and 2.4.2.5). This technology affects the mobility of the contaminant only. The general effectiveness of the technology is high. Site factors that limit the applicability and effectiveness of the process include: contaminant depth, groundwater occurrence, building foundations and underground utilities.

Combined with off-site disposal and treatment technologies, excavation is the most effective type of soil remediation possible for vadose zone soils. The main advantage of excavation treatment is that the active remediation period is generally of shorter duration than any of the in-situ treatment techniques. Upon completion, there is also more certainty that the treatment is uniform.

Based on the distribution of soil COCs, excavation would need to extend into the saturated zone to ensure all COCs are removed. Larger equipment with adequate reach and use of shoring and benching would be required. Subsurface utilities located within the excavation area would require support or rerouting. Significant dewatering would be required within the excavation area. Contaminated groundwater would be pumped out of the excavation, treated, and properly disposed. Confirmation sampling of excavation and sidewalls would be required to confirm that all contamination has been removed.

Backfill would be required. There would be a significant number of truck trips involved in removing the excavated soil and in bringing imported backfill to the site. This could result in increased traffic and traffic hazards, and increased truck emissions and noise during the remediation activity.

Since the site is already 99% covered with asphalt paved parking lots and a large Costco building, excavation will be moderately difficult to implement due to substantial disruption to retail operations. The business disruption would require Costco to shut down during excavation activities. The technology is not applicable under current site conditions. However, excavation is retained for further evaluation only for the scenario of returning the site to pre-release conditions or unrestricted use.

3.5.4.2 Off-Site Disposal

3.5.4.2.1 Landfill

Because there are no staging areas available on the site, all soil excavated will require immediate off-site transportation to a suitable treatment, storage or permitted disposal site. Even for soil that may be treated and returned to the excavation, off-site movements will be required. Disposal off site may require ex-situ treatment to meet regulatory compliance conditions at the disposal site. Disposal activity will include the excavation considerations listed above, off-site transportation exposures, off-site treatment site exposures, and future liability considerations at the disposal facility.

Off-site disposal will also generate traffic exposures, including safety, traffic density increases, greenhouse gas emissions, fugitive dust, and noise in the nearby residential communities. These negative impacts would result from trucks transporting soil off site and from trucks bringing remediated or clean material in to restore the site for reuse. Off-site disposal is retained for further evaluation as part of the excavation scenario.

3.5.4.3 On-Site Ex-Situ Treatment

3.5.4.3.1 Thermal Desorption

Thermal Desorption (TD) is an ex-situ thermal treatment for excavated soils. TD uses direct or indirect heat to vaporize organic contaminants from excavated soil. The contaminated soil is placed into the TD primary chamber, and is heated to approximately 900°F. This process requires considerable space for staging and processing equipment. There is no space available on the site or immediately off site for set up of transportable TD units. Therefore, TD is not retained for further evaluation.

3.5.4.3.2 Incineration

Incineration is an ex-situ engineered process that employs thermal decomposition via oxidation at temperatures usually greater than 900^{o}C to destroy the organic portion of the waste and is usually used in conjunction with excavation. As with TD, incineration could only be used as a remedy for unsaturated or dewatered soils when volatile contaminants are also present.

Commercial incinerator designs consist of a number of subsystems: a rotary kiln, equipped with an afterburner, a quench, and an air pollution control system. There is no space available on the site or immediately off site for operating a mobile incinerator unit. Therefore, incineration is not retained for further evaluation.

3.5.4.4 Extraction and Treatment

Extraction and treatment is an ex-situ remedy that consists of a groundwater extraction system to capture contaminated groundwater and prevent migration of contaminants to downgradient sources, followed by treatment for VOCs. This involves installing a series of wells to pump contaminated groundwater to the surface for treatment. Pump and treat systems operate by pumping groundwater to the surface, removing the contaminants, and then either recharging the treated water into the ground or discharging it to a surface water body or publicly-owned treatment works (POTW), if permitted. A variety of methods maybe used to treat the extracted groundwater, including air stripping, GAC, and chemical/UV oxidation. Because there is no evidence that site groundwater COCs are creating unacceptable risks to offsite receptors, this segment of the remedial action involves the installation of recovery wells positioned within the commingled CVOC and petroleum-related VOC plume in the vicinity of the former VRU area.

The primary components of pump and treat are:

- A pilot test would be required to evaluate aquifer characteristics, drawdown, radius of influence, groundwater capture zones, and pumping rates. The pilot test would also provide information on influent contaminant levels and treatment options.
- Recovery wells within the commingled CVOC and petroleum-related VOC plume in the vicinity of the former VRU area, screened in the lower sand unit, would be required.

- Extracted groundwater would be treated to acceptable levels for discharge to the sanitary system, re-injection, or off-site disposal. The groundwater treatment system would be housed in either a prefabricated building or trailer.
- Periodic monitoring of the pump and treatment system's effectiveness would consist of evaluating VOC concentrations in groundwater samples collected within and downgradient of the commingled CVOC and petroleum-related VOC plume, and analyzing these samples for VOCs.

The monitoring program would be performed on a quarterly basis for the first year and semi-annually thereafter. Annual reviews will be required until treatment is complete. A review of site conditions would be conducted at the conclusion of this remedial action, based on environmental parameters obtained from monitoring performed to evaluate whether the action has achieved the remedial objectives, and would include an evaluation of whether future reviews and/or additional remedial actions are warranted.

Due to the current site constraints of the Costco building, parking infrastructure, high traffic volume, high capital costs compared to less invasive remedial alternatives, and real estate required to house a treatment system, extraction and treatment would be moderately difficult to implement under current site conditions. However, extraction and treatment is retained for further evaluation only for the scenario of returning the site to pre-release conditions or unrestricted use.

3.5.4.5 Ex-Situ Physical Treatment

3.5.4.5.1 Granular Activated Carbon

Liquid-phase GAC is used to remove contaminants from extracted groundwater. GAC has a high affinity for the COCs present at this site and is an excellent adsorbent due to its large surface area, which generally ranges from 500 to 2,000 square meters per gram (m^2/g). It can be used to remove both volatile and non-volatile contaminants from extracted groundwater by adsorption, an advantage over air stripping. It is applicable to the entire site. Spent carbon can be regenerated in place; removed and regenerated at an off-site facility; or most commonly, removed and disposed.

Vapor-phase GAC is a used in treatment trains to remove contaminants from air emissions from other treatment technologies, such as SVE or MPE. Contaminants are removed from air by physical adsorption onto the GAC. The adsorption capacity of GAC is much higher for vapor phase treatment than for liquid phase treatment. GAC systems typically consist of one or more vessels filled with carbon connected in series and/or parallel operating under atmospheric, negative, or positive pressure. When the concentrations of contaminants in the vapor exiting the vessels exceed a certain level, the carbon must be replaced. Spent carbon can be regenerated in place; removed and regenerated at an off-site facility; or most commonly, removed and disposed.

GAC is retained for further evaluation as both liquid-phase and vapor-phase treatment options.

3.5.4.5.2 Ultraviolet Oxidation

UV oxidation uses an UV light in an ex-situ application in conjunction with oxidants to promote faster and more complete destruction of organic compounds in extracted groundwater. Typically, easily oxidized organic compounds, such as those with double bonds (e.g., TCE, PCE,

and vinyl chloride) as well as simple aromatic compounds (e.g., toluene, benzene, xylenes, and phenol) are rapidly destroyed in UV oxidation processes.

UV oxidation is generally done with low pressure UV lamps that are typically enclosed in quartz tubes submerged inside the reaction vessel. The duration of operation and maintenance of UV oxidation depends on influent water turbidity, contaminant and metal concentrations, existence of free radical scavengers, and the required maintenance intervals on UV reactors and quartz tubes.

UV oxidation has limitations associated with it. A major success factor is how well UV light is transmitted in dissolved contaminants. High turbidity of the water would cause interference. Excessive dosages of chemical oxidants may act as a scavenger inhibiting contaminant destruction efficiency. Heavy metal ions and insoluble oil or grease in the aqueous stream may cause fouling of the quartz tubes. Pretreatment of the aqueous stream may be required to minimize ongoing cleaning and maintenance of UV reactor and quartz tubes. Costs may be higher than competing technologies because of energy requirements. For these reasons, UV oxidation is not retained for further evaluation.

3.5.4.5.3 Air Stripping

Air stripping uses volatilization to transfer contaminants from groundwater to air. It may be employed either in-situ or after groundwater has been extracted. In general, water is placed in turbulent contact with an air stream to volatilize dissolved contaminants into the air stream. Air stripping is effective for CVOC and petroleum-related VOCs found in groundwater. Depending on the level of contaminants in the air discharge, the contaminated air stream may require further treatment.

For groundwater remediation, air stripping is typically conducted in a packed tower or a shallow tray. The typical air stripper includes a manifold at the top of the tower to distribute contaminated water over the packing in the column or trays, a fan to force air countercurrent to the water flow, and a sump at the bottom of the tower to collect decontaminated water. Air strippers can be operated continuously or in a batch mode where the air stripper is intermittently fed from a collection tank. The batch mode ensures consistent air stripper performance and greater energy efficiency than continuously operated units because mixing in the storage tanks eliminates any inconsistencies in feed water composition.

The eventual duration of cleanup using an air stripping system may be tens of years and depends on the capture of the entire groundwater plume. Process energy costs are also high. Fouling of the packing materials or shallow trays is also common to air strippers. Fouling is caused by oxidation of minerals in the feed water, such as iron and manganese, by precipitation of calcium, and by biological growth on the packing material. Interference with retail store operations and potential customer exposures preclude the recovery well and conveyance line infrastructure necessary to construct a recovery system within the former VRU area. For these reasons, air stripping is not retained for further evaluation.

3.5.5 In-Situ Actions

3.5.5.1 In-Situ Physical Treatment

3.5.5.1.1 In-Situ Vitrification

In-situ vitrification (ISV) uses an electric current to melt soil or other earthen materials at extremely high temperatures (2,900 to 3,650^{o}F) and thereby destroy organic contaminants by pyrolysis. Water vapor and organic pyrolysis combustion products are captured in a hood, which draws the contaminants into an off-gas treatment system that removes particulates and other contaminants from the gas. The vitrification product is a chemically stable, leach-resistant, glass and crystalline material similar to obsidian or basalt rock. The process destroys and/or removes organic materials. ISV is not applicable to materials at or below the water table where the CVOC contaminants are found at this site. ISV would be applicable to petroleum-related contaminants in the unsaturated zone soils.

There have been very few commercial applications of ISV. The ISV process has been operated for test and demonstration purposes at the pilot scale and at full scale at several sites. This technology has high up-front costs so it is not as cost-effective as alternate technologies. For these reasons, ISV is not retained for further evaluation.

3.5.5.1.2 Co-Solvent Flushing

Co-solvent flushing involves injecting a solvent mixture (e.g., water mixture plus a miscible organic solvent such as alcohol) into either the vadose zone, saturated zone, or both to extract organic contaminants. The co-solvent mixture is normally injected upgradient of the contaminated area, and the solvent with dissolved contaminants is extracted downgradient and treated above-ground. Recovered groundwater and flushing fluids with the desorbed contaminants generally need treatment to meet appropriate discharge standards. Co-solvent flushing may also mobilize dissolved-phase contaminants into areas not previously impacted.

This technology to treat VOCs is less cost-effective as alternate technologies. For these reasons, co-solvent flushing is not retained for further evaluation.

3.5.5.1.3 Surfactant Enhanced Remediation

Contaminants are removed from soil through in-situ soil washing or soil flushing with a fluid containing surfactants to increase the solubility of the COCs. Contaminant solubility increases by the formation of micro-emulsions. In-situ soil washing is most applicable to soils near or below the water table. There must be a sufficient recovery well array to hydraulically control and remove mobilized contaminants, surfactant, and the micro-emulsions formed during the process. Common practice is to draw a cone of depression surrounding the injection points, so that all of the surfactant fluid and mobilized COCs can be removed. Successful surfactant enhanced remediation is highly dependent upon achieving a uniform distribution of the surfactant in soils near or below the water table. Surfactant enhanced remediation may also mobilize dissolved-phase contaminants into areas not previously impacted. Therefore, surfactant-enhanced remediation is not retained for further evaluation.

3.5.5.1.4 Soil Vapor Extraction

SVE is an in-situ remedial technology that reduces concentrations of volatile COCs adsorbed to soils in the unsaturated (vadose) zone. In this technology, a vacuum is applied to a well or series

of wells in the vadose zone. The induced vacuum creates a negative pressure gradient around the extraction wells that causes movement of vapors from the surrounding soil toward extraction points. Recovered vapors may require further treatment prior to discharge to the atmosphere. In addition to reducing volatile contaminant concentrations, the induced air flow required to extract vapors enhances microbial growth and biological degradation of organic contaminants by providing a continuous source of oxygen.

At the site, the primary soil COCs in the vadose zone are petroleum-related hydrocarbons. Residual petroleum-related impacts in the unsaturated zone are sporadically distributed around the site and are typically within an order of magnitude of the relevant criteria or guidance values. SVE is not generally effective in removing contaminants at or below the water table where CVOCs, co-existing with petroleum-related COCs, are found. The continuous source of oxygen provided by the induced air flow may be detrimental to the anaerobic reductive dechlorination of CVOCs, the primary site COC. For these reason, SVE is not retained for further evaluation.

3.5.5.1.5 Air Sparging

Air sparging (AS) is an in-situ technology for enhancing desorption of volatile constituents in groundwater and saturated soils primarily through volatilization. Secondary benefits include the enhancement of aerobic biodegradation. In AS, air is forced under pressure through a well screen and into the formation. Injected air traverses horizontally and vertically through the pore spaces in the soil, removing contaminants by volatilization. This injected air helps to flush volatile contaminants up into the vadose zone where an SVE system is usually implemented in conjunction with AS to remove the generated vapor phase contamination. Recovered vapors often require further treatment.

At the site, the primary COCs in saturated soil are CVOCs. These CVOCs co-exist with petroleum-related VOCs in the former VRU area. The enhancement of aerobic degradation would be detrimental to the anaerobic reductive dechlorination of CVOCs. As discussed above, SVE is also not retained for further evaluation. For these reasons, AS is not retained for further evaluation.

3.5.5.1.6 Multi-Phase Extraction

MPE, also known as dual-phase extraction or vacuum-enhanced groundwater extraction, is an in-situ technology that addresses contamination in both the saturated and vadose zones, remediating dissolved and vapor phases of VOCs. MPE affects mass removal by volatilization, dissolution, and advective transport.

This technology uses pumps and vacuum blowers to remove various combinations of contaminated groundwater and volatile organic vapors from the subsurface. MPE allows for dewatering the saturated zone whereby contaminants in the newly dewatered zone are then accessible to vapor extraction. Once above ground, the extracted vapors and groundwater are treated by various methods.

MPE requires extensive well arrays and trenching of the associated vapor and liquid-phase conveyance piping. For this reason, installation of a site-wide MPE system is not practical at the site due to the current retail store operations. Therefore, MPE is not retained for further evaluation.

3.5.5.1.7 Chemical Oxidation

ISCO involves abiotic degradation of both chlorinated solvent and petroleum contaminants using a variety of chemical oxidants and application techniques to bring the oxidants in contact with subsurface contaminants. Contaminant and oxidant reactions are accomplished in short timeframes (e.g., weeks or months) with ISCO due to the rapid abiotic reactions. ISCO technologies are predominantly used to address highly concentrated source area contamination. Cost concerns, matrix diffusion and rebound, and lower oxidation efficiency can preclude the use of ISCO technologies to address large or dilute contaminant plumes. More frequently, chemical oxidation technologies are employed to treat smaller source areas to achieve a rapid reduction in the source area mass followed by bioremediation or MNA. However, where excessive contaminant mass exists in the source area, other remedial technologies (e.g., free product recovery) may be more appropriate prior to application of ISCO.

Oxidation efficiency is affected by the background oxidant demand of an aquifer. Aquifers containing low quantities of organic matter and oxidized inorganic species (ferric, manganic, and sulfidic species) typically represent a low background oxidant demand. The mass and cost of the selected oxidant increases as the background oxidant demand increases.

The most common oxidants include persulfate, Fenton's reagent (catalyzed hydrogen peroxide), percarbonate, perozone (combination of hydrogen peroxide and ozone), uncatalyzed hydrogen peroxide, permanganate, and ozone. The oxidants are generally injected into the subsurface using temporary direct push technology (DPT) points or permanent injection wells. The oxidants are capable of completely mineralizing contaminants through irreversible abiotic reactions with sufficient excess oxidant and contact time with the contaminants.

Permanganate would be capable of oxidizing the chlorinated contamination. In December 2002-January 2003, an ISCO pilot test, consisting of the injection of a 20% solution of sodium permanganate into the subsurface at the former excavation in the former VRU area, was completed. A 25 to 100% decrease in CVOCs near the former VRU area was noted, suggesting that the ISCO pilot test was effective at treating CVOCs. Permanganate oxidation occurs at a relatively slow reaction rate that allows greater transport distance during subsurface delivery as opposed to the rapid reaction and radical attack associated with other oxidants. Permanganate persistence in the subsurface is proportional to the concentration of injected permanganate and inversely proportional to the oxidant demand of the aquifer and contaminants. Permanganate is not capable of completely oxidizing benzene or total petroleum hydrocarbons (TPH).

Sodium persulfate is a strong oxidant with an oxidation potential higher than peroxide (2.1 V versus 1.8 V), but is more stable than peroxide and can persist in the subsurface for several months. Sodium persulfate is capable of oxidizing both chlorinated solvents and petroleum hydrocarbons, and is typically activated to generate the persulfate radical (oxidation potential of 2.6V) using either heat, iron catalysts, sodium hydroxide, or hydrogen peroxide. When combined with hydrogen peroxide in the subsurface, the sodium persulfate will react to generate persulfate radicals and hydroxyl radicals (oxidation potential of 2.7V), some of the strongest oxidation agents available. Calcium peroxide also can be used to generate a slow release of hydrogen peroxide and associated activation of the sodium persulfate across several months to oxidize slowly desorbing contaminants.

ISCO using sodium persulfate is an effective technology for treating both chlorinated solvents and petroleum constituents. Implementation is easy with numerous case studies, readily available equipment, and multiple subcontractors. ISCO presents concerns associated with ensuring oxidant contact with contaminants and a limited radius of influence in a low permeability environment. The cost would be moderately high based on matrix diffusion and rebound risks and the potential for multiple injections events (or subsequent bioremediation or MNA) to achieve site remedial levels. ISCO using sodium persulfate is retained for further consideration.

3.5.5.2 In-Situ Biological Treatment

3.5.5.2.1 Enhanced Bioremediation

Enhanced bioremediation technologies generally require the addition of amendments, specific strains of bacteria, electron source compounds, nutrients, or oxygen to enhance bioremediation and contaminant desorption from subsurface materials. These are typically added to the subsurface using a network of injection wells or direct-push points and manifolded amendment delivery pipes distributed throughout the areas where the COCs are present. Successful in-situ treatment is highly dependent upon achieving uniform distribution of these amendments in the subsurface. This remedial technology may be executed under either aerobic or anaerobic conditions.

Anaerobic bioremediation involves modification of the subsurface environment to stimulate bacteria and enhance in-situ biological degradation of organic contaminants. Reductive dechlorination is the most prominent mechanism by which CVOCs are biologically degraded and occurs under anaerobic conditions. Reductive dechlorination is a process in which anaerobic microorganisms substitute the chlorine atoms on the halogenated solvent with the molecular hydrogen in a dehalorespiration process. This results in the sequential chemical reduction of the chlorinated compounds eventually yielding innocuous byproducts such as ethene and ethane.

During reductive dechlorination, petroleum constituents also may be fermented or degraded via bacteria to hydrogen, methane and/or carbon dioxide. Degradation rates are significantly slower than anaerobic reductive declorination of chlorinated solvents or aerobic degradation of petroleum constituents, and are typically applicable to low concentrations of petroleum contaminants.

Bioremediation includes biostimulation and bioaugmentation. Biostimulation is accomplished by adding an organic substrate to the subsurface that generates molecular hydrogen through fermentation reactions. Organic substrates include common liquids (sodium lactate, molasses, vegetable oil and hydrogen-releasing compounds) injected into the subsurface and less common solids (mulch, compost and chitin) emplaced through trenches or excavations. Liquid substrates are usually added to the subsurface using a network of injection wells or direct-push points.

In some cases, the natural microbial population requires augmentation to ensure subsurface conditions are conducive to anaerobic degradation. Bioaugmentation refers to the introduction of microbial strains or genetically-engineered variants to enhance the metabolic capability of the indigenous population. The application of bioaugmentation is highly site-specific and highly dependent on the microbial ecology and physiology of the subsurface.

Aerobic bioremediation involves modification of the subsurface environment to stimulate indigenous bacteria and enhance in-situ biological degradation of organic contaminants. Electron acceptors, the most common being sulfate, nitrate and oxygen, and other nutrients/amendments are injected to stimulate aerobic bioremediation. This results in a direct metabolic oxidation of petroleum compounds or cometabolic degradation of chlorinated solvents eventually yielding the innocuous byproducts of carbon dioxide and water. Electron acceptors and nutrients are typically added to the subsurface using a network of injection wells or direct-push points. Site-specific geochemical and geological conditions determine whether enhanced aerobic bioremediation can be effectively initiated and maintained in the subsurface and is dependent on the total electron acceptor demand (contaminant plus competitive demands).

Aerobic bioremediation does present concerns associated with amendment longevity in comparison to matrix diffusion. Aerobic bioremediation is an effective technology for enhancing biological degradation of petroleum contaminants but will not degrade TCE unless in the presence of methane (e.g. aerobic cometabolism) and may negatively impact the current MNA rates for the CVOCs at the site. Implementation is easy with readily available equipment and subcontractors.

The effectiveness of anaerobic and/or aerobic bioremediation at this site is not clearly defined as pilot studies of these technologies have not been completed and would be required to determine applicability. However, enhanced bioremediation is retained as a future option to employ should MNA at the site not progress as anticipated, and/or for areas where excavation is impractical or infeasible.

3.5.5.3 Monitored Natural Attenuation

Natural attenuation, also known as passive bioremediation, intrinsic bioremediation, or intrinsic remediation, is a passive remedial approach that relies on natural subsurface processes to reduce the concentration and mass of a contaminant. Subsurface attenuation mechanisms that may be active at a site are classified as either destructive or non-destructive. Destructive mechanisms include biodegradation, abiotic oxidation, and hydrolysis, and non-destructive mechanisms include sorption, dilution, and volatilization.

Natural attenuation has been shown to be most effective on petroleum-related contaminants such as BTEX and MTBE. In general, aerobic or anaerobic biodegradation is the principal attenuation mechanism for petroleum-contaminated media. Petroleum-related hydrocarbons are readily degraded microbially to innocuous end products. PCE and other highly chlorinated hydrocarbons are also good candidates for natural attenuation in the presence of nonhalogenated hydrocarbons and methanogens. Methanogens utilize the nonhalogenated hydrocarbons as food, producing an enzyme to degrade them. This enzyme also degrades TCE and PCE; the enzyme acts as a cometabolite to help break down the highly chlorinated hydrocarbons.

The primary components of MNA include:

- Implementing temporary ICs to restrict access to contaminated media so long as contaminant concentrations in site media exceed remediation goals. Groundwater use must be restricted as well through implementation of temporary restrictions.

- Groundwater sampling for analysis of COCs and geochemical indicators of natural attenuation to monitor contaminant reduction and to determine the effectiveness of natural attenuation.

Following the IRM activities and the RI, Leidos evaluated the monitoring well network for each water-bearing horizon, the shallow fill unit and lower sand unit. As a result of this evaluation, the well network was reduced to focus on source, centerline, and downgradient wells. Twenty-one monitoring wells (AMW-7 and MW-18R, screened in the shallow fill unit, and AMW-14-D1, AMW-14-D2, AMW-14-VD, AMW-15-D1, AMW-15-D2, AMW-15-D3, AMW-15-VD, MW-23-D1R, MW-23-D2R, MW-24-D1, MW-24-D2, MW-24-VD, MW-26-D1, MW-26-D2, MW-27-D1, MW-27-D2, MW-28-D1, MW-28-D2R, and MW-29-D1, screened in the lower sand unit) were proposed for sampling using Hydrasleeve™ no-purge sampling as part of a MNA program. Four of these wells (AMW-7, MW-18R, MW-24-D1, and MW-27-D1) are damaged and one (MW-24-VD) was abandoned during the remediation of the former VRU. Monitoring well OW-3-D1 needs to be added to the MNA program and was also damaged. These six wells will be re-installed as part of the selected remedy for the site and added to the MNA program.

Sixteen monitoring wells (AMW-14-D1, AMW-14-D2, AMW-14-VD, AMW-15-D1, AMW-15-D2, AMW-15-D3, AMW-15-VD, MW-23-D1R, MW-23-D2R, MW-24-D2, MW-26-D1, MW-26-D2, MW-27-D2, MW-28-D1, MW-28-D2R, and MW-29-D1) are currently sampled as part of MNA program. Hydrasleeves™ are removed, a minimum of two weeks after installation, and analyzed for VOCs, total iron, total manganese, sodium, and general chemistry parameters, including alkalinity, carbon dioxide, chloride, ethane, ethene, methane, ferric and ferrous iron, nitrate and nitrite, total organic carbon, sulfate, and sulfide to evaluate the potential for remaining COCs to attenuate naturally at the site. Declining trends for CVOCs in most wells indicate the CVOCs are naturally attenuating.

A review of site conditions would be conducted, based on environmental parameters obtained from monitoring performed as part of this and/or other remedial actions at the site, every five years during this action to evaluate whether it has achieved the remedial objectives. The five-year reviews would include an evaluation of whether future reviews and/or additional remedial actions are warranted, and would discontinue upon completion of the remedial action.

MNA is appropriate at sites where the contamination will safely and naturally attenuate without risk to human health or the environment. This includes sites where the soil has low permeability, limiting groundwater mobility, and levels of contamination are fairly low. MNA is typically implemented after an active remediation technology has been applied to the degree practicable. Generally, MNA is considered a low-cost approach compared to most active remedial technologies, although monitoring costs may be greater over extended periods. Implementation of the technology causes only minimal disturbance to site operations. MNA is retained for further consideration.

3.6 DEVELOPMENT OF ALTERNATIVES

The development of alternatives involves the combing of technology types and process options retained for further evaluation during the screening process in Section 3.5 into alternatives that address one or more of the RAOs. An alternative can consist of one or more technologies or process options. The alternatives developed represent a range from “no action” to

comprehensive remedial actions for contaminated soil and groundwater and potential impacts to ambient air. The following were considered in developing remedial action alternatives:

- Use of treatment to address the principal threats posed by the site, wherever practical.
- Use of ECs (e.g., containment) for contamination that poses a relatively low, long-term threat and for which treatment is not practical.
- Implementation of a combination of actions, as appropriate, to achieve protection of human health and the environment.
- Use of ICs to supplement ECs for short- and long-term management to prevent or limit exposures to contaminated media.
- Restoration of site to pre-release conditions or unrestricted use whenever practical. When this condition is not practical, alternatives should prevent human and environmental exposures to contaminated media and evaluate further risk reduction.

Technologies and process options retained for further evaluation and for development into remedial alternatives include:

- No Action
- ICs
- Containment (Capping)
- Excavation and Off-Site Disposal (Landfill)
- Extraction and Treatment
- GAC
- ISCO
- Enhanced Bioremediation
- MNA

These technologies and process options were assembled into five preliminary remedial alternatives as follows:

- Alternative 1: No Action
- Alternative 2: ICs
- Alternative 3: MNA, and ICs
- Alternative 4: ISCO, MNA, and ICs
- Alternative 5: Unrestricted Use

A detailed description of each alternative is provided in Section 4.

4.0 DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES

This section provides a detailed analysis of the remedial alternatives developed in Section 3.6. Section 4 of the NYSDEC publication DER-10 “Technical Guidance for Site Investigation and

Remediation" requires that potential remedial alternatives undergo detailed analysis using provided remedy selection evaluation criteria. The results of the detailed analysis are then arrayed to compare alternatives and to highlight key advantages, disadvantages, and trade-offs among the alternatives. The evaluation criteria, individual alternative analyses, and comparative alternative analysis are presented in the following sections.

4.1 REMEDY SELECTION CRITERIA

Section 4 of the NYSDEC publication DER-10 "Technical Guidance for Site Investigation and Remediation" provides nine remedy selection evaluation criteria and a framework to evaluate and select remediation alternatives using the criteria. The first two evaluation criteria are "threshold" criteria which must be met for an alternative to be considered for selection. The next six evaluation criteria are intended to help guide the selection through a balanced approach. After the decision document is subject to public comment, the final criterion, community acceptance, is considered. This modifying criterion is evaluated after any public comments on the remedy have been received, prior to NYSDEC selecting a remedy in a decision document.

4.1.1 Overall Protectiveness of the Public Health and the Environment

Overall protectiveness of the public health and the environment is a threshold criterion. This criterion is an evaluation of how the alternative eliminates, reduces, or controls any existing or potential human exposures or environmental impacts and achieves each of the RAOs. It draws on the assessments of the other criteria.

4.1.2 Conformance with Standards, Criteria, and Guidance

Conformance with New York standards, criteria, or guidance (SCG) values is a second threshold criterion which must be met for an alternative to be considered for selection. SCGs are to be identified, and the remedy is evaluated for compliance with each. For SCGs that will not be met, documentation must be submitted to the NYSDEC. Consideration is also to be given to guidance which, through the application of scientific and engineering judgment, is determined to be applicable.

4.1.3 Long-Term Effectiveness and Permanence

Constituents remaining on-site after the implementation of the selected remedy, including engineering and institutional controls, would be evaluated for human or environmental exposures and impacts. Evaluation of any engineering and/or institutional controls includes description of the mechanisms to assure their continued application and enforcement, as well as possible public costs or financial assurance requirements.

4.1.4 Reduction of Toxicity, Mobility, or Volume of Constituents

Preference is given to remedies that permanently or significantly reduce toxicity, mobility, or the volume of constituents.

4.1.5 Short-Term Impact and Effectiveness

The short-term impact and effectiveness criterion reviews the human health and environmental exposures which may occur during implementation of the selected alternative, including measures or controls needed to mitigate these potential exposures.

4.1.6 Implementability

The implementability criterion evaluates the feasibility of implementing and monitoring the remedy. This includes expected construction challenges, such as availability of labor and materials, access, permitting, likelihood of success for novel approaches, and the reliability and viability of the controls. Impracticability of implementation for the selected remedy may be a conclusion of this analysis.

The site presents certain challenges that were taken into consideration during the screening process of remedial technologies identified for the site. Challenges present at the site include those associated with the newly-constructed Costco Wholesale Warehouse facility and their retail operations. This can directly affect the feasibility of implementing certain remedial technologies and/or impact the monitoring requirements of a particular technology.

4.1.7 Cost-Effectiveness

The total estimated cost of designing and implementing a solution, including engineering, permitting, construction, operation and maintenance, monitoring and institutional management, is compared to the effectiveness of the solution. This criterion defines a remedy's cost-effectiveness.

4.1.8 Land Use

This evaluation considers the current use and the reasonably anticipated future land use, considering the current use of a fully developed site the best guide for future use. Consistency of proposed use with zoning, comprehensive master plans, and local waterfront revitalization plans formally adopted by a municipality is considered.

4.1.9 Community Acceptance

This criterion is evaluated after the public review of the remedy selection process as part of the final NYSDEC selection/approval of a remedy for a site. NYSDEC will assess community acceptance as a remedy selection criteria through public presentation, comment, and documentation of comments in the decision document process.

4.2 INDIVIDUAL ANALYSIS OF ALTERNATIVES

The five remedial alternatives developed to address documented COCs in site soil, groundwater, and soil vapors were presented in Section 3.6. Descriptions of and evaluations for each alternative are presented in the following subsections.

4.2.1 Alternative 1 - No Action

DER-10's implementation of the NCP requires consideration of the "no action" alternative as a baseline for comparison with other remedial alternatives. There are no remedial response activities with respect to impacted soil and groundwater identified at the site, and potential impacts to ambient air. Although asphalt paved parking lots or buildings, and up to seven feet of acceptable RCA fill effectively cap underlying impacted media, there would be no monitoring or inspections to verify that an effective cap is maintained. COCs continue to exist in their current state with no attempt to either prevent or minimize impacts on human health or the environment. While the mass of the petroleum contaminants and CVOCs would continue to decrease as a

result of natural attenuation, there would be no long-term monitoring. This alternative would involve properly abandoning all monitoring wells.

No regulatory permits are anticipated for this activity. It is anticipated that NYSDEC program closeout would include preparation of Certificates of Completion, including the Final Engineering Report documenting the well abandonment activities. Monitoring would end when Alternative 1 is implemented.

4.2.1.1 Overall Protectiveness of the Public Health and the Environment

Alternative 1 would not be protective of human health or the environment. With this alternative, there would be no ICs emplaced to prevent human exposure to the COCs in soil and groundwater in the subsurface and potential impacts to ambient air. Although existing site features and fill effectively cap underlying impacted media, there would be no inspections to verify that an effective cap is maintained. There would be no monitoring to ensure pathways are incomplete.

4.2.1.2 Compliance with Standards, Criteria and Guidance

Under this alternative, no action would be taken to reduce the concentrations of COCs in the soil and groundwater remaining in the subsurface. There would be no monitoring to show reduction by natural chemical and/or biological degradation. The risk of vapor intrusion into the Costco building would be unknown. Therefore, Alternative 1 would not be in compliance with SCGs.

4.2.1.3 Long-Term Effectiveness and Permanence

Alternative 1 would not have long-term reliability, effectiveness, or permanence. Residual risks would essentially remain unchanged because no controls would be implemented to prevent potential exposure to the soil and groundwater COCs in the subsurface. Although existing site features and fill effectively cap underlying impacted media, there would be no monitoring or inspections to verify that an effective cap is maintained. Natural attenuation of the contaminants will occur but at an unknown rate because there will be no monitoring or tracking the progress of the attenuation. Alternative 1 may not meet the RAOs established for the site or achieve SCGs.

4.2.1.4 Reduction of Toxicity, Mobility or Volume of Contamination

There will be no reduction of toxicity, mobility, or volume of the COCs, except by natural chemical degradation/attenuation processes and/or biodegradation. However, Alternative 1 would not provide any mechanism to monitor this attenuation.

4.2.1.5 Short-Term Impact and Effectiveness

Alternative 1 will be effective in the short-term in preventing human exposure to the soil and groundwater COCs in the subsurface due to existing site features and fill effectively capping underlying impacted media. There is a short-term risk of releasing vapors during the abandonment of monitoring wells.

4.2.1.6 Implementability

The abandonment of all monitoring wells and site restoration activities associated with this alternative are readily implementable. No physical barriers to its completion are anticipated.

4.2.1.7 Cost-Effectiveness

The cost of Alternative 1 is considered low and includes the costs for the monitoring well abandonments, project management, and reporting. The duration of Alternative 1 is assumed to be less than 1 year. Based on a 5% discount rate, the total net present value (NPV) cost of Alternative 1 is estimated at $59,048. A summary of the NPV cost for this alternative is provided in Table 4-1.

4.2.1.8 Land Use

Alternative 1 will not have any structural elements or take field time beyond abandoning monitoring wells and restoration of the site, tasks expected to take less than six months. The site is zoned industrial. The current land use of the site is commercial, as a Costco Wholesale Warehouse facility and is anticipated to remain the same in the future.

4.2.2 Alternative 2 – Institutional Controls

This alternative is similar to Alternative 1 in that there are no remedial response activities with respect to impacted soil and groundwater identified at the site, and potential impacts to ambient air, and COCs would continue to exist in their current state. Although asphalt paved parking lots or buildings, and up to seven feet of acceptable RCA fill effectively cap underlying impacted media, there would be no monitoring or inspections to verify that an effective cap is maintained. While the mass of the petroleum contaminants and CVOCs would continue to decrease as a result of natural attenuation, there would be no long-term monitoring. This alternative would also involve properly abandoning all monitoring wells.

Alternative 2 would involve the use of ICs, non-engineered solutions used to protect human health and the environment. In accordance with the NYSDEC's Guidance on Institutional Controls (DER-33), proprietary controls, such as an EE would be used to limit potential risks to human health from contaminated media. This is the required instrument for memorializing land use restrictions. The EE provides an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which requires groundwater use restrictions. The EE would limit land use to commercial or industrial. The property subject to this EE (the "Controlled Property") would include the entire site. The EE would run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

The controls and requirements listed in an SMP approved by the Department, including any and all Department-approved amendments to the SMP, would be incorporated into and made part of the EE. The use of groundwater underlying the property would be prohibited without necessary water quality treatment as determined by the NYSDOH or the Nassau County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department. Indoor air monitoring in the Costco building to verify that the potential soil vapor to indoor air pathway is incomplete must be performed as defined in the SMP. Data and information pertinent to site management of

the Controlled Property must be reported at the frequency and in a manner defined in the SMP. All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP. Any construction-related controls, should construction extend below the seven foot fill unit into the contaminated material, would be outlined in the SMP; contaminated materials must be handled as specified in the SMP.

The Responsible Party shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying that the inspection of the site to confirm the effectiveness of the institutional controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

4.2.2.1 Overall Protectiveness of the Public Health and the Environment

Alternative 2 will use an EE to provide protection for human health by eliminating contact with soil, groundwater, and potential impacts to ambient air through use restrictions; however, this alternative would not be protective of the environment for years or decades. Soil vapor has the potential to serve as a pathway for volatile COCs within the subsurface (including BTEX and CVOCs) to migrate into onsite buildings. However, the potential for a complete pathway to receptors within the building is unlikely. The Costco facility is very large and is of significant height. The floor is concrete and serves as a cap. Additionally, a Liquid Boot® vapor intrusion barrier is installed across the warehouse floor, and certified. An SSD is also installed at the Costco facility and currently operates in passive mode and can be made operational if needed.

The EE would limit land use to commercial or industrial. The EE would run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

4.2.2.2 Compliance with Standards, Criteria, and Guidance

Under this alternative, no action would be taken to reduce the concentrations of COCs in the soil and groundwater remaining in the subsurface other than natural attenuation. There would be no monitoring to show reduction by natural chemical and/or biological degradation.

4.2.2.3 Long-Term Effectiveness and Permanence

The EE would limit land use to commercial or industrial. The EE would run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

4.2.2.4 Reduction of Toxicity, Mobility, or Volume of Contamination

Alternative 2 does not meet NYSDEC's preference for employing active treatment technologies that permanently reduce the toxicity, mobility, or volume of the contaminants. There would be no immediate reduction in toxicity, mobility, or volume of the contaminants as a result of implementing this alternative.

4.2.2.5 Short-Term Impact and Effectiveness

There is a risk of releasing vapors for a short period during the abandonment of monitoring wells. Alternative 2 will be effective in the short-term in preventing human exposure to the soil and groundwater COCs in the subsurface due to existing site features and fill effectively capping underlying impacted media. Furthermore, potential risks associated with site contaminants would be controlled by the EE. Short-term impacts to the community would not be expected to occur from implementation of this alternative.

4.2.2.6 Implementability

The abandonment of all monitoring wells and site restoration activities associated with this alternative are readily implementable. Emplacement of an EE is also easily implemented.

4.2.2.7 Cost Effectiveness

The cost of Alternative 2 is considered low and includes the costs for the monitoring well abandonments, project management, and reporting. The costs of emplacing an EE represent an increment above Alternative 1. The duration of Alternative 2 would run with the land in perpetuity until such time as the EE is extinguished pursuant to ECL Article 71, Title 36.

Based on a 5-percent discount rate, the NPV cost of Alternative 2 is estimated at $310,804. A summary of the NPV cost for this alternative is provided in Table 4-1.

4.2.2.8 Land Use

Alternative 2 will not have any structural elements or take field time beyond abandoning monitoring wells and restoration of the site, tasks expected to take less than six months. There would be ongoing restriction of use of the property as established in the EE. The site is zoned industrial. The current land use of the site is commercial, as a Costco Wholesale Warehouse facility and is anticipated to remain the same in the future. Only part of the Costco warehouse building (18%) is on the former Gulf terminal property.

4.2.3 Alternative 3 - MNA and ICs

Under this alternative, the following technologies and site-related activities would include:

- MNA for groundwater in the shallow fill unit and lower sand unit.
- Re-installation of monitoring wells AMW-7, MW-18R, MW-24-D1, MW-24-VD, MW-27-D1, and OW-3-D1.
- Groundwater monitoring of the sixteen monitoring wells currently sampled as part of the MNA program, and adding the re-installed wells to the MNA program.
- ICs, specifically an EE, during remedy implementation and as part of site closure.
- Because existing site features and fill effectively cap the underlying impacted media, this alternative includes monitoring and inspection of the asphalt parking lot and building floor integrity to evaluate that the direct contact with impacted soil or groundwater pathway remains incomplete.

- Indoor air monitoring in the Costco store to verify that the potential soil vapor to indoor air pathway is incomplete, two air samples, analyzed for BTEX and CVOCs semi-annual for the first year and bi-annual thereafter.

The portions of the site where MNA and ICs would be used with implementation of Alternative 3 are shown on Figure 4-1.

Alternative 3 would rely on MNA for groundwater in the shallow fill unit and lower sand unit. MNA is the process by which a natural system's ability to attenuate contaminant(s) at a specific site is confirmed, monitored, and quantified. No active remediation is performed. Groundwater monitoring and reporting would confirm the natural attenuation of the dissolved-phase petroleum and CVOC contaminants in groundwater. Monitoring described in MNA guidance documents, including DER-10, specify the goals of MNA at a site. The MNA program, including monitoring wells to be gauged and sampled, analytical parameters, monitoring frequency, and reporting requirements would be detailed in the DEC-approved SMP. Implementation of Alternative 3 would continue until RAOs have been met, or it is demonstrated that MNA is not achieving adequate progress in reducing COCs in groundwater. In which case, enhancement to MNA, such as enhanced bioremediation, would be considered.

Under provisions of the SMP and DER 10-6.5 Remedial Process Closure Requirements, a 5-year comprehensive review of the remedy and site management will be conducted until achieving site closure conditions.

Alternative 3 would also involve the use of ICs, specifically an EE, throughout the implementation of MNA at the site to limit potential risks to human health from contaminated media as described in Section 4.2.2. However, the MNA program, including monitoring wells to be gauged and sampled, analytical parameters, monitoring frequency, and reporting requirements would be detailed in the DEC-approved SMP, incorporated into and made part of the EE.

An EE is the required instrument for memorializing land use restrictions. The Responsible Party shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying that the inspection of the site to confirm the effectiveness of the institutional controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

Alternative 3 will also include monitoring and inspection of the existing asphalt parking lot and building floor integrity to evaluate effectiveness in providing protection to human health and the environment by reducing the mobility of the contaminants and/or preventing human exposure to the contaminants. Periodic inspection and sealing of cracks and seams in the Costco Wholesale Warehouse facility floors would be performed to ensure the concrete flooring remains a competent barrier to eliminate the vapor intrusion pathway. Indoor air monitoring would continue to show that air quality within Costco is not being adversely affected by vapors from volatile COCs within the subsurface (including BTEX and CVOCs). The frequency of inspections and monitoring would be detailed in the DEC-approved SMP. Should inspections show that asphalt or fill has been removed from the site, CEMC will re-evaluate migration pathways at that time.

The NYSDEC program closeout would include preparation of Certificates of Completion, including the Final Engineering Report and the updated SMP.

4.2.3.1 Overall Protectiveness of the Public Health and the Environment

The technologies and site-related activities associated with Alternative 3 shall more than likely provide overall protectiveness of public health and the environment. Alternative 3 will use an EE to provide protection for human health by eliminating contact with soil, groundwater, and potential impacts to ambient air through use restrictions; however, this alternative would not be protective of the environment for years or decades, until MNA monitoring confirms the natural attenuation of groundwater COCs to levels acceptable to NYSDEC. The EE would limit land use to commercial or industrial.

The EE would run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

Existing site features and fill over 99% of the site prevent: completion of contaminant pathways by isolating human and ecological receptors from the COCs with physical barriers; infiltration locally and exposure to contaminated soil and groundwater in the subsurface; and vapor intrusion into buildings and outdoor air from vapors generated by volatile COCs within the subsurface (including BTEX and CVOCs). Periodic inspection and sealing of cracks and seams in the Costco facility floors would ensure the concrete flooring remains a competent barrier to eliminate the vapor intrusion pathway. Indoor air monitoring would continue to show that air quality within Costco is not being adversely affected by vapors from volatile COCs within the subsurface (including BTEX and CVOCs). Should inspections show that asphalt or fill has been removed from the site, CEMC will re-evaluate migration pathways at that time and revise the remedy if required.

4.2.3.2 Compliance with Standards, Criteria, and Guidance

Under this alternative, reduction of mass, toxicity, mobility, volume, or COC concentrations will be exclusively by natural attenuation processes that include chemical and/or biological degradation. Monitoring described in MNA guidance documents, including DER-10, specify the goals of MNA at a site. Alternative 3 would rely on MNA to reduce the concentrations of COCs in groundwater to levels acceptable to the NYSDEC. It is anticipated that this may take years to decades to achieve.

4.2.3.3 Long-Term Effectiveness and Permanence

MNA would have long-term effectiveness and permanence because concentrations of COCs would attenuate to non-toxic byproducts through a variety of abiotic and biotic mechanisms. There is some uncertainty to the sustainability of MNA across a long period of time. The EE would contain a use restriction, limiting land use to commercial or industrial. The short- and long-term monitoring and reporting would confirm natural attenuation of the contaminants to their respective cleanup levels.

4.2.3.4 Reduction of Toxicity, Mobility, or Volume of Contamination

Alternative 3 does not employ active treatment technologies that more quickly reduce the toxicity, mobility, or volume of the contaminants. There would be no immediate reduction in toxicity, mobility, or volume of the contaminants as a result of implementing this alternative.

MNA for the current low concentrations may take years or decades for contaminants to achieve their respective cleanup levels. Groundwater monitoring would be used to confirm the continued decrease in toxicity, mobility, and volume of groundwater COCs.

4.2.3.5 Short-Term Impact and Effectiveness

Alternative 3 will be effective in the short-term in preventing human exposure to the soil and groundwater COCs in the subsurface due to existing site features and fill effectively capping the underlying impacted media. Furthermore, potential risks associated with site contaminants would be controlled by the EE. Short-term impacts to the community would not be expected to occur from implementation of this alternative. MNA would not achieve RAOs in an expedited timeframe.

4.2.3.6 Implementability

MNA is readily implementable because the protocols for MNA evaluation are well established. The technical feasibility of MNA for petroleum hydrocarbons and CVOCs is well established, although there is some uncertainty associated with the MNA timeframe.

ICs, such as an EE, also are easily implemented. Groundwater and indoor air monitoring and subsequent reporting are technically and administratively feasible.

Materials, equipment, and labor for monitoring well installations, monitoring and inspection of existing asphalt parking lot and building floor, indoor air monitoring, and groundwater sampling are available.

4.2.3.7 Cost Effectiveness

The cost of Alternative 3 is higher than Alternative 2 by the monitoring well installation costs and monitoring costs associated with this alternative. MNA costs will consist of the field collection of samples, laboratory analytical work, and reporting. The duration of Alternative 3 is assumed to be 30 years. Based on a 5-percent discount rate, the NPV cost of Alternative 3 is estimated at $1,055,971. A summary of the NPV cost for this alternative is provided in Table 4-1.

4.2.3.8 Land Use

Alternative 3 requires periodic monitoring, sampling and reporting, and periodic inspection and sealing of cracks and seams in the Costco Wholesale Warehouse facility floors during the period of observation. The monitoring team would require access to the site during MNA and indoor air sampling activities. The duration of 30 years is assumed for these activities. There would be ongoing restriction of property use as established in the EE.

The site is zoned industrial. The current land use of the site is commercial, as a Costco Wholesale Warehouse facility and is anticipated to remain the same in the future.

4.2.4 Alternative 4 - ISCO, MNA, and ICs

This alternative is identical to Alternative 3 with the following additions:

- ISCO for the treatment of saturated zone and capillary-fringe soils and groundwater.
- MNA for COCs in groundwater post-ISCO treatment.

MNA, monitoring, and IC use would be identical to those described in Alternative 3.

ISCO will be used to treat petroleum-related COCs and CVOCs in saturated zone and capillary-fringe soils and groundwater. As described in Section 3, a combination of sodium persulfate and hydrogen peroxide activator will be injected into seven injection areas. Total injection will consist of approximately 1,671,000 pounds of 35% hydrogen peroxide and 820,000 pounds of sodium persulfate. Approximately 1,000,000 gallons of water will be required to mix the chemicals and disperse chemicals through the aquifer. If post-ISCO sampling shows that COCs persist in groundwater at levels unacceptable to NYSDEC, then MNA will be used to confirm the natural attenuation of those groundwater COCs to levels acceptable to NYSDEC. ISCO treatment areas are shown on Figure 4-2.

Implementation of Alternative 4 would continue until RAOs have been met, or it is demonstrated that the remedy is no longer effective and a bulk reduction in COCs has been achieved. Under provisions of the SMP and DER 10-6.5 Remedial Process Closure Requirements, a 5-year comprehensive review of the remedy and site management will be conducted until achieving site closure conditions.

Alternative 4 would also involve the use of ICs, specifically an EE, throughout the implementation of Alternative 4 at the site to limit potential risks to human health from contaminated media as described in Section 4.2.2. However, the MNA program, including monitoring wells to be gauged and sampled, analytical parameters, monitoring frequency, and reporting requirements would be detailed in the DEC-approved SMP, incorporated into and made part of the EE.

An EE is the required instrument for memorializing land use restrictions. The Responsible Party will, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying that the inspection of the site to confirm the effectiveness of the institutional controls required by the remedial program was performed in accordance with 6 NYCRR Part 375-1.8(h)(3).

The NYSDEC program closeout would include preparation of Certificates of Completion, including the Final Engineering Report and the updated SMP.

4.2.4.1 Overall Protectiveness of the Public Health and the Environment

Because there are no complete pathways that currently exist for exposures to occur, the overall protectiveness of public health and the environment are not enhanced over the protectiveness provided by Alternative 3 with the adding of ISCO. Periodic monitoring and inspection of the existing asphalt parking lot and building floor, and the sealing of cracks and seams in the Costco facility floors provide for incomplete pathways as described in Section 4.2.3.1.

4.2.4.2 Compliance with Standards, Criteria, and Guidance

Under this alternative, ISCO would be used to reduce the concentrations of COCs in saturated zone and capillary-fringe soils and groundwater remaining in the subsurface. ISCO will use chemical oxidants to destroy or degrade chemical COCs, thus reducing mass, toxicity, mobility, volume, or COC concentrations. Alternative 4 would rely on MNA to further reduce the concentrations of COCs in the soil and groundwater to levels acceptable to the NYSDEC. Monitoring described in MNA guidance documents, including DER-10, specify the goals of MNA at a site. The addition of ISCO may reduce the area where MNA would be relied on and time to achieve SCGs for site media.

4.2.4.3 Long-Term Effectiveness and Permanence

Alternative 4 would have the same long-term effectiveness and permanence as Alternative 3.

4.2.4.4 Reduction of Toxicity, Mobility, or Volume of Contamination

Alternative 4 does meet NYSDEC's preference for employing active treatment technologies that permanently reduce the toxicity, mobility, or volume of the contaminants. With ISCO, there will be an overall reduction of toxicity, mobility, and volume of COCs in soil and groundwater. Reduction of toxicity, mobility, and volume of COCs will occur by injecting chemical oxidants into the subsurface that destroy or degrade chemical COCs. Alternative 4 would rely on MNA to further reduce the concentrations of COCs in the soil and groundwater to levels acceptable to the NYSDEC. The addition of ISCO may reduce the area where MNA would be relied on and the time required for contaminants to achieve their respective cleanup levels.

4.2.4.5 Short-Term Impact and Effectiveness

Alternative 4 will be effective in the short-term in preventing human exposure to the soil and groundwater COCs in the subsurface due to existing site features and fill effectively capping the underlying impacted media. Furthermore, potential risks associated with site contaminants would be controlled by the EE. Short-term impacts to the community would not be expected to occur from implementation of this alternative.

4.2.4.6 Implementability

Alternative 4 will be moderately difficult to implement due to substantial disruption to retail operations. The business disruption would require Costco to shut down during ISCO injection activities, or injections would have to occur at night while the store is closed.

A variety of chemical oxidants, application techniques, and labor are readily available.

4.2.4.7 Cost Effectiveness

The cost of Alternative 4 is higher than the costs associated with Alternative 3, with the addition of the cost of chemical oxidants, application equipment, and post-ISCO sampling for evaluating the effectiveness of treatment. Duration of the ISCO is expected to be 1 year, with a polishing event in every two years at approximately 20% and 50% application respectively. The total duration of Alternative 4 is assumed to be 30 years. Based on a 5-percent discount rate, the NPV cost of Alternative 4 is estimated at $11,745,356. A summary of the NPV cost for this alternative is provided in Table 4-1.

4.2.4.8 Land Use

Land use for Alternative 4 is the same as described for Alternative 3.

4.2.5 Alternative 5 – Unrestricted Use

Under this alternative, the site would be returned to pre-release conditions, or in this case, unrestricted use SCOs and groundwater standards, using the following technologies:

- Excavation (excavate soil contamination).
- Off-site disposal (dispose of contaminated soil from excavation at landfill).

- Extraction and treatment (to remove impacted water during excavation and dissolved-phase petroleum and CVOCs in shallow fill unit and lower sand unit groundwater).
- Enhanced Bioremediation (in areas where excavation is not feasible).

The areas where Alternative 5 would be implemented are depicted on Figure 4-3.

Based on the distribution of soil COCs, the majority of the excavation would need to occur in isolated areas within the paved parking areas, except for contamination in the Southwest Area which now falls under the Costco retail fuel station. The paved parking lot in these areas would need to be removed and asphalt debris disposed of off-site prior to excavation activities. A phased approach would then be used for excavating to keep the volume of water to be pumped out and treated to a minimum. For example, excavation would begin in the southwest portion of the site and proceed eastward until all contamination was removed.

The excavation areas shown on Figure 4-3 would be excavated to below unrestricted use SCGs, approximately 116,000 cubic yards. Large equipment with adequate reach and use of extensive shoring would be required in some areas. Subsurface utilities located within the excavation areas would require support or rerouting. Significant dewatering would be required within most of the excavation areas. Contaminated groundwater would be pumped out of the excavation, treated, and properly disposed. Since there are no staging areas available on the site, all soil excavated would be transported off site to a suitable treatment, storage or permitted disposal site.

Confirmation sampling of excavation floors/sidewalls would be required to confirm that all contamination has been removed. Excavations would be backfilled with certified clean backfill material. Upon completion of excavation, affected areas would be re-paved with asphalt.

Alternative 5 would use enhanced bioremediation for areas where excavation is impractical or infeasible. Enhanced bioremediation is an in-situ technology that employs microbes, either existing or emplaced, to degrade organic contaminants found in soil and/or groundwater. Enhanced bioremediation technologies generally require the addition of amendments, specific strains of bacteria, electron source compounds, nutrients, or oxygen to enhance bioremediation and contaminant desorption from subsurface materials. These are typically added to the subsurface using a network of injection wells or direct-push points and manifolded amendment delivery pipes distributed throughout the areas where the COCs are present. For pricing purposes, it is assumed that some bioremediation would be required at year 10 to enhance MNA.

Alternative 5 would also use extraction and treatment for dissolved-phase petroleum COCs and/or CVOCs in the shallow fill unit and lower sand unit groundwater. Extraction and treatment is an ex-situ remedy that consists of a groundwater extraction system to capture contaminated groundwater and prevent migration of contaminants to downgradient sources, followed by treatment for VOCs. This involves installing a series of wells to pump contaminated groundwater to the surface for treatment. The pump and treat system would involve installing 10 extraction wells in the shallow fill unit at scattered locations and 4 extraction wells in the lower sand unit at the former VRU area and along Hampton Road.

Treatment of groundwater occurs after it is recovered from the subsurface. GAC would be used for the treatment of groundwater extracted by the pump and treat system. The groundwater treatment system would be housed in either a prefabricated building or trailer.

The areas to be excavated, the potential areas for enhanced bioremediation, the areas having a pump and treat system, and operation and monitoring requirements for implementation of Alternative 5 would be identified and detailed in the DEC-approved RAWP. The NYSDEC program closeout would include preparation of Certificates of Completion, including the Final Engineering Report and a DEC-approved updated SMP.

4.2.5.1 Overall Protectiveness of the Public Health and the Environment

This alternative, once implementation has been completed, would be effective in overall protectiveness of the public health and the environment by reducing or completely removing the contamination in the soil and groundwater. However, during excavation activities and pump and treat system installation, there would be an increased risk of the public coming into contact with the contaminated soil and/or asphalt debris. Excavation, dewatering, and transport of excavated materials would create exposure pathways to the public. Once the soil/asphalt waste is placed in a permitted landfill, it would no longer pose a threat to human health or the environment as long as the landfill is properly maintained and closed in accordance with applicable regulations.

4.2.5.2 Compliance with Standards, Criteria, and Guidance

Alternative 5 complies with SCGs in that it reduces the mass of soil COCs and removes contaminated groundwater at the site. Prescribed sampling of excavated soil for disposal characterization and confirmation samples of excavation floor/sidewalls, as discussed in the SMP, would be used to ensure compliance with SCGs.

4.2.5.3 Long-Term Effectiveness and Permanence

This alternative would be effective over the long-term by reducing or completely removing the contamination in the soil and groundwater. Once removed and properly disposed of, the soil would no longer pose a risk to human health or the environment. Groundwater within the saturated soil would be removed by direct excavation with the soil or by dewatering of the excavation, thereby removing all contaminated groundwater within the footprint of the excavation. In addition, dewatering of the excavation would create a hydraulic gradient resulting in capture and treatment of additional formation water beyond the excavation limits. The pump and treat system would remove contaminants in groundwater in areas not removed with excavation.

By eliminating the source of contamination, long-term effectiveness and permanence would be achieved.

4.2.5.4 Reduction of Toxicity, Mobility, or Volume of Contamination

Alternative 5 will reduce the volume of the COCs present in the soil and groundwater. Groundwater within the excavation footprint will be directly removed with the saturated soil and by dewatering of the excavation. In addition, dewatering of the excavation will create a hydraulic gradient resulting in capture and treatment of additional formation water beyond the excavation limits. Excavating contaminated soil and groundwater, and pump and treat system will reduce COC concentrations to acceptable levels and lessen toxicity to humans and the environment in a shorter time than previous alternatives.

4.2.5.5 Short-Term Impact and Effectiveness

During excavation activities and pump and treat system installation, there will be an increased risk of the public coming into contact with the contaminated soil and asphalt debris. Workers will need to wear protective equipment during site activities. Excavation activities will result in emissions of soil vapors and exhaust gas from the construction equipment.

Off-site disposal will also generate traffic exposures, including safety, traffic density increases, greenhouse gas emissions, fugitive dust, and noise. These negative impacts would result from trucks transporting asphalt material and soil off-site and from trucks bringing clean backfill material in to restore the site for reuse.

4.2.5.6 Implementability

Alternative 5 is not technically feasible under current site conditions. There would be substantial disruption to Costco retail operations caused by excavation activities in the paved parking lots and at the Costco fuel retail station, and increased risk of the public (customers) coming into contact with the contaminated soil and asphalt debris. The business disruption would require Costco to shut down during implementation of Alternative 5 for an extended period of time.

The activities planned under this alternative are technically feasible and readily implemented. Contractors and all equipment are readily available to excavate soil, restore the site for reuse, and for installation of a pump and treat system. Care must be taken during excavation and installation of a pump and treat system to avoid damaging unknown utilities. A suitable treatment, storage or permitted disposal site near the site would be identified in the SMP.

4.2.5.7 Cost Effectiveness

The cost of Alternative 5 is higher than the costs associated with any of the other alternatives considered. The costs of Alternative 5 include the asphalt removal, design, excavation and disposal, site restoration, pump and treat system installation, project management, and reporting. The duration of Alternative 5 is assumed to be 30 years. Based on a 5-percent discount rate, the NPV cost of Alternative 5 is estimated at $43,641,481. A summary of the NPV cost for this alternative is provided in Table 4-1.

4.2.5.8 Land Use

Alternative 5 will have a prefabricated building or trailer housing the groundwater treatment system. Access to the site would be required for periodic monitoring of the pump and treatment system's effectiveness. There would be no ongoing restriction of uses of the property and no surface or subsurface hazards would remain. After implementation of 5, the site will be returned to unrestricted use/unrestricted exposure conditions.

4.3 COMPARATIVE ANALYSIS OF ALTERNATIVES

The five alternatives were each given a ranking (satisfactory/good, moderate, or unsatisfactory) for each of the evaluation criteria. In this analysis, the remedial alternatives were compared to each other to determine which alternative best satisfied the criteria and why. A summary of the results of the analysis is provided in Table 4-2.

Each alternative was numerically evaluated using a scale from 1 to 5. A ranking of "1" denotes unsatisfactory performance in the category, a "2-3" denotes moderate performance in the

category, and "4-5" denotes satisfactory or good performance in the category. Therefore, the alternative with the highest numerical sum is the recommended site remedy.

The performance of each alternative in satisfying each of the seven remedy selection evaluation criteria is briefly summarized below.

4.3.1 Overall Protectiveness of the Public Health and the Environment

Alternative 1 would not be protective of public health and the environment. Alternative 2 will use ICs for protection of public health but will not be protective of the environment. Alternatives 3 and 4 should provide overall protection for human health; however, protectiveness of the environment would require MNA monitoring to confirm natural attenuation of COCs in groundwater to levels acceptable to NYSDEC. Alternative 5, if implemented without incident, would be protective of human health and the environment by reducing or completely removing contamination in the soil and groundwater but during the excavation, dewatering, and transport of excavated materials would create exposure pathways to the public.

4.3.2 Compliance with Standards, Criteria, and Guidance

Alternatives 1 and 2 would not be in compliance with SCGs because no action would be taken to reduce concentrations of COCs in soil and groundwater. Alternative 3 may take more time to achieve SCGs because it relies on MNA; there is no action to reduce concentrations of COCs in soil and groundwater. Alternative 4 will move site conditions toward meeting RAOs by reducing the area where MNA would be relied on and the time to achieve SCGs. Alternative 5 will be compliant with SCGs by reducing the mass of soil COCs and removing contaminated groundwater.

4.3.3 Long-Term Effectiveness and Permanence

Alternative 1 would not have long-term reliability, effectiveness, or permanence. Residual risks would essentially remain unchanged. Alternatives 2 and 3 would rely on COCs attenuating to non-toxic byproducts through natural attenuation processes. Long-term reliability in protecting human health would be provided with an EE. Alternative 4 has comparable long-term effectiveness and permanence, except treatment would reduce the area relying on COCs attenuating to non-toxic byproducts through natural attenuation processes. Alternative 5 will be effective over the long-term by reducing or completely removing the contamination in the soil and groundwater.

4.3.4 Reduction of Toxicity, Mobility, or Volume of Contamination

Alternatives 1 and 2 rely on natural attenuation processes only but have no mechanism to monitor this attenuation and will therefore, not reduce toxicity, mobility, or volume of contaminants through treatment. Alternative 3 relies on MNA and will not reduce toxicity, mobility, or volume of contaminants through treatment. Alternative 4 would provide an overall reduction of toxicity, mobility, and volume of COCs in soil and groundwater through treatment. Alternative 5will reduce toxicity, mobility, or volume of contaminants through physical removal.

4.3.5 Short-Term Impact and Effectiveness

Alternatives 1, 2, 3, and 4 are effective in the short-term in preventing human exposures to site COCs in the subsurface due to existing site features and fill effectively capping the underlying impacted media. With Alternatives 2, 3, and 4, potential risks associated with site contaminants

would additionally be controlled by the EE. Alternative 5 would reduce potential risks associated with site contaminants in the short-term; however, there would be impacts to the community during excavation activities associated with truck traffic transporting asphalt debris, soil, and clean backfill from/to the site.

4.3.6 Implementability

Alternative 1 is readily implementable. Alternatives 2 and 3 are easily implemented. Alternative 4 is moderately difficult to implement due to disruption to Costco business operations. Costco would have to shut down during injections, or injections would have to occur at night when the store is closed. Alternative 5 is not technically feasible under current site conditions. There would be substantial disruption to Costco retail operations requiring Costco to close during implementation.

4.3.7 Cost Effectiveness

The costs of Alternatives 1 and 2 are considered low. The costs of emplacing an EE associated with Alternative 2 are incrementally higher than Alternative 1. The cost of Alternative 3 is higher than Alternative 2 by the monitoring well installation costs and monitoring costs associated with this alternative. The cost of Alternative 4 is higher than the costs associated with Alternative 3, with the addition of the cost of chemical oxidants, application equipment, and post-ISCO sampling for evaluating the effectiveness of treatment. The cost of Alternative 5 is higher than the costs associated with any of the other alternatives considered.

4.3.8 Land Use

With Alternative 1, there would be no ongoing restriction of property uses. The site would continue to be used for commercial purposes. With Alternatives 2, 3, and 4. ongoing restrictions of property use would be as established in the EE. Alternatives 3 and 4 would require periodic access to the site during MNA and indoor air sampling activities, and inspection and sealing of cracks and seams in the Costco floors. With Alternative 5, there would be no restrictions of property use post-remediation. The site would be returned to unrestricted use/unrestricted exposure conditions.

The scores from each of these categories are summarized in Table 4-2. As previously stated, the summed score of each alternative is used to indicate the overall performance of the alternative. The alternative with the highest summed score is the recommended site remedy. The results of Table 4-2 are summarized below:

- Alternative 1: No Action = 21
- Alternative 2: Institutional Controls = 26
- Alternative 3: MNA and ICS = 29
- Alternative 4: ISCO, MNA, and ICs = 26
- Alternative 5: Unrestricted Use = 25

Alternative 3 (MNA and ICs) with a score of 29, has the highest total score and is the recommended site remedy.

Elements of the Remedy:

A. MNA for groundwater in the shallow fill unit and lower sand unit.

   A. Would require re-installation of monitoring wells AMW-7, MW-18R, MW-24-D1, MW-24-VD, MW-27-D1, and OW-3-D1.

   B. Groundwater monitoring, consisting of sampling of physical, chemical, and biological indicators, of the sixteen monitoring wells currently sampled as part of the MNA program, and adding the re-installed wells to the MNA program.

A design plan will be prepared to define the program of monitoring and sampling and the SMP will address long-term implementation of the program. Groundwater contamination will be addressed with MNA. Groundwater will be monitored for site related contamination and also for MNA indicators that will provide an understanding of the biological activity breaking down petroleum-related COCs and the reductive dechlorination process breaking down the CVOC contamination. Reports of the attenuation will be provided with progress reporting and discussed in a 5-year review and enhanced bioremediation will be proposed if it appears that natural processes alone will not address the contamination.

B. Establishment of ICs to protect human health and the environment. An EE would be used to limit potential risks to human health from contaminated media. This is the required instrument for memorializing land use restrictions. The EE would limit land use to commercial or industrial. The EE would run with the land in perpetuity. The controls and requirements listed in an SMP approved by the Department, including any and all Department-approved amendments to the SMP, would be incorporated into and made part of the EE. The use of groundwater underlying the property would be prohibited without necessary water quality treatment as determined by the NYSDOH or the Nassau County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department. Indoor air monitoring in the Costco building to verify that the potential soil vapor to indoor air pathway is incomplete must be performed as defined in the SMP. Data and information pertinent to site management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP. All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP. Any construction-related controls, should construction extend below the seven foot fill unit into the contaminated material, would be outlined in the SMP; contaminated materials must be handled as specified in the SMP. The MNA program, including monitoring wells to be gauged and sampled, analytical parameters, monitoring frequency, and reporting requirements would be detailed in the DEC-approved SMP, incorporated into and made part of the EE. The Responsible Party shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying that the inspection of the site to confirm the effectiveness of the institutional controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

C. Because existing site features and fill effectively cap the underlying impacted media, this alternative includes monitoring and inspection of the asphalt parking lot and building

floor integrity to evaluate that the direct contact with impacted soil or groundwater pathway remains incomplete.

D. Periodic inspection and sealing of significant cracks and seams in the Costco Wholesale Warehouse facility floors to ensure the concrete flooring remains a competent barrier to eliminate the vapor intrusion pathway.

E. Periodic indoor air monitoring to show that air quality within Costco is not being adversely affected by vapors from volatile COCs within the subsurface.

5.0 CONCLUSIONS

The following five alternatives were developed and evaluated for addressing documented COCs in site soil, groundwater, and soil vapors:

- Alternative 1: No Action
- Alternative 2: Institutional Controls
- Alternative 3: MNA and ICs
- Alternative 4: ISCO, MNA, and ICs
- Alternative 5: Unrestricted Use

Based on the comparative analysis, Alternative 3 (MNA and ICs) is the recommended site remedy. The Alternative 3 treatment area is shown on Figure 4-1. Alternative 3 should provide overall protectiveness of public health and the environment. This alternative relies on the ongoing MNA to meet RAOs and achieve SCGs and to reduce toxicity, mobility, or volume of contamination; however enhanced bioremediation will be proposed if it appears that natural processes alone will not address the contamination. An EE would be used to further limit potential risks to human health from contaminated media. This is the required instrument for memorializing land use restrictions. The EE would run with the land in perpetuity. The EE would provide long-term reliability in protecting human health. Alternative 3 will be effective in the short-term in preventing human exposure to the soil and groundwater COCs in the subsurface due to existing site features and fill effectively capping the underlying impacted media. Furthermore, potential risks associated with site contaminants would be controlled by the EE. The alternative is easily implemented. Costs are higher than previous alternatives but considerably less than Alternatives 4 and 5.

6.0 REFERENCES

Arcadis, 2011. Remedial Investigation Data Summary Report, Former Gulf Oil Terminal, Oceanside, Township of Hempstead, New York.

Arcadis, 2014. Interim Remedial Measure Completion Report, Former Gulf Oil Terminal, Oceanside, Township of Hempstead, New York.

Arcadis, 2017. Supplemental Remedial Investigation Report, Former Gulf Oil Terminal, Oceanside, Township of Hempstead, New York.

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NYSDEC, 2006. NYSDEC Technical and Operational Guidance Series for Soil, Subpart 375-6: Remedial Program Soil Cleanup Objectives (effective December 14, 2006).

NYSDEC, Division of Environmental Remediation, 2010a. DER-10: Technical Guidance for Site Investigation and Remediation.

NYSDEC, Division of Environmental Remediation, 2010b. DER-33: Institutional Controls: A Guide to Drafting and Recording Institutional Controls.

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Town of Hempstead, New York, 2017. Personal conservation with Real Estate Department regarding zoning of the property. November 30, 2017.

United States Environmental Protection Agency, 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies.

REPORT LIMITATIONS

This technical document was prepared on behalf of CEMC and is intended for its sole use and for use by the local, state or federal regulatory agency that the technical document was sent to by Leidos. Any other person or entity obtaining, using, or relying on this technical document hereby acknowledges that they do so at their own risk, and Leidos shall have no responsibility or liability for the consequences thereof.

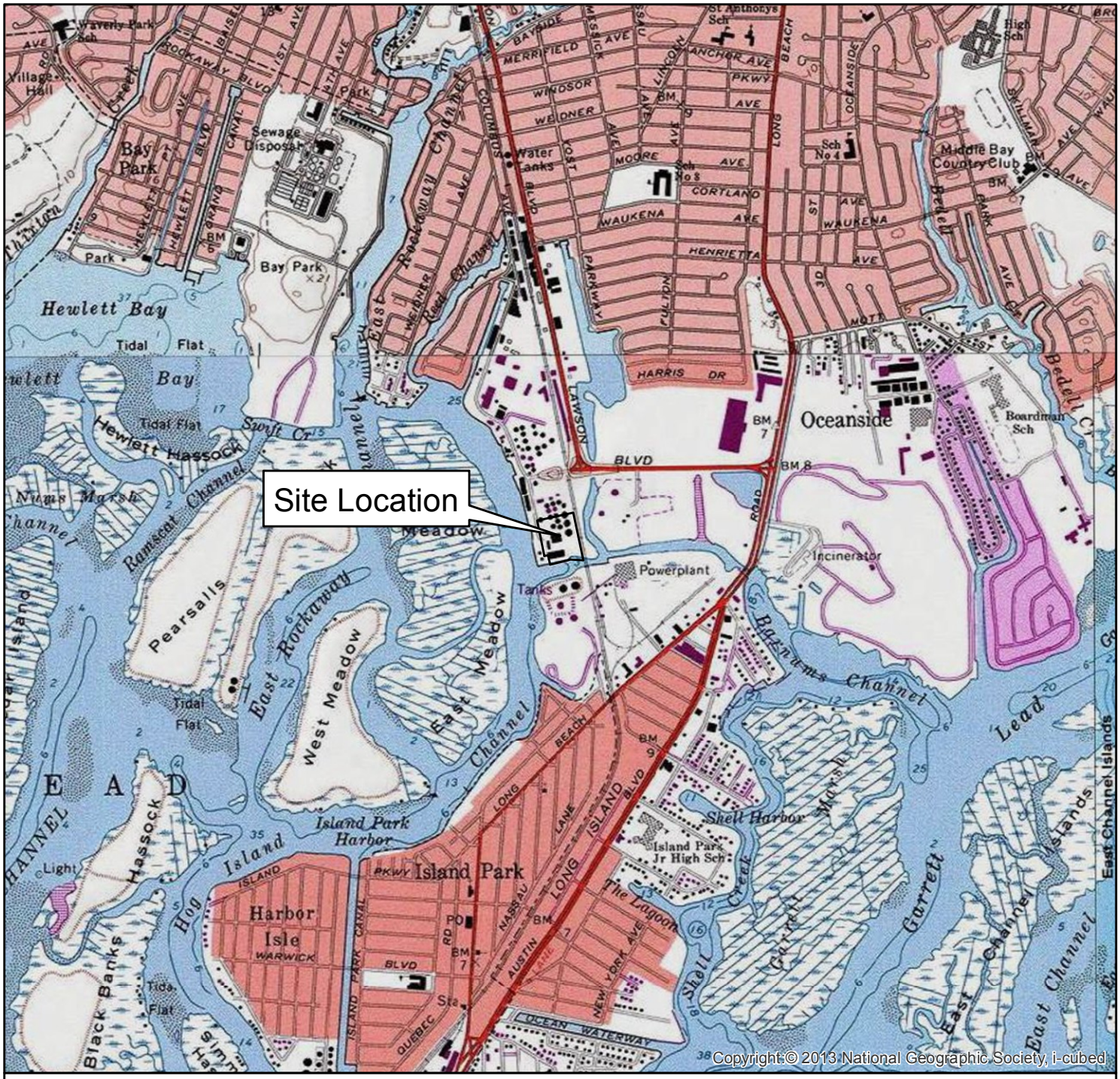
Site history and background information provided in this technical document are based on sources that may include interviews with environmental regulatory agencies and property management personnel and a review of acquired environmental regulatory agency documents and property information obtained from CEMC and others. Leidos has not made, nor has it been asked to make, any independent investigation concerning the accuracy, reliability, or completeness of such information beyond that described in this technical document.

Recognizing reasonable limits of time and cost, this technical document cannot wholly eliminate uncertainty regarding the vertical and lateral extent of impacted environmental media.

Opinions and recommendations presented in this technical document apply only to site conditions and features as they existed at the time of Leidos site visits or site work and cannot be applied to conditions and features of which Leidos is unaware and has not had the opportunity to evaluate.

All sources of information on which Leidos has relied in making its conclusions (including direct field observations) are identified by reference in this technical document or in appendices attached to this technical document. Any information not listed by reference or in appendices has not been evaluated or relied upon by Leidos in the context of this technical document. The conclusions, therefore, represent our professional opinion based on the identified sources of information.

Figures



USGS US Topo 7.5 - minute map for Lawrence, NY
USGS US Topo 7.5 - minute map for Lynbrook, NY

0 1,000 2,000 4,000 Feet

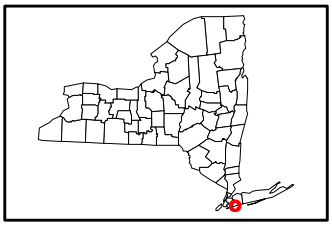
1" = 2,000 feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

Site Location Map

drawn JAL	checked	approved	figure no. 2-1
date 12/12/2017	date	date	
job no. 320967.00.17.A.695A.0410.0100			file no. Site_Location

initials	date	revision



N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

leidos

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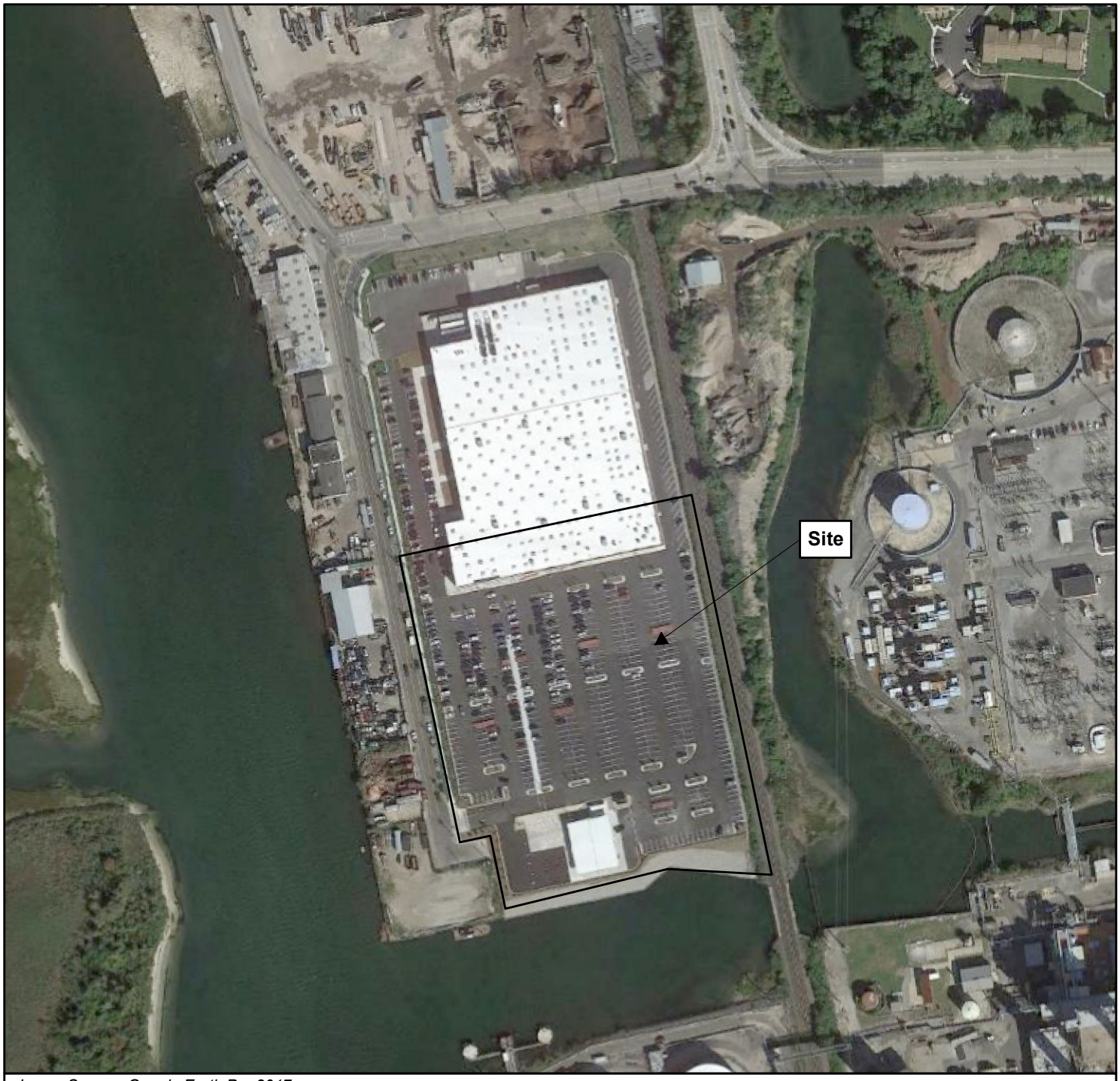


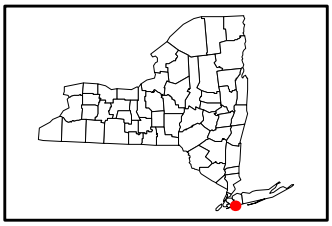
Image Source: Google Earth Pro 2017

0 125 250 500 Feet

1" = 250 feet

Legend

Property Boundary



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Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

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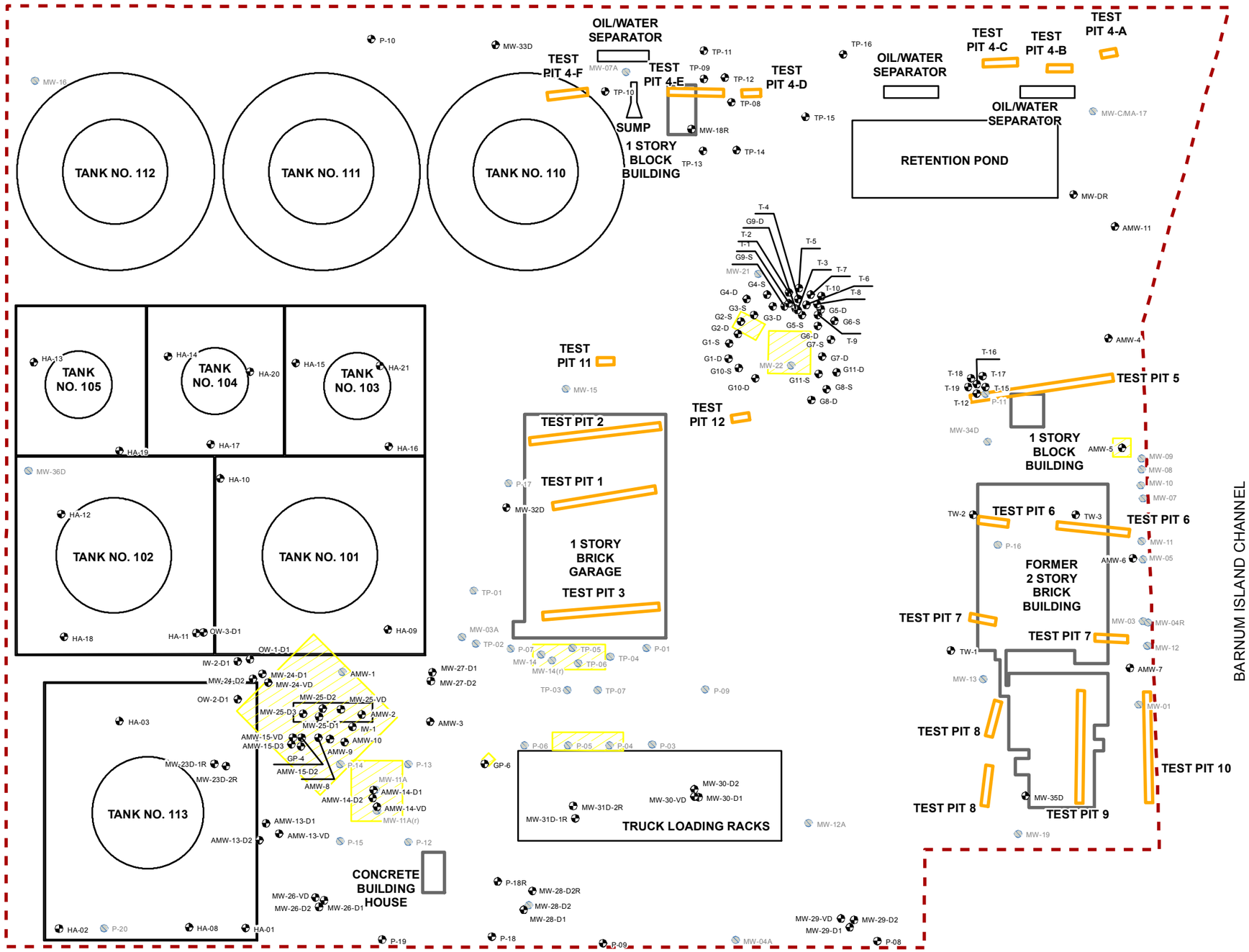
Regional Site Setting

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initials	date	revision

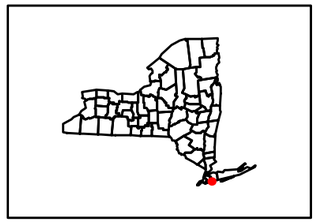
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Legend

- Groundwater Monitor Wel
- Abandoned/Destroyed Monitor Well
- Soil Test Pit
- Excavation Area
- Former Building
- Site Feature
- Property Boundary



0 30 60 120 Feet

1 inch = 60 feet

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

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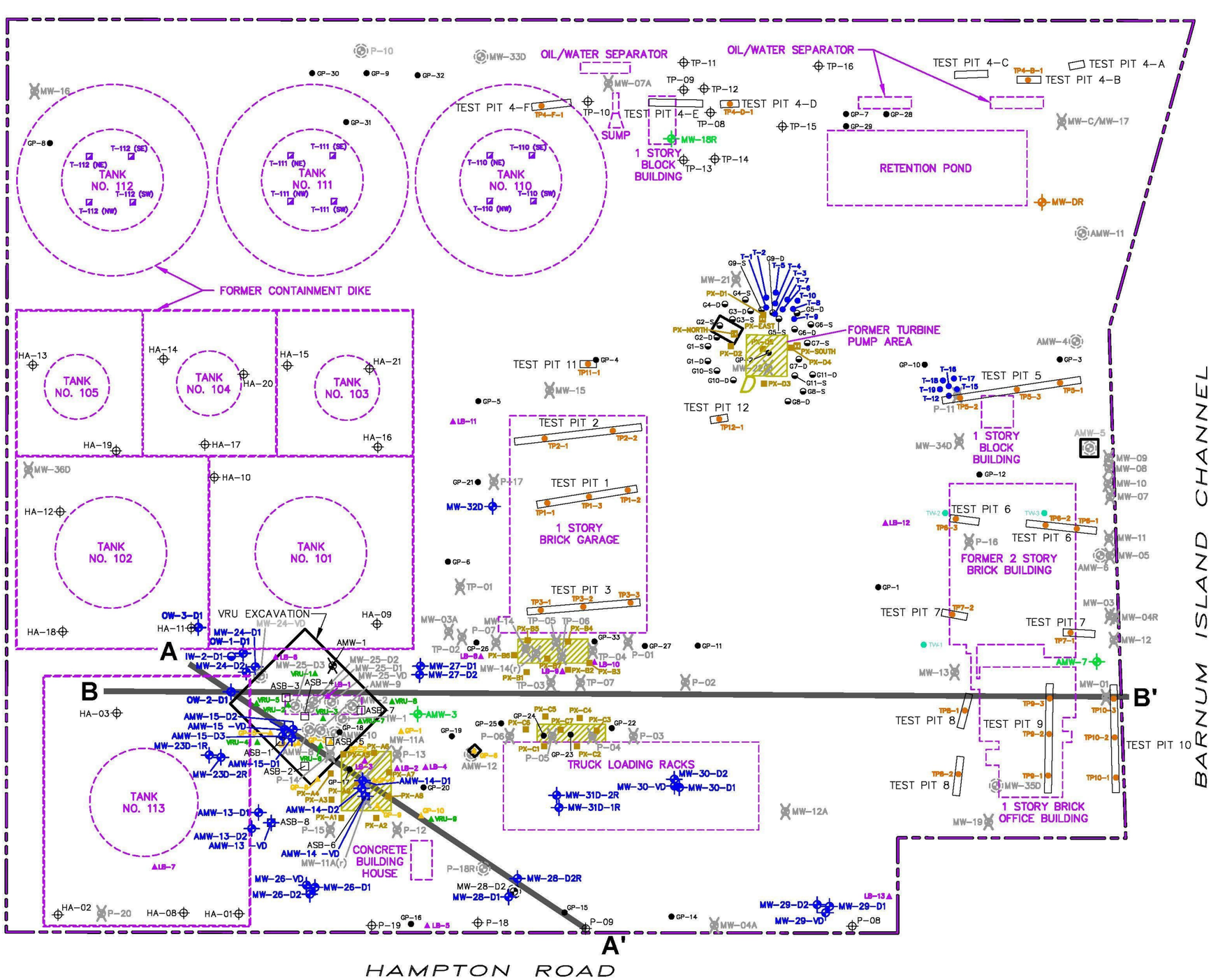
Site Map

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date 12/4/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. Site

initials	date	revision

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LEGEND:

- WATER TABLE MONITORING WELL
- MEADOW MAT MONITORING WELL
- LOWER SAND UNIT MONITORING WELL
- LOWER SAND UNIT INJECTION WELL
- DECOMMISSIONED/DESTROYED MONITORING WELL
- HISTORIC TEMPORARY PIEZOMETER
- HISTORIC EXISTING MONITORING WELL
- HISTORIC ABANDONED/DESTROYED MONITORING POINT
- 2000 LBG GEOPROBE SOIL BORING LOCATION
- 2000 BBL SOIL BORING LOCATION
- 2002 BBL SOIL BORING LOCATION
- 2002 BBL POST EXCAVATION BORING LOCATION
- 2003 LBG SOIL SAMPLING TANK LOCATION
- 2004 LANGAN SOIL BORING LOCATION
- 2004 CEDAR CREEK TEMPORARY WELL
- 2005 BBL BORING LOCATION
- 2005 BBL POST EXCAVATION BORING LOCATION
- 2005 BBL PAIRED WELL LOCATION
- 2010 TEST PIT SOIL SAMPLE LOCATION
- 2016 SOIL BORING
- LIMITS OF 2003/2004 IRM EXCAVATIONS
- LIMITS OF 2013/2014 IRM EXCAVATIONS
- A—A' LINE OF CROSS SECTION

NOTES:

1. Site plan derived from Storb, Inc. drawing entitled "Paving Plan-Gulf Oil Company-U.S., Oceanside Terminal" August 7, 1976 and Langan Drawing Entitled "Historical Soil And Groundwater Sampling Plan May 11, 2007
2. Historical Site Layout and Sample Locations are approximate.
3. Monitoring Well Locations Surveyed by American Engineering And Survey.
4. Source – Arcadis, 2017

0 60' 120'

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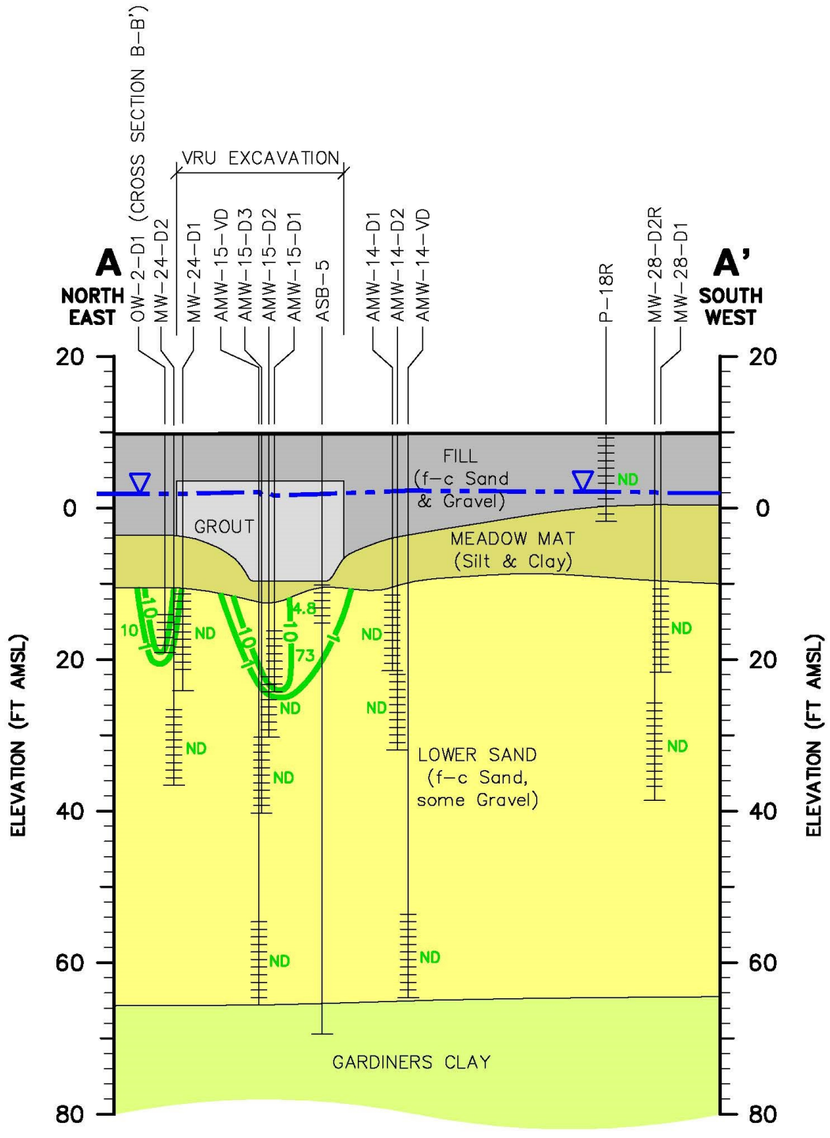
Cross Section Location Map

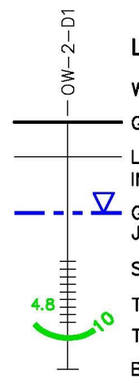
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date 11/15/2017	date	date	
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initials	date	revision

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CITY: SYRACUSE, NY DIV/GROUP: ENV/IM-DIV DB: L. FORAKER, R. ALLEN LD: PIC: J. VOGELEY PM: W. McCUNE TM: W. McCUNE LYR: ON=*; OFF=*REF*
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47517X01





LEGEND:

- WELL OR BORING ID
- GROUND SURFACE
- LITHOLOGIC CONTACT (DASHED WHERE INFERRED)
- GROUNDWATER ELEVATION AT HIGH TIDE JULY 2016
- SCREEN
- TRICHLOROETHENE CONCENTRATION (µg/L)
- TRICHLOROETHENE CONCENTRATION CONTOUR
- BOTTOM OF BORING
- FILL
- GROUT
- MEADOW MAT
- LOWER SAND
- GARDINERS CLAY

NOTES:
1. Concentrations shown are from the most recent Groundwater samples collected in 2016.
2. ND – Not Detected
3. Source – Arcadis, 2017

VERTICAL EXAGGERATION = 3X

0 20' 40'
VERTICAL SCALE

0 60' 120'
HORIZONTAL SCALE

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Oceanside, NY

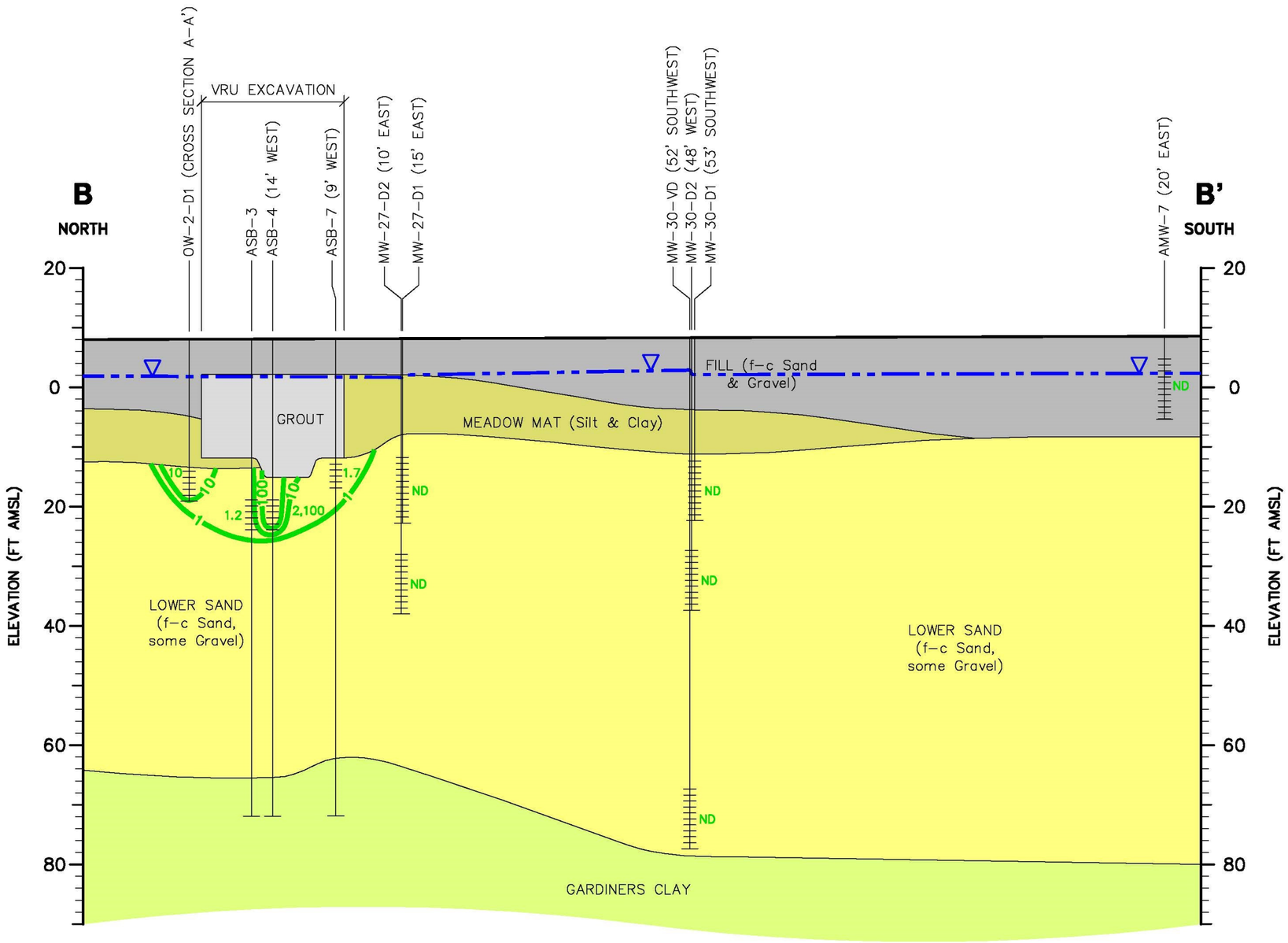
GEOLOGIC CROSS SECTION A - A'
WITH TRICHLOROETHENE (TCE)
CONCENTRATIONS - 2016

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date 11/15/2017	date	date	
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LEGEND:

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- GROUND SURFACE
- LITHOLOGIC CONTACT (DASHED WHERE INFERRED)
- GROUNDWATER ELEVATION AT HIGH TIDE JULY 2016
- SCREEN
- TRICHLOROETHENE CONCENTRATION (µg/L) (1.7)
- TRICHLOROETHENE CONCENTRATION CONTOUR (10)
- BOTTOM OF BORING
- FILL
- GROUT
- MEADOW MAT
- LOWER SAND
- GARDINERS CLAY

NOTES:
1. Concentrations shown are from the most recent Groundwater samples collected in 2016.
2. ND – Not Detected
3. Source – Arcadis, 2017

VERTICAL EXAGGERATION = 3X

VERTICAL SCALE: 0 20' 40'

HORIZONTAL SCALE: 0 60' 120'

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

GEOLOGIC CROSS SECTION B-B'
WITH TRICHLOROETHENE (TCE)
CONCENTRATIONS - 2016

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date 2/21/2017	date	date	
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initials	date	revision

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AMW-15-VD	08/27/17 60 - 70 Hydrasleeve	10/11/17 60 - 70 Hydrasleeve
At	10 U	**5.0 J**
B	1.0 U	1.0 U
cis-1,2-DCE	1.0 U	1.0 U
E	1.0 U	1.0 U
Cumene	1.0 U	1.0 U
MTBE	**1.2**	**0.94 J**
MeCl	1.0 U	1.0 U
T	1.0 U	1.0 U
trans-1,2-DCE	1.0 U	1.0 U
TCE	1.0 U	1.0 U
VC	1.0 U	1.0 U
X	2.0 U	**3**

AMW-15-D3	08/27/17 39.5 - 49.5 Hydrasleeve	10/11/17 39.5 - 49.5 Hydrasleeve
At	**36 J**	20 U
B	**3.7 J**	2.0 U
cis-1,2-DCE	**19**	2.0 U
E	**3.4 J**	2.0 U
Cumene	4.0 U	2.0 U
MTBE	**64**	2.0 U
MeCl	**2.4 J**	2.0 U
T	4.0 U	2.0 U
trans-1,2-DCE	4.0 U	2.0 U
TCE	**140**	2.0 U
VC	**16**	2.0 U
X	**17**	4.0 U

MW-24-D1	10/26/16 20.5 - 30.5 Hydrasleeve	10/26/16 20.5 - 30.5 Low Flow
At	10 U [10 U]	40 U
B	**4.9 [4.1]**	4.0 U
cis-1,2-DCE	**6.1 [4.0]**	4.0 U
E	**2.2 [2.3]**	4.0 U
Cumene	1.0 U [1.0 U]	4.0 U
MTBE	**120 [150]**	**81**
MeCl	1.0 U [1.0 U]	4.0 U
T	**0.64 J [0.68 J]**	4.0 U
trans-1,2-DCE	**6.8 [6.5]**	4.0 U
TCE	1.0 U [1.0 U]	4.0 U
VC	**15 [33]**	4.0 U
X	**6.6 [7.2]**	8.0 U

MW-24-D2	10/25/16 36 - 46 Hydrasleeve	10/25/16 36 - 46 Low Flow	07/05/17 36 - 46 Hydrasleeve	08/27/17 36 - 46 Hydrasleeve	10/11/17 36 - 46 Hydrasleeve
At	**62**	**56**	80 U	80 U	20 U
B	4.0 U	**3.0 J**	8.0 U	8.0 U	2.0 U
cis-1,2-DCE	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
E	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Cumene	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
MTBE	**120**	**270**	**220**	**87**	**60**
MeCl	**120**	**84 F1**	8.0 U	8.0 U	2.0 U
T	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
trans-1,2-DCE	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
TCE	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
VC	**20**	**280 F1**	**250 F1**	**72**	**18**
X	8.0 U	10 U	16 U	16 U	4.0 U

MW-23-D2R	07/05/17 34.5 - 44.5 Hydrasleeve	08/27/17 34.5 - 44.5 Hydrasleeve	10/11/17 34.5 - 44.5 Hydrasleeve
At	**4 J**	40 U	10 U
B	1.0 U	4.0 U	1.0 U
cis-1,2-DCE	1.0 U	4.0 U	1.0 U
E	1.0 U	4.0 U	1.0 U
Cumene	1.0 U	4.0 U	1.0 U
MTBE	**8**	**72**	**140**
MeCl	1.0 U	4.0 U	1.0 U
T	1.0 U	4.0 U	1.0 U
trans-1,2-DCE	1.0 U	4.0 U	1.0 U
TCE	1.0 U	4.0 U	1.0 U
VC	1.0 U	4.0 U	**1.2**
X	2.0 U	8.0 U	2.0 U

MW-23-D1R	10/26/16 20 - 30 Hydrasleeve	10/26/16 20 -30 Low Flow	07/05/17 20 - 30 Hydrasleeve	08/27/17 20 - 30 Hydrasleeve	10/11/17 20 - 30 Hydrasleeve
At	20 U	50 U	40 U	40 U	40 U
B	2.0 U	5.0 U	4.0 U	4.0 U	4.0 U
cis-1,2-DCE	2.0 U	5.0 U	4.0 U	4.0 U	4.0 U
E	2.0 U	5.0 U	4.0 U	4.0 U	4.0 U
Cumene	2.0 U	5.0 U	4.0 U	4.0 U	4.0 U
MTBE	**140**	**180**	**140**	**130**	**150**
MeCl	2.0 U	5.0 U	4.0 U	4.0 U	4.0 U
T	2.0 U	5.0 U	4.0 U	4.0 U	4.0 U
trans-1,2-DCE	2.0 U	5.0 U	4.0 U	4.0 U	4.0 U
TCE	2.0 U	5.0 U	4.0 U	4.0 U	4.0 U
VC	2.0 U	5.0 U	4.0 U	4.0 U	4.0 U
X	4.0 U	10 U	8.0 U	8.0 U	8.0 U

AMW-15-D1	10/26/16 23 - 33 Hydrasleeve	10/26/16 23 - 33 Low Flow	07/05/17 23 - 33 Hydrasleeve	08/27/17 23 - 33 Hydrasleeve	10/11/17 23 - 33 Hydrasleeve
At	100 U	40 U	40 U	40 U	20 U
B	**11**	**5.1**	4.0 U	**12**	**11**
cis-1,2-DCE	**81**	**38**	4.0 U	**5.1**	**1.6 J**
E	10 U	4.0 U	4.0 U	**4.1**	**4.3**
Cumene	10 U	4.0 U	4.0 U	4.0 U	2.0 U
MTBE	**110**	**180**	**170**	**200**	**290**
MeCl	**8.9 J**	**4.1**	4.0 U	**2.2 J**	2.0 U
T	**18**	**6.6**	4.0 U	**17**	**5.9**
trans-1,2-DCE	10 U	4.0 U	4.0 U	**28**	**13**
TCE	**48**	**18**	4.0 U	4.0 U	2.0 U
VC	**600 F1**	**240**	**10**	**76**	**24**
X	**15 J**	**5.5 J**	8.0 U	**17**	**12**

AMW-15-D2	10/26/16 30 - 40 Hydrasleeve	10/26/16 29.5 - 39.5 Low Flow	07/05/17 29.5 - 39.5 Hydrasleeve	08/27/17 29.5 - 39.5 Hydrasleeve	10/11/17 29.5 - 39.5 Hydrasleeve
At	**13**	**5.1 J**	40 U	40 U	40 U
B	1.0 U	**0.47 J**	4.0 U	**9.8**	**2.7 J**
cis-1,2-DCE	**0.86 J**	**1.6**	4.0 U	4.0 U	4.0 U
E	1.0 U	1.0 U	4.0 U	**5.1**	4.0 U
Cumene	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U
MTBE	**42**	**110**	**120**	**350**	**160**
MeCl	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U
T	1.0 U	1.0 U	4.0 U	**7.8**	4.0 U
trans-1,2-DCE	1.0 U	1.0 U	4.0 U	**5.5**	4.0 U
TCE	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U
VC	**4.7**	**30**	4.0 U	**300**	**25**
X	2.0 U	2.0 U	8.0 U	**12**	8.0 U

AMW-14-D1	07/05/17 21.5 - 31.5 Hydrasleeve	08/27/17 21.5 - 31.5 Hydrasleeve	10/11/17 21.5 - 31.5 Hydrasleeve
At	40 U	40 U	20 U
B	**2.0 J**	4.0 U	**4.7**
cis-1,2-DCE	4.0 U	4.0 U	2.0 U
E	4.0 U	4.0 U	**7.2**
Cumene	4.0 U	4.0 U	2.0 U
MTBE	**170**	**170**	**170**
MeCl	4.0 U	4.0 U	**0.95 J**
T	4.0 U	4.0 U	**1.0 J**
trans-1,2-DCE	4.0 U	4.0 U	**13**
TCE	4.0 U	4.0 U	2.0 U
VC	**78**	**7.6**	**3.2**
X	**3.2 J**	8.0 U	**20**

AMW-14-D2	08/27/17 31.5 - 41.5 Hydrasleeve	10/11/17 31.5 - 41.5 Hydrasleeve
At	10 U	10 U
B	1.0 U	1.0 U
cis-1,2-DCE	1.0 U	1.0 U
E	1.0 U	1.0 U
Cumene	1.0 U	1.0 U
MTBE	**14**	**48**
MeCl	1.0 U	1.0 U
T	1.0 U	1.0 U
trans-1,2-DCE	1.0 U	1.0 U
TCE	1.0 U	1.0 U
VC	1.0 U	1.0 U
X	2.0 U	2.0 U

MW-27-D1	07/05/17 21.5 - 31.5 Hydrasleeve	08/27/17 21.5 - 31.5 Hydrasleeve
At	20 U	20 U
B	**1.1 J**	**1.6 J**
cis-1,2-DCE	**2.2**	**3.2**
E	2.0 U	2.0 U
Cumene	2.0 U	2.0 U
MTBE	**84**	**100**
MeCl	2.0 U	**0.94 J**
T	2.0 U	2.0 U
trans-1,2-DCE	2.0 U	**5**
TCE	2.0 U	2.0 U
VC	**28**	**110**
X	4.0 U	4.0 U

MW-27-D2	07/05/17 36.5 - 46.5 Hydrasleeve	08/27/17 36.5 - 46.5 Hydrasleeve	10/11/17 36.5 - 46.5 Hydrasleeve
At	10 U	10 U	10 U
B	1.0 U	1.0 U	1.0 U
cis-1,2-DCE	1.0 U	1.0 U	1.0 U
E	1.0 U	1.0 U	1.0 U
Cumene	1.0 U	1.0 U	1.0 U
MTBE	1.0 U	1.0 U	1.0 U
MeCl	1.0 U	1.0 U	1.0 U
T	1.0 U	1.0 U	1.0 U
trans-1,2-DCE	1.0 U	1.0 U	1.0 U
TCE	1.0 U	1.0 U	1.0 U
VC	1.0 U	1.0 U	1.0 U
X	2.0 U	2.0 U	2.0 U

AMW-14-VD	07/05/17 63.5 - 73.5 Hydrasleeve	08/27/17 63.5 - 73.5 Hydrasleeve	10/11/17 63.5 - 73.5 Hydrasleeve
At	**3.7 J**	10 U	10 U
B	1.0 U	1.0 U	1.0 U
cis-1,2-DCE	1.0 U	1.0 U	1.0 U
E	1.0 U	1.0 U	1.0 U
Cumene	1.0 U	1.0 U	1.0 U
MTBE	**0.51 J**	**0.42 J**	**0.65 J**
MeCl	1.0 U	1.0 U	1.0 U
T	1.0 U	1.0 U	1.0 U
trans-1,2-DCE	1.0 U	1.0 U	1.0 U
TCE	1.0 U	1.0 U	1.0 U
VC	1.0 U	1.0 U	1.0 U
X	2.0 U	2.0 U	**3.2**

MW-28-D2R	07/05/17 36 -46 Hydrasleeve	08/27/17 36 - 46 Hydrasleeve	10/11/17 36 - 46 Hydrasleeve
At	10 U	40 U	10 U
B	1.0 U	4.0 U	1.0 U
cis-1,2-DCE	1.0 U	4.0 U	1.0 U
E	1.0 U	4.0 U	1.0 U
Cumene	1.0 U	4.0 U	1.0 U
MTBE	1.0 U	4.0 U	1.0 U
MeCl	1.0 U	4.0 U	1.0 U
T	1.0 U	4.0 U	1.0 U
trans-1,2-DCE	1.0 U	4.0 U	1.0 U
TCE	1.0 U	4.0 U	1.0 U
VC	1.0 U	4.0 U	1.0 U
X	2.0 U	8.0 U	2.0 U

MW-29-D1	10/26/16 20.5 - 30.5 Hydrasleeve	10/26/16 20.5 - 30.5 Low Flow	07/05/17 20.5 - 30.5 Hydrasleeve	08/27/17 20.5 - 30.5 Hydrasleeve	10/11/17 20.5 - 30.5 Hydrasleeve
At	10 U	10 U	20 U	20 U	40 U
B	**5.5**	**32**	**9.7**	**19**	**4.3**
cis-1,2-DCE	1.0 U	1.0 U	2.0 U	2.0 U	4.0 U
E	1.0 U	1.0 U	2.0 U	2.0 U	4.0 U
Cumene	**6.4**	**16**	**7.7**	**9.3**	**5.8**
MTBE	**23**	**44**	**71**	**28**	**20**
MeCl	1.0 U	1.0 U	2.0 U	2.0 U	4.0 U
T	**1.6**	**3.1**	**2.3**	**1.7 J**	4.0 U
trans-1,2-DCE	1.0 U	1.0 U	2.0 U	2.0 U	4.0 U
TCE	1.0 U	1.0 U	2.0 U	2.0 U	4.0 U
VC	1.0 U	1.0 U	2.0 U	2.0 U	4.0 U
X	**4**	**9.7**	**3.7 J**	**4.3**	**4.3 J**

MW-26-D2	10/25/16 34 - 44 Hydrasleeve	10/25/16 34 - 44 Low Flow	07/05/17 34 - 44 Hydrasleeve	08/27/17 34 - 44 Hydrasleeve	10/11/17 34 - 44 Hydrasleeve
At	**9.4 J**	**37**	10 U	80 U	10 U
B	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U
cis-1,2-DCE	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U
E	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U
Cumene	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U
MTBE	**85**	**43**	1.0 U	8.0 U	**14**
MeCl	**15**	**81**	1.0 U	8.0 U	1.0 U
T	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U
trans-1,2-DCE	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U
TCE	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U
VC	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U
X	4.0 U	4.0 U	2.0 U	16 U	2.0 U

MW-26-D1	10/25/16 18.5 - 28.5 Hydrasleeve	10/25/16 18.5 - 28.5 Low Flow	07/05/17 18.5 - 28.5 Hydrasleeve	08/27/17 18.5 - 28.5 Hydrasleeve	10/11/17 18.5 - 28.5 Hydrasleeve
At	100 U	40 U	100 U	100 U	**6.5 J**
B	**8.6 J**	**12**	**8.7 J**	**9.5 J**	2.0 U
cis-1,2-DCE	10 U	4.0 U	10 U	10 U	2.0 U
E	10 U	**3.0 J**	10 U	10 U	2.0 U
Cumene	10 U	4.0 U	10 U	10 U	2.0 U
MTBE	**310**	**390**	**290**	**240**	2.0 U
MeCl	10 U	**3.6 J**	10 U	10 U	2.0 U
T	10 U	4.0 U	10 U	10 U	2.0 U
trans-1,2-DCE	10 U	4.0 U	10 U	10 U	2.0 U
TCE	10 U	4.0 U	10 U	10 U	2.0 U
VC	**18**	**51**	**28**	10 U	2.0 U
X	20 U	8.0 U	20 U	20 U	4.0 U

MW-28-D1	07/05/17 21 - 31 Hydrasleeve	08/27/17 21 - 31 Hydrasleeve	10/11/17 21 - 31 Hydrasleeve
At	10 U	40 U	40 U
B	**8.9**	**2.7 J**	**3.7 J**
cis-1,2-DCE	1.0 U	4.0 U	4.0 U
E	**1.2**	4.0 U	4.0 U
Cumene	1.0 U	4.0 U	4.0 U
MTBE	**19**	**6.6**	**4.8**
MeCl	1.0 U	4.0 U	4.0 U
T	1.0 U	4.0 U	4.0 U
trans-1,2-DCE	1.0 U	4.0 U	4.0 U
TCE	1.0 U	4.0 U	4.0 U
VC	1.0 U	4.0 U	4.0 U
X	2.0 U	8.0 U	8.0 U

MW-18R
MW-DR
MW-32D
MW-27-D1
MW-27-D2
AMW-3
AMW-7
BARNUM ISLAND CHANNEL
OW-3-D1
OW-1-D1
IW-2-D1
MW-24-D1
MW-24-D2
OW-2-D1
AMW-15-VD
AMW-15-D2
AMW-15-D3
AMW-15-D1
MW-23-D2R
MW-23-D1R
AMW-14-D1
AMW-14-D2
AMW-14-VD
AMW-13-D1
AMW-13-VD
AMW-13-D2
MW-31-D2R
MW-31-D1R
MW-30-VD
MW-30-D2
MW-30-D1
MW-26-VD
MW-26-D1
MW-26-D2
MW-28-D2R
MW-28-D1
MW-29-VD
MW-29-D2
MW-29-D1
HAMPTON ROAD

Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Wells Included in Pre-Feasibility Study Groundwater Sampling Program
- Site Feature

Location ID Date Collected Screen Interval Field Notes		NYSDEC TOGS 1.1.1
Compound	Abbreviation	Water Guidance
Acetone	At	50
Benzene	B	1
cis-1,2-Dichloroethene	cis-1,2-DCE	5
Ethylbenzene	E	5
Isopropylbenzene	Cumene	5
Methyl tert-butyl ether	MTBE	10
Methylene Chloride	MeCl	5
Toluene	T	5
trans-1,2-Dichloroethene	trans-1,2-DCE	5
Trichloroethene	TCE	5
Vinyl Chloride	VC	2
Xylenes (total)	X	5

All units are µg/L
NYSDEC TOGS - New York State Department of Environmental Conservation Technical & Operational Guidance Series.
Bold : Result detected above the method detection limit
Shaded : Result exceeds the NYSDEC TOGS 1.1.1 Water Guidance Values
U : Indicates the analyte was analyzed for but not detected.
J : Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
F1: Matrix spike and/or matrix spike duplicate recovery is outside acceptance limits
[ ]: Duplicate sample

0 21 42 84 Feet
1 inch = 42 feet
N

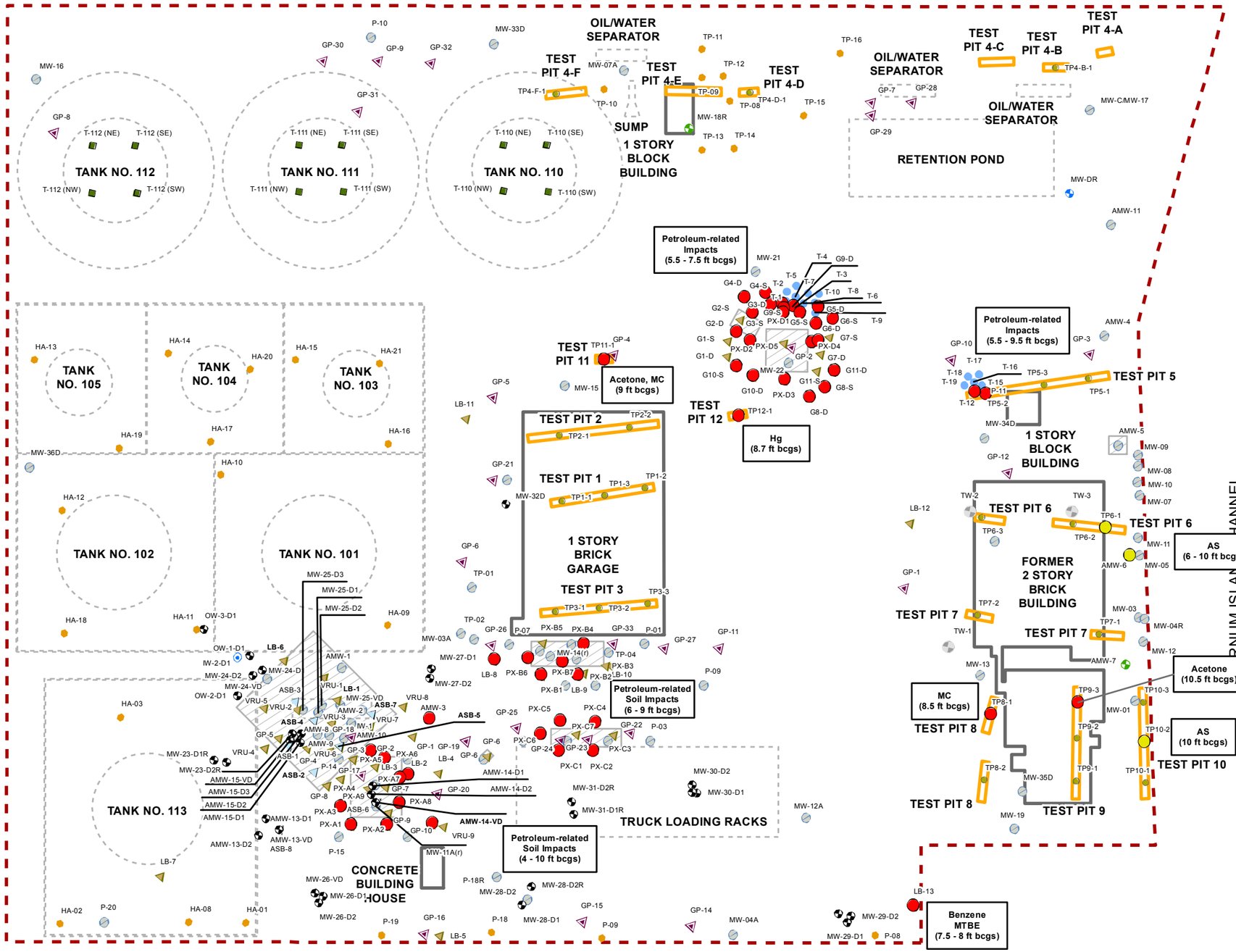
Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

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Oceanside, NY

Recent TOGS Exceedances in Groundwater
October 2016 to October 2017

drawn JAL	checked	approved	figure no. 2-7
date 12/13/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. Fig 2-7
initials	date	revision	

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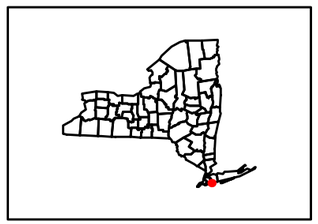


Legend

- Protection of Groundwater SCO Exceedances
- Commercial Use Exceedances
- Lower Sand Unit Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Injection Well
- SP Water Table Well
- Cedar Creek Temporary Well
- Decommissioned/Destroyed Monitoring Well
- Temporary Well
- Piezometer
- LGB Geoprobe Soil Boring Location
- Test Pit Soil Sample Location
- LBG Soil Sample Tank Location
- BBL Soil Boring Location
- Soil Boring 2016
- Soil Test Pit
- Excavation Area
- Former Building
- Site Feature
- Property Boundary

Analyte Abbreviation:

AS - Arsenic
Hg - Mercury
MC - Methylene Chloride
MTBE - Methyl-Tert Butyl Ether



0 30 60 120 Feet

1 inch = 61 feet

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

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Oceanside, NY

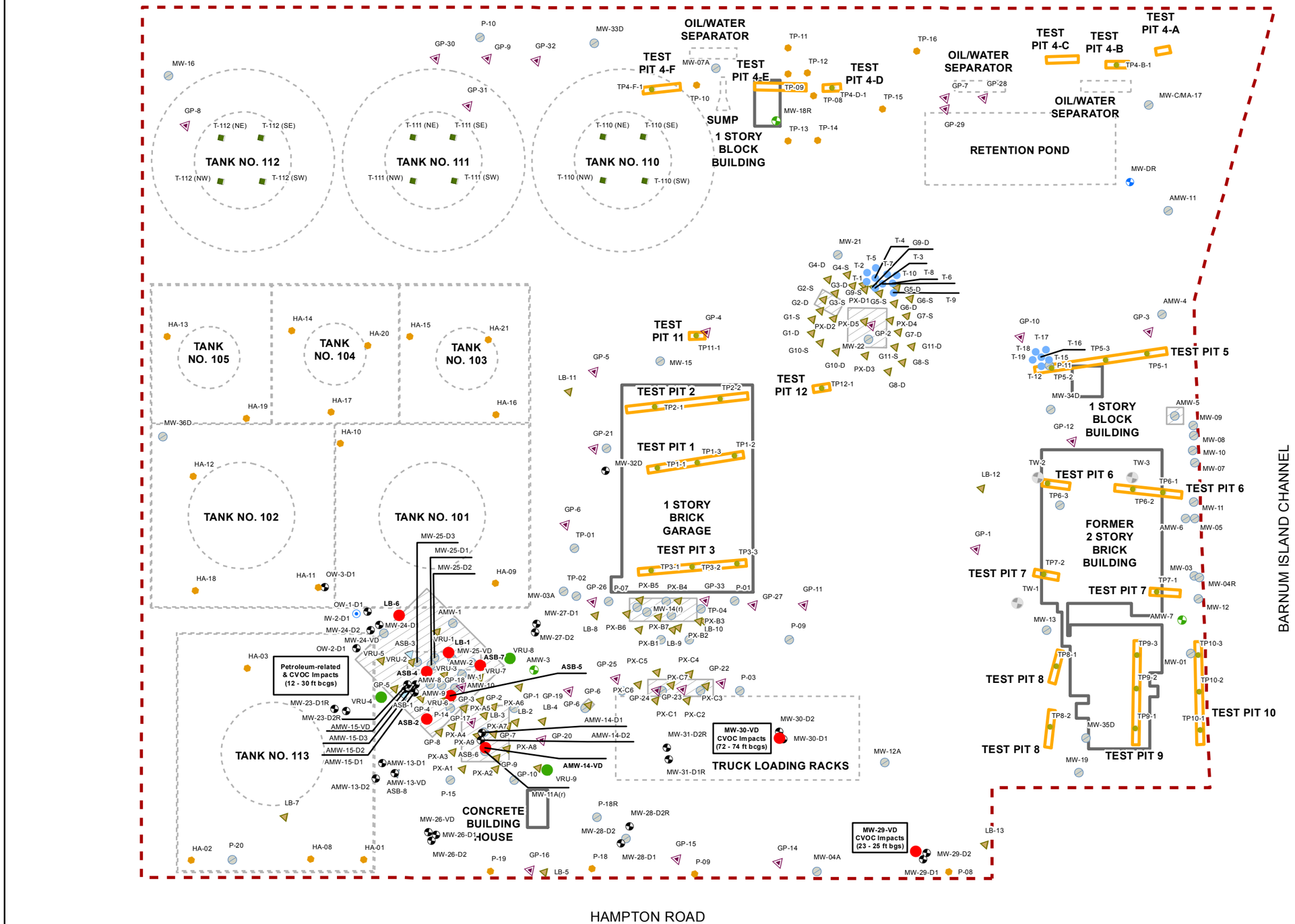
Remaining Protection of Groundwater & Commercial Use SCO Exceedances - Fill Unit

drawn JAL	checked	approved	figure no. 3-1
date 12/13/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. GW_Comm_SCO_Exceed

initials	date	revision

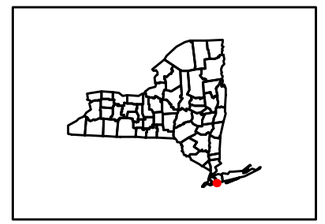
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Legend

- Meadow Mat SCO Exceedance
- Lower Sand SCO Exceedance
- Lower Sand Unit Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Injection Well
- SP Water Table Well
- Cedar Creek Temporary Well
- Decommissioned/Destroyed Monitoring Well
- Temporary Well
- Piezometer
- LGB Geoprobe Soil Boring Location
- Test Pit Soil Sample Location
- LBG Soil Sample Tank Location
- BBL Soil Boring Location
- Soil Boring 2016
- Soil Test Pit Area
- Excavation Area
- Former Building
- Site Feature
- Property Boundary



0 30 60 120 Feet

1 inch = 61 feet

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

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Oceanside, NY

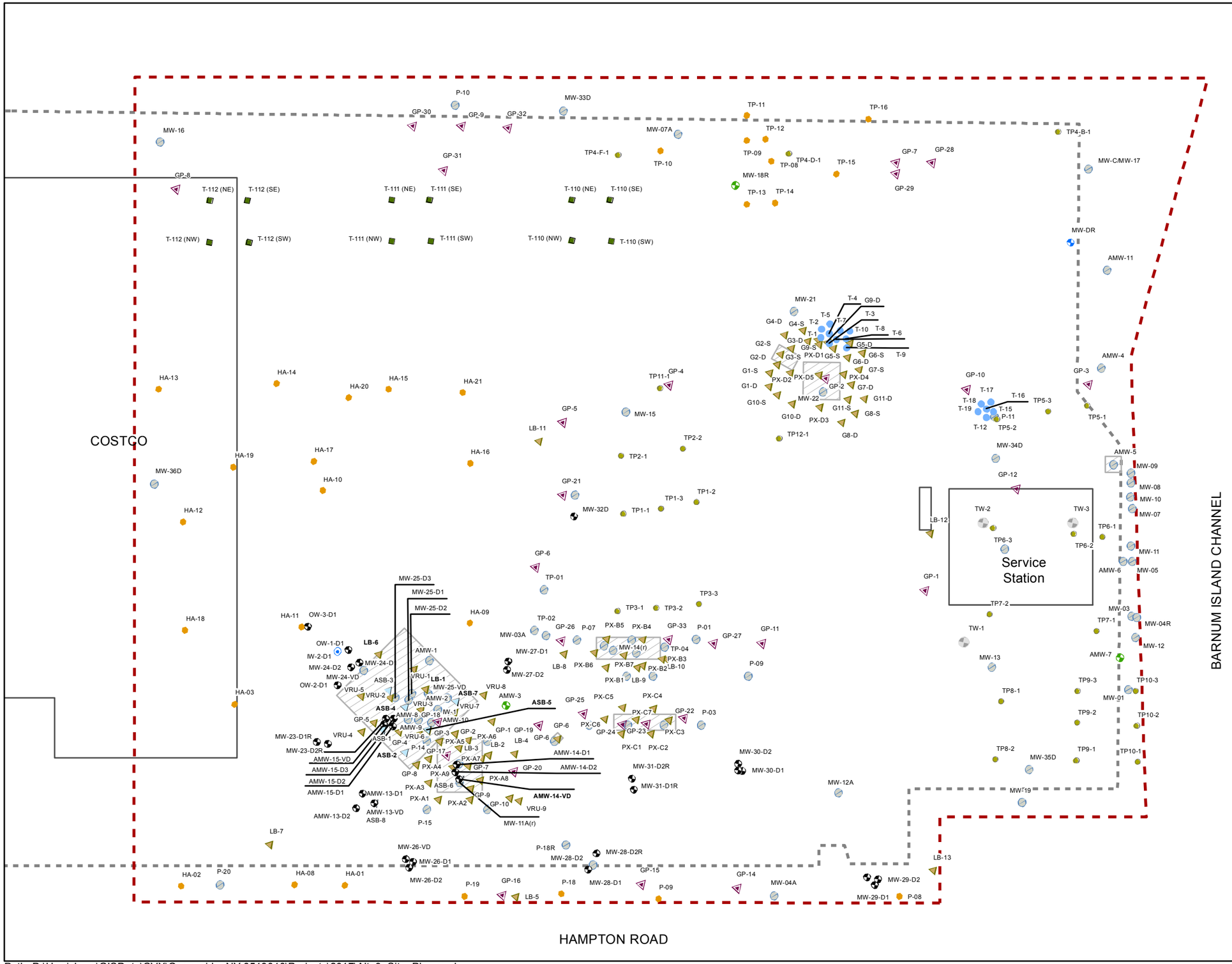
Remaining Protection of Groundwater SCO Exceedances - Meadow Mat & Lower Sand Unit

drawn JAL	checked	approved	figure no. **3-2**
date 12/7/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. GW_SCO_Exceed_MM_LSU

initials	date	revision

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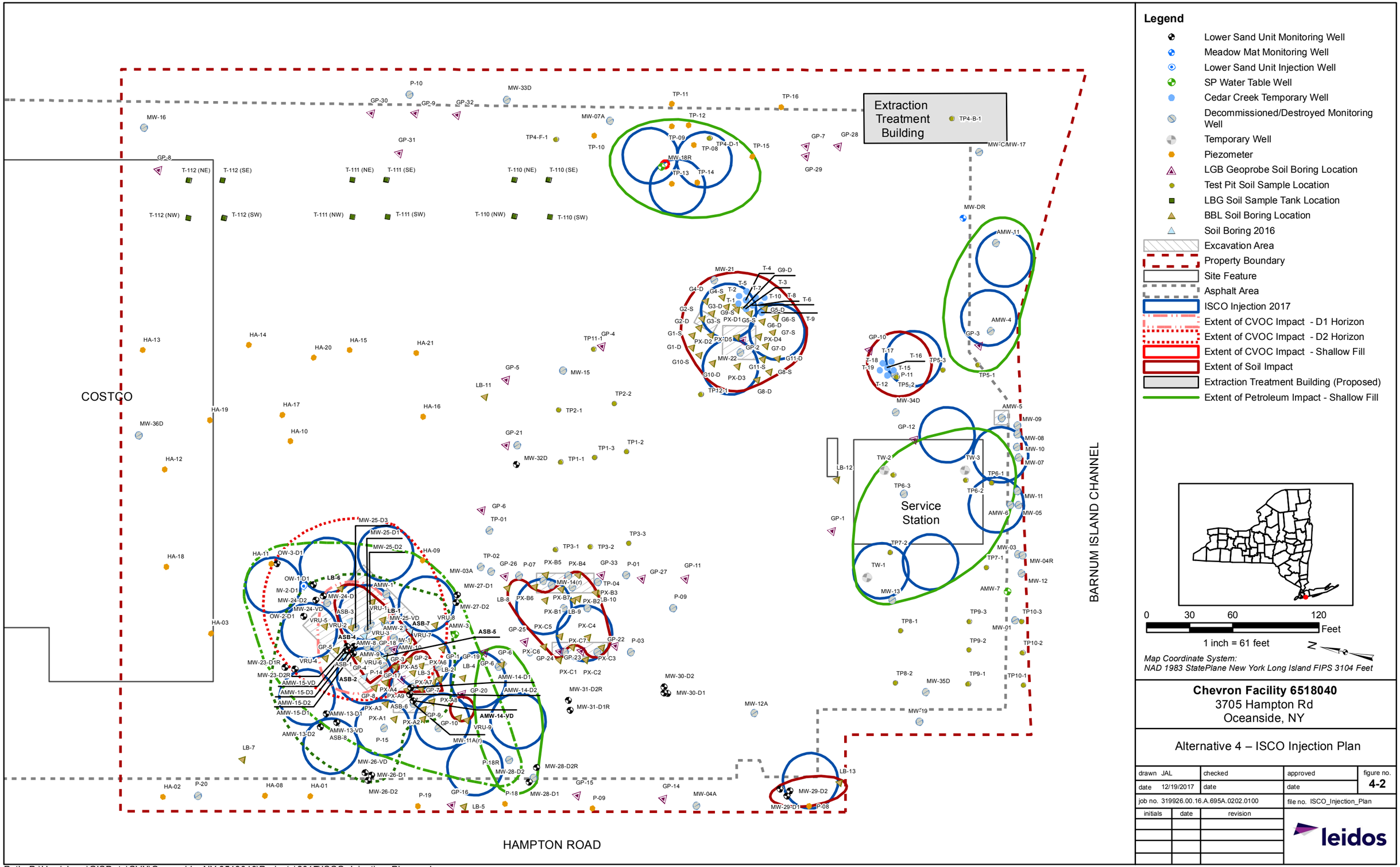
Alternative 3 - Monitored Natural Attenuation and Institutional Controls

drawn JAL	checked	approved	figure no. **4-1**
date 12/18/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100		file no. Alt_3_Site_Plan	

initials	date	revision

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Legend

- Lower Sand Unit Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Injection Well
- SP Water Table Well
- Cedar Creek Temporary Well
- Decommissioned/Destroyed Monitoring Well
- Temporary Well
- Piezometer
- LGB Geoprobe Soil Boring Location
- Test Pit Soil Sample Location
- LBG Soil Sample Tank Location
- BBL Soil Boring Location
- Soil Boring 2016
- Excavation Area
- Property Boundary
- Site Feature
- Asphalt Area
- ISCO Injection 2017
- Extent of CVOC Impact - D1 Horizon
- Extent of CVOC Impact - D2 Horizon
- Extent of CVOC Impact - Shallow Fill
- Extent of Soil Impact
- Extraction Treatment Building (Proposed)
- Extent of Petroleum Impact - Shallow Fill

0 30 60 120 Feet

1 inch = 61 feet

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
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Oceanside, NY

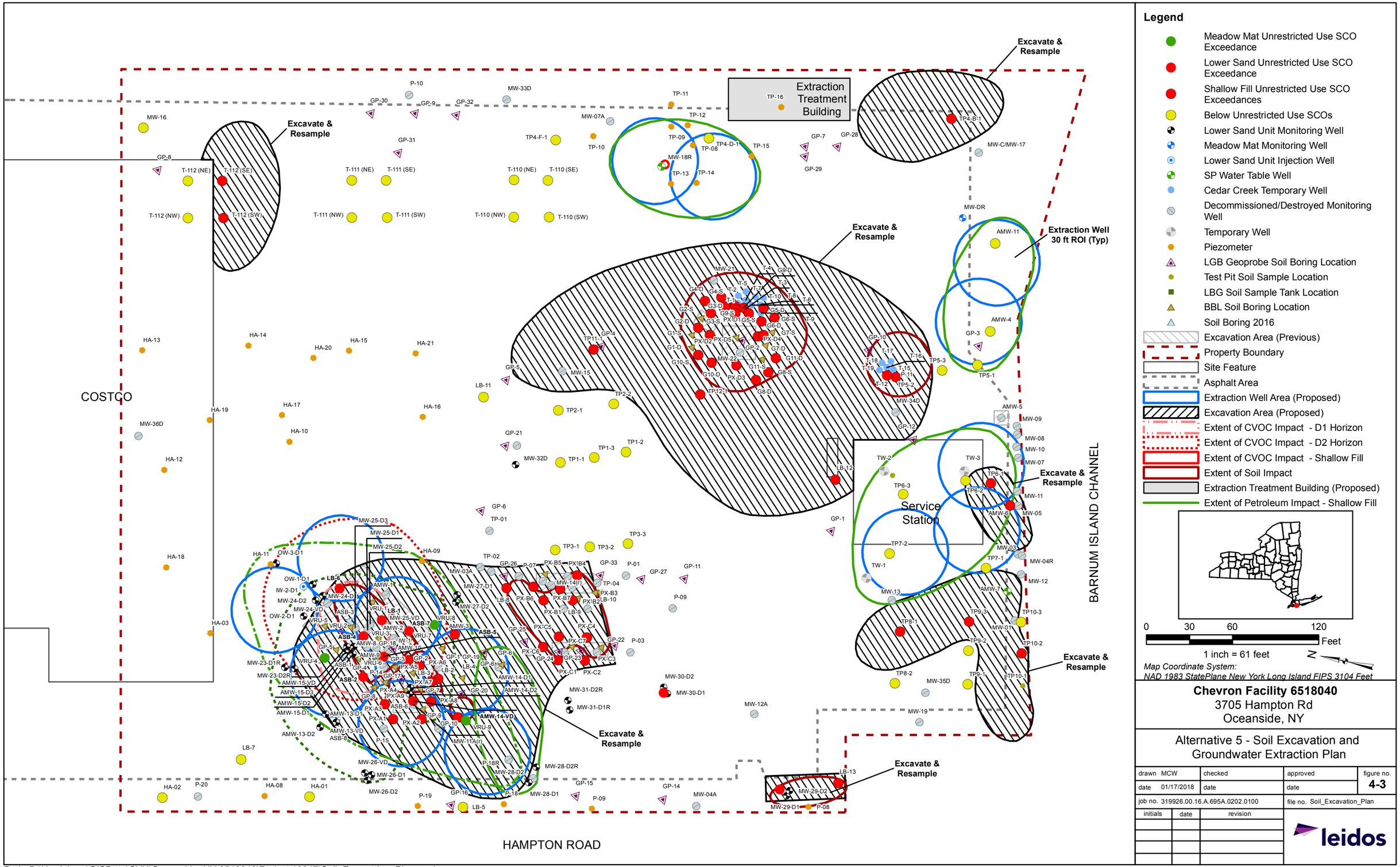
Alternative 4 – ISCO Injection Plan

drawn JAL	checked	approved	figure no. 4-2
date 12/19/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. ISCO_Injection_Plan

initials	date	revision

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Alternative 5 - Soil Excavation and Groundwater Extraction Plan

drawn MCW	checked	approved	figure no. 4-3
date 01/17/2018	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. Soil_Excavation_Plan

initials	date	revision

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Tables

Table 2-1
Fluoranthene: Fluoranthene+Pyrene Ratios for Shallow Fill Unit Soils
Former Gulf Terminal
Oceanside, Township of Hempstead, NY

Location ID:	MW-17	GP-3(1995)	PX-A1	PX-A2	PX-A3	PX-A6	PX-A7	PX-B1	PX-B2	PX-B4	PX-B5
Historical Sample Depth (feet):	4	2	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3
Current Estimated Sample Depth (feet)	8	6	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7
Date Collected:	12/12/95	12/15/95	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02
Sampling Event	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit
Fluoranthene	13	0.74	1.9	1.2	0.66	0.15	0.40	1.2	0.11	1.7	1.3
Pyrene	10	0.62	1.6	1	0.54	0.14	0.44	1	0.1	1.6	1.4
F+P	23	1.36	3.5	2.2	1.2	0.29	0.84	2.2	0.21	3.3	2.7
F/F+P	**0.57**	**0.54**	**0.54**	**0.55**	**0.55**	**0.52**	**0.48**	**0.55**	**0.52**	**0.52**	**0.48**

Notes:
Bolded and shaded ratios: Greater than 0.4.

Location ID:	PX-B6	PX-C1	PX-C2	PX-C3	PX-C4	PX-C5	PX-C6	PX-D1	PX-D2	PX-D4
Historical Sample Depth (feet):	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3
Current Estimated Sample Depth (feet)	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7
Date Collected:	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02
Sampling Event	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit
Fluoranthene	3.1	2.5	1.3	0.8	0.53	0.27	0.25	0.37	0.60	1.1
Pyrene	2.1	1.9	0.95	0.64	0.5	0.24	0.23	0.35	1.1	1.3
F+P	5.2	4.4	2.25	1.44	1.03	0.51	0.48	0.72	1.7	2.4
F/F+P	**0.60**	**0.57**	**0.58**	**0.56**	**0.51**	**0.53**	**0.52**	**0.51**	0.35	**0.46**

Notes:
Bolded and shaded ratios: Greater than 0.4.

Table 2-1
Fluoranthene: Fluoranthene+Pyrene Ratios for Shallow Fill Unit Soils
Former Gulf Terminal
Oceanside, Township of Hempstead, NY

Location ID:	G2-D1	G3-S1	G3-D1	G4-S1	G4-S2	G4-D1	G4-D2	G5-S1	G5-D1	G5-D2	G6-S1	G6-S2	G6-D1	G8-S1	G8-S2
Historical Sample Depth (feet):	3 - 3.5	1.5 - 2	3 - 3.5	1.5 - 2	1.5 - 2	3 - 3.5	3 - 3.5	1.5 - 2	3 - 3.5	3 - 3.5	1.5 - 2	1.5 - 2	3 - 3.5	1.5 - 2	1.5 - 2
Current Estimated Sample Depth (feet)	7 - 7.5	5.5 - 6	7 - 7.5	5.5 - 6	5.5 - 6	7 - 7.5	7 - 7.5	5.5 - 6	7 - 7.5	7 - 7.5	5.5 - 6	5.5 - 6	7 - 7.5	5.5 - 6	5.5 - 6
Date Collected:	11/16/04	11/16/04	11/16/04	11/16/04	11/18/04	11/16/04	11/18/04	11/16/04	11/16/04	11/18/04	11/16/04	11/18/04	11/16/04	11/16/04	11/18/04
Sampling Event	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit
Fluoranthene	0.13	0.52	0.36	0.85	1.6	0.19	0.88	0.62	0.51	0.21	0.44	0.64	0.6	0.89	1.3
Pyrene	0.17	0.65	0.63	1.2	1.2	0.34	0.59	0.65	0.6	0.3	0.86	0.78	1	2.1	1.4
F+P	0.3	1.17	0.99	2.05	2.8	0.53	1.47	1.27	1.11	0.51	1.3	1.42	1.6	2.99	2.7
F/F+P	**0.43**	**0.44**	0.36	**0.41**	**0.57**	0.36	**0.60**	**0.49**	**0.46**	**0.41**	0.34	**0.45**	0.38	0.30	**0.48**

Notes:
Bolded and shaded ratios: Greater than 0.4.

Location ID:	G8-D1	G8-D2	G9-S1	G9-S2	G9-D1	G9-D2	G10-S1	G10-S2	G10-D1	G10-D2	G11-D1	PX-EAST	PX-SOUTH	T12-S1	T12-S2
Historical Sample Depth (feet):	3 - 3.5	3 - 3.5	1.5 - 2	1.5 - 2	3 - 3.5	3 - 3.5	1.5 - 2	1.5 - 2	3 - 3.5	3 - 3.5	3 - 3.5	2 - 3	2 - 3	1.5 - 2	1.5 - 2
Current Estimated Sample Depth (feet)	7 - 7.5	7 - 7.5	5.5 - 6	5.5 - 6	7 - 7.5	7 - 7.5	5.5 - 6	5.5 - 6	7 - 7.5	7 - 7.5	7 - 7.5	6 - 7	6 - 7	5.5 - 6	5.5 - 6
Date Collected:	11/16/04	11/18/04	11/16/04	11/18/04	11/18/04	11/18/04	11/17/04	11/18/04	11/16/04	11/18/04	11/16/04	11/18/04	11/18/04	11/16/04	11/18/04
Sampling Event	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit
Fluoranthene	0.48	0.74	0.99	0.44	0.96	0.39	0.088	1.3	0.2	0.14	0.2	0.83	1.2	1.1	2.1
Pyrene	0.89	0.7	1.3	0.4	1.1	0.32	0.21	1.2	0.29	0.12	0.39	0.66	1.5	1.3	1.5
F+P	1.37	1.44	2.29	0.84	2.06	0.71	0.298	2.5	0.49	0.26	0.59	1.49	2.7	2.4	3.6
F/F+P	0.35	**0.51**	**0.43**	**0.52**	**0.47**	**0.55**	0.30	**0.52**	**0.41**	**0.54**	0.34	**0.56**	**0.44**	**0.46**	**0.58**

Notes:
Bolded and shaded ratios: Greater than 0.4.

Table 2-1
Fluoranthene: Fluoranthene+Pyrene Ratios for Shallow Fill Unit Soils
Former Gulf Terminal
Oceanside, Township of Hempstead, NY

Location ID:	MW-31-D1R	MW-31-D1R	MW-31-D2R	MW-31-D2R	MW-31-D2R	AMW-3	AMW-3	AMW-3	AMW-4	AMW-4	AMW-4	AMW-6	AMW-6	AMW-6
Historical Sample Depth (feet):	2 - 4	4 - 6	2 - 4	4 - 6	6 - 8	0 - 2	2 - 4	4 - 6	2 - 4	4 - 6	6 - 8	2 - 4	4 - 6	6 - 8
Current Estimated Sample Depth (feet)	6 - 8	8 - 10	6 - 8	8 - 10	10 - 12	4 - 6	6 - 8	8 - 10	6 - 8	8 - 10	10 - 12	6 - 8	8 - 10	10 - 12
Date Collected:	11/17/10	11/17/10	11/17/10	11/17/10	11/17/10	11/30/10	11/30/10	11/30/10	11/18/10	11/18/10	11/18/10	11/18/10	11/18/10	11/18/10
Sampling Event	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit
Fluoranthene	0.41	0.43	5.6	1.5	11	1	0.69	0.059	0.036	1.3	0.77	1	1.1	0.28
Pyrene	0.34	0.36	4.6	1.2	12	0.94	0.67	0.058	0.029	1.3	1	0.83	1	0.24
F+P	0.75	0.79	10.2	2.7	23	1.94	1.36	0.117	0.065	2.6	1.77	1.83	2.1	0.52
F/F+P	**0.55**	**0.54**	**0.55**	**0.56**	**0.48**	**0.52**	**0.51**	**0.50**	**0.55**	**0.50**	**0.44**	**0.55**	**0.52**	**0.54**

Notes:

Bolded and shaded ratios: Greater than 0.4.

Location ID:	AMW-7	AMW-7	AMW-7	AMW-11	AMW-11	AMW-11	P-18R	P-18R	P-18R	TP-1-1	TP-3-1	TP-4-B-1	TP-5-2	TP-5-3
Historical Sample Depth (feet):	4 - 6	8 - 10	10 - 12	2 - 4	4 - 6	6 - 8	0 - 2	4 - 6	6 - 8	4	5	1.5	5.5	6
Current Estimated Sample Depth (feet)	8 - 10			6 - 8	8 - 10	10 - 12	4 - 6	8 - 10	10 - 12	8	9	5.5	9.5	10
Date Collected:	11/29/10	11/29/10	11/29/10	12/01/10	12/01/10	12/01/10	12/02/10	12/02/10	12/02/10	11/29/10	12/01/10	12/02/10	12/02/10	12/02/10
Sampling Event	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit
Fluoranthene	0.17	0.11	0.041	0.48	0.25	4	16	0.14	0.3	0.48	0.21	0.71	0.66	0.2
Pyrene	0.16	0.088	0.035	0.32	0.19	2.6	13	0.13	0.28	0.36	0.23	0.7	0.69	0.23
F+P	0.33	0.198	0.076	0.8	0.44	6.6	29	0.27	0.58	0.84	0.44	1.41	1.35	0.43
F/F+P	**0.52**	**0.56**	**0.54**	**0.60**	**0.57**	**0.61**	**0.55**	**0.52**	**0.52**	**0.57**	**0.48**	**0.50**	**0.49**	**0.47**

Notes:

Bolded and shaded ratios: Greater than 0.4.

Location ID:	TP-6-1	TP-6-2	TP-6-3	TP-7-1	TP-7-2	TP-10-1	TP-10-2	TP-11-1	TP-12-1
Historical Sample Depth (feet):	5	5.5	5.5	5	5	6	6	5	4.7
Current Estimated Sample Depth (feet)	9	9.5	9.5	9	9	10	10	9	8.7
Date Collected:	12/03/10	12/03/10	12/03/10	12/06/10	12/06/10	12/07/10	12/07/10	12/07/10	12/07/10
Sampling Event	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit	Shallow Sand Fill - Shallow Unit
Fluoranthene	1.2	0.046	4.8	0.19	7	0.23	0.42	0.13	0.58
Pyrene	1.1	0.039	4.8	0.19	7.7	0.3	0.41	0.11	0.75
F+P	2.3	0.085	9.6	0.38	14.7	0.53	0.83	0.24	1.33
F/F+P	**0.52**	**0.54**	**0.50**	**0.50**	**0.48**	**0.43**	**0.51**	**0.54**	**0.44**

Notes:

Bolded and shaded ratios: Greater than 0.4.

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:			AMW-14-D1	AMW-14-D1	AMW-14-D1	AMW-14-D2	AMW-14-D2	AMW-14-VD	AMW-14-VD	AMW-14-VD	AMW-15-D1	AMW-15-D1	AMW-15-D1	AMW-15-D1	AMW-15-D1
Approximate Screen Interval (Feet below top of casing):			21.5 - 31.5	21.5 - 31.5	21.5 - 31.5	31.5 - 41.5	31.5 - 41.5	63.5 - 73.5	63.5 - 73.5	63.5 - 73.5	23 - 33	23 - 33	23 - 33	23 - 33	23 - 33
Date Collected:			07/05/17	08/27/17	10/11/17	08/27/17	10/11/17	07/05/17	08/27/17	10/11/17	10/26/16	10/26/16	07/05/17	08/27/17	10/11/17
Field Notes			Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Low Flow	Hydrasleeve	Hydrasleeve	Hydrasleeve
	NYSDEC TOGS 1.1.1 Water Guidance Values	Units													
Volatile Organics															
1,1,1-Trichloroethane	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,1,2-Trichloroethane	1	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,1-Dichloroethane	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,1-Dichloroethene	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,2,4-Trichlorobenzene	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,2-Dibromoethane	0.0006	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,2-Dichlorobenzene	3	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,2-Dichloroethane	0.6	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,2-Dichloropropane	1	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,3-Dichlorobenzene	3	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
1,4-Dichlorobenzene	3	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
2-Butanone	50	ug/L	40 U	40 U	20 U	10 U	10 U	10 U	10 U	10 U	100 U	40 U	40 U	40 U	20 U
2-Hexanone	50	ug/L	20 U	20 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	50 U	20 U	20 U	20 U	10 U
4-Methyl-2-pentanone	- -	ug/L	20 U	20 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	50 U	20 U	20 U	20 U	10 U
Acetone	50	ug/L	40 U	40 U	20 U	10 U	10 U	**3.7 J**	10 U	10 U	100 U	40 U	40 U	40 U	20 U
Benzene	1	ug/L	**2.0 J**	4.0 U	**4.7**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**11**	**5.1**	4.0 U	**12**	**11**
Bromodichloromethane	50	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Bromoform	50	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Bromomethane	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Carbon Disulfide	60	ug/L	4.0 U	4.0 U	**1.3 J**	**2.7**	**0.94 J**	**0.25 J**	1.0 U	**1.6**	10 U	**1.7 J**	4.0 U	**2.7 J**	**2**
Carbon Tetrachloride	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Chlorobenzene	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Chloroethane	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Chloroform	7	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Chloromethane	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
cis-1,2-Dichloroethene	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**81**	**38**	4.0 U	**5.1**	**1.6 J**
cis-1,3-Dichloropropene	0.4	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Cyclohexane	- -	ug/L	4.0 U	4.0 U	**3**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	**2.0 J**	4.0 U	4.0 U	2.0 U
Dibromochloromethane	50	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Dichlorodifluoromethane	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U*	4.0 U*	4.0 U	4.0 U	2.0 U
Ethylbenzene	5	ug/L	4.0 U	4.0 U	**7.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	**4.1**	**4.3**
Isopropylbenzene	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Methyl acetate	- -	ug/L	10 U	10 U	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	25 U	10 U	10 U	10 U	5.0 U
Methyl tert-butyl ether	10	ug/L	**170**	**170**	**170**	**14**	**48**	**0.51 J**	**0.42 J**	**0.65 J**	**110**	**180**	**170**	**200**	**290**
Methylcyclohexane	- -	ug/L	4.0 U	4.0 U	**2.4**	**0.27 J**	1.0 U	1.0 U	1.0 U	**0.58 J**	**3.3 J**	**0.87 J**	4.0 U	4.0 U	2.0 U
Methylene Chloride	5	ug/L	4.0 U	4.0 U	**0.95 J**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**8.9 J**	**4.1**	4.0 U	**2.2 J**	2.0 U
Styrene	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Tetrachloroethene	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Toluene	5	ug/L	4.0 U	4.0 U	**1.0 J**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**18**	**6.6**	4.0 U	**17**	**5.9**
trans-1,2-Dichloroethene	5	ug/L	4.0 U	4.0 U	**13**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	**28**	**13**
trans-1,3-Dichloropropene	0.4	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 UF1	4.0 U	4.0 U	4.0 U	2.0 U
Trichloroethene	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**48**	**18**	4.0 U	4.0 U	2.0 U
Trichlorofluoromethane	5	ug/L	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	4.0 U	4.0 U	4.0 U	2.0 U
Vinyl Chloride	2	ug/L	**78**	**7.6**	**3.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**600 F1**	**240**	**10**	**76**	**24**
Xylenes (total)	5	ug/L	**3.2 J**	8.0 U	**20**	2.0 U	2.0 U	2.0 U	2.0 U	**3.2**	**15 J**	**5.5 J**	8.0 U	**17**	**12**
Inorganics															
Iron, Dissolved	0.3	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	**1.9 B**	**0.095 B**	NA	NA	NA
Iron,Total	0.3	mg/L	**4.7**	**5.2**	**4.4**	**0.034 J**	**17.3**	**11.3**	**17**	**16.4**	NA	NA	**2.1**	**12.4**	**6.9**
Manganese, Dissolved	0.3	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	**0.070 B**	**0.11 B**	NA	NA	NA
Manganese, Total	0.3	mg/L	**0.048**	**0.049 B**	**0.048 B**	**0.016 B**	**0.76 B**	**0.3**	**0.42 B**	**0.39 B**	NA	NA	**0.084**	**0.17 B**	**0.10 B**
Sodium	20	mg/L	**1,690^**	**1,730**	**1,590**	**13.5**	**3,260**	**4,800^**	**9,160**	**8,680**	NA	NA	**1,750^**	**1,520**	**1,710^**
General Chemistry															
Alkalinity	- -	mg/L	**716 B**	**563 B**	**563**	**439 B**	**830**	**440 B**	**415 B**	**454**	**130**	**528**	**597**	**471 B**	**641**
Alkalinity, Bicarbonate	- -		NA	NA	NA	NA	NA	NA	NA	NA	**130**	**528**	NA	NA	NA
Carbon Dioxide	- -	mg/L	**130**	**79**	**23**	**18**	**100**	**120**	**100**	**82**	NA	NA	**110**	**27**	**34**
Chloride	250	mg/L	**3,060**	**3,130**	**1,860**	**4,930**	**4,070**	**15,200**	**15,400**	**16,200**	NA	NA	**73.2**	**2,480**	**2,760**
Ethane	- -	mg/L	0.15 U	0.33 U	0.170 U	0.083 U	0.170 U	0.0075 U	0.0075 U	0.0075 U	NA	NA	0.15 U	**0.092 J**	0.33 U
Ethene	- -	mg/L	0.14 U	**0.2 J**	**0.19**	0.077 U	0.150 U	0.0070 U	0.0070 U	0.0070 U	NA	NA	0.14 U	**0.83**	**0.47**
Methane	- -	mg/L	**1.1**	**0.55**	**0.58**	**0.21**	**1.2**	**0.02**	**0.018**	**0.048**	NA	NA	**0.4**	**4**	**2.4**
Ferric Iron	- -		**4.5**	**5.2**	**4.4**	0.10 U	**17.3**	**11.3**	**12.3**	**14.8**	NA	NA	**2.1**	**12.4**	**6.9**
Ferrous Iron	- -		**0.17 HF**	0.1 U HF	0.10 U HF	0.10 U HF	0.10 U HF	0.10 U HF	**4.7 HF**	**1.6 HF**	NA	NA	0.10 U HF F1	0.50 UHF	0.20 U HF
Nitrate Nitrogen	10	mg/L	0.050 U	0.050 UH	0.050 U	0.050 UH	0.050 U	0.050 U	0.050 UH	0.050 U	NA	NA	0.050 U	0.050 UH	0.050 U
Nitrite Nitrogen	1	mg/L	0.050 U	0.050 UH	0.050 U	0.050 UH	0.050 U	0.050 U	0.050 UH	0.050 U	NA	NA	0.050 U	0.050 UH	0.050 U

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

			Location ID:	AMW-14-D1	AMW-14-D1	AMW-14-D1	AMW-14-D2	AMW-14-D2	AMW-14-VD	AMW-14-VD	AMW-14-VD	AMW-15-D1	AMW-15-D1	AMW-15-D1	AMW-15-D1	AMW-15-D1
			Approximate Screen Interval (Feet below top of casing):	21.5 - 31.5	21.5 - 31.5	21.5 - 31.5	31.5 - 41.5	31.5 - 41.5	63.5 - 73.5	63.5 - 73.5	63.5 - 73.5	23 - 33	23 - 33	23 - 33	23 - 33	23 - 33
			Date Collected:	07/05/17	08/27/17	10/11/17	08/27/17	10/11/17	07/05/17	08/27/17	10/11/17	10/26/16	10/26/16	07/05/17	08/27/17	10/11/17
			Field Notes	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Low Flow	Hydrasleeve	Hydrasleeve	Hydrasleeve
Total Organic Carbon	- -	mg/L		**13.1 B**	**10.6 B**	**23.6 B**	**7.8 B**	**11.6 B**	**3.4 B**	**4.0 B**	**4.5 B**	NA	NA	**9.4 B**	**53.4 B**	**36.2 B**
Sulfate	250	mg/L		**140**	**251**	**124 B**	**507**	**210 B**	**1,830**	**2,000**	**1,890**	**63**	**164**	**1,640**	**156**	**189 B**
Sulfide	0.05	mg/L		**38**	**56.4**	**50.4**	**4.2**	**27.2**	**0.80 J**	1.0 U	**0.8 J**	**8**	**36**	**42**	**53.2**	**41.6**

Notes:
ug/L: micrograms per liter.
mg/L: milligrams per liter.
U: Indicates the analyte was analyzed for but not detected.
J: Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
F1: MS and/or MSD recovery is outside acceptance lmits.
B: Compound was found in the blank and sample.
H: Sample was prepped or analyzed beyond specified holding time.
HF: Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
*: LCS or LCSD is outside acceptance limits.
^: ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related quality control is outside acceptance limits.
Bolded value: indicates a result above laboratory detection limits.
Shaded cells: Indicates result above the referenced standard.

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:			AMW-15-D2	AMW-15-D2	AMW-15-D2	AMW-15-D2	AMW-15-D2	AMW-15-D3	AMW-15-D3	AMW-15-VD	AMW-15-VD	MW-23-D1R	MW-23-D1R
Approximate Screen Interval (Feet below top of casing):			30 - 40	29.5 - 39.5	29.5 - 39.5	29.5 - 39.5	29.5 - 39.5	39.5 - 49.5	39.5 - 49.5	60 - 70	60 - 70	20 - 30	20 -30
Date Collected:			10/26/16	10/26/16	07/05/17	08/27/17	10/11/17	08/27/17	10/11/17	08/27/17	10/11/17	10/26/16	10/26/16
Field Notes			Hydrasleeve	Low Flow	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Low Flow
	NYSDEC TOGS 1.1.1 Water Guidance Values	Units											
Volatile Organics													
1,1,1-Trichloroethane	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,1,2-Trichloroethane	1	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,1-Dichloroethane	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,1-Dichloroethene	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,2,4-Trichlorobenzene	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,2-Dibromoethane	0.0006	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,2-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,2-Dichloroethane	0.6	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,2-Dichloropropane	1	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,3-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
1,4-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
2-Butanone	50	ug/L	10 U	10 U	40 U	40 U	40 U	40 U	20 U	10 U	10 U	20 U	50 U
2-Hexanone	50	ug/L	5.0 U	5.0 U	20 U	20 U	20 U	20 U	10 U	5.0 U	5.0 U	10 U	25 U
4-Methyl-2-pentanone	- -	ug/L	5.0 U	5.0 U	20 U	20 U	20 U	20 U	10 U	5.0 U	5.0 U	10 U	25 U
Acetone	50	ug/L	**13**	**5.1 J**	40 U	40 U	40 U	**36 J**	20 U	10 U	**5.0 J**	20 U	50 U
Benzene	1	ug/L	1.0 U	**0.47 J**	4.0 U	**9.8**	**2.7 J**	**3.7 J**	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Bromodichloromethane	50	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Bromoform	50	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Bromomethane	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Carbon Disulfide	60	ug/L	**0.75 J**	**0.42 J**	4.0 U	4.0 U	4.0 U	**1.8 J**	2.0 U	1.0 U	1.0 U	**0.53 J**	5.0 U
Carbon Tetrachloride	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Chlorobenzene	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Chloroethane	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Chloroform	7	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Chloromethane	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
cis-1,2-Dichloroethene	5	ug/L	**0.86 J**	**1.6**	4.0 U	4.0 U	4.0 U	**19**	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
cis-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Cyclohexane	- -	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	**0.40 J**	5.0 U
Dibromochloromethane	50	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Dichlorodifluoromethane	5	ug/L	1.0 U*	1.0 U*	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U*	5.0 U*
Ethylbenzene	5	ug/L	1.0 U	1.0 U	4.0 U	**5.1**	4.0 U	**3.4 J**	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Isopropylbenzene	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Methyl acetate	- -	ug/L	2.5 U	2.5 U	10 U	10 U	10 U	10 U	5.0 U	2.5 U	2.5 U	5.0 U	13 U
Methyl tert-butyl ether	10	ug/L	**42**	**110**	**120**	**350**	**160**	**64**	2.0 U	**1.2**	**0.94 J**	**140**	**180**
Methylcyclohexane	- -	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Methylene Chloride	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	**2.4 J**	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Styrene	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Tetrachloroethene	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Toluene	5	ug/L	1.0 U	1.0 U	4.0 U	**7.8**	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
trans-1,2-Dichloroethene	5	ug/L	1.0 U	1.0 U	4.0 U	**5.5**	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
trans-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Trichloroethene	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	**140**	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Trichlorofluoromethane	5	ug/L	1.0 U	1.0 U	4.0 U	4.0 U	4.0 U	4.0 U	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Vinyl Chloride	2	ug/L	**4.7**	**30**	4.0 U	**300**	**25**	**16**	2.0 U	1.0 U	1.0 U	2.0 U	5.0 U
Xylenes (total)	5	ug/L	2.0 U	2.0 U	8.0 U	**12**	8.0 U	**17**	4.0 U	2.0 U	**3**	4.0 U	10 U
Inorganics													
Iron, Dissolved	0.3	mg/L	**0.050 B**	0.050 U	NA	NA	NA	NA	NA	NA	NA	0.050 U	**0.24 B**
Iron,Total	0.3	mg/L	NA	NA	**0.7**	**3.5**	**4.5**	**2.3**	**0.45**	**11.8**	**11.7**	NA	NA
Manganese, Dissolved	0.3	mg/L	**0.085 B**	**0.098 B**	NA	NA	NA	NA	NA	NA	NA	**0.021 B**	**0.67 B**
Manganese, Total	0.3	mg/L	NA	NA	**0.11**	**0.14 B**	**0.13 B**	**0.45 B**	**0.099 B**	**0.35 B**	**0.34 B**	NA	NA
Sodium	20	mg/L	NA	NA	**2,090 ^**	**2,200**	**2,150^**	**2980 ^**	**2,500^**	**8,910**	**9,180^**	NA	NA
General Chemistry													
Alkalinity	- -	mg/L	**99.9**	**600**	**687**	**673 B**	**811**	**408 B**	**508**	**135 B**	**329**	**555**	**525**
Alkalinity, Bicarbonate	- -		**99.9**	**600**	NA	NA	NA	NA	NA	NA	NA	**555**	**525**
Carbon Dioxide	- -	mg/L	NA	NA	**98**	**94**	**68**	**5.1**	5.0 U	**31**	**40**	NA	NA
Chloride	250	mg/L	NA	NA	**3,700**	**3,650**	**3,710 F1**	**4,230**	**7,530**	**16,100**	**16,000**	NA	NA
Ethane	- -	mg/L	NA	NA	0.15 U	0.17 U	0.170 U	0.33 U	0.170 U	0.0075 U	0.0075 U	NA	NA
Ethene	- -	mg/L	NA	NA	0.14 U	**0.037 J**	0.150 U	0.31 U	0.150 U	0.0070 U	0.0070 U	NA	NA
Methane	- -	mg/L	NA	NA	**0.43**	**0.88**	**0.28**	**2.4**	**0.61**	**0.024**	**0.008**	NA	NA
Ferric Iron	- -		NA	NA	**0.53**	**3.5**	**4.5**	**2.3**	**0.45**	**11.5**	**11.7**	NA	NA
Ferrous Iron	- -		NA	NA	**0.17 HF**	0.10 U HF	0.10 U HF	0.5 U HF	0.10 U HF	**0.28 HF**	0.10 U HF	NA	NA
Nitrate Nitrogen	10	mg/L	NA	NA	0.050 U	0.050 U H	0.050 U	0.05 U H	0.050 U	0.05 U H	0.050 U	NA	NA
Nitrite Nitrogen	1	mg/L	NA	NA	0.050 U	0.050 U H	0.050 U	0.050 U H	0.050 U	0.050 U H	0.050 U	NA	NA

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

			Location ID:	AMW-15-D2	AMW-15-D2	AMW-15-D2	AMW-15-D2	AMW-15-D2	AMW-15-D3	AMW-15-D3	AMW-15-VD	AMW-15-VD	MW-23-D1R	MW-23-D1R
			Approximate Screen Interval (Feet below top of casing):	30 - 40	29.5 - 39.5	29.5 - 39.5	29.5 - 39.5	29.5 - 39.5	39.5 - 49.5	39.5 - 49.5	60 - 70	60 - 70	20 - 30	20 -30
			Date Collected:	10/26/16	10/26/16	07/05/17	08/27/17	10/11/17	08/27/17	10/11/17	08/27/17	10/11/17	10/26/16	10/26/16
			Field Notes	Hydrasleeve	Low Flow	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Low Flow
Total Organic Carbon	- -	mg/L		NA	NA	**10.3 B**	**10.9 B**	**9.8 B**	**34.3 B**	**7.2 B**	**3.5 B**	**3.4 B**	NA	NA
Sulfate	250	mg/L		**243**	**216**	**269**	**237**	**254 B**	**495**	**897 B**	**2,140**	**2,070 B**	**148**	**156**
Sulfide	0.05	mg/L		**12.8**	**36**	**34**	**58**	**45.2**	**16.4**	**39.2**	1 U	1.0 U	**6.4**	**13.6**

Notes:
ug/L: micrograms per liter.
mg/L: milligrams per liter.
U: Indicates the analyte was analyzed for but not detected.
J: Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
F1: MS and/or MSD recovery is outside acceptance lmits.
B: Compound was found in the blank and sample.
H: Sample was prepped or analyzed beyond specified holding time.
HF: Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
*: LCS or LCSD is outside acceptance limits.
^: ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related quality control is outside acceptance limits.
Bolded value: indicates a result above laboratory detection limits.
Shaded cells: Indicates result above the referenced standard.

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-23-D1R	MW-23-D1R	MW-23-D1R	MW-23-D2R	MW-23-D2R	MW-23-D2R	MW-24-D1	MW-24-D1	MW-24-D2	MW-24-D2	MW-24-D2	MW-24-D2	MW-24-D2
Approximate Screen Interval (Feet below top of casing):			20 - 30	20 - 30	20 - 30	34.5 - 44.5	34.5 - 44.5	34.5 - 44.5	20.5 - 30.5	20.5 - 30.5	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46
Date Collected:			07/05/17	08/27/17	10/11/17	07/05/17	08/27/17	10/11/17	10/26/16	10/26/16	10/25/16	10/25/16	07/05/17	08/27/17	10/11/17
Field Notes			Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Low Flow	Hydrasleeve	Low Flow	Hydrasleeve	Hydrasleeve	Hydrasleeve
Volatile Organics															
1,1,1-Trichloroethane	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,1,2-Trichloroethane	1	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,1-Dichloroethane	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**0.74 J [0.56 J]**	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,1-Dichloroethene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,2,4-Trichlorobenzene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,2-Dibromoethane	0.0006	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,2-Dichlorobenzene	3	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,2-Dichloroethane	0.6	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,2-Dichloropropane	1	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,3-Dichlorobenzene	3	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
1,4-Dichlorobenzene	3	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
2-Butanone	50	ug/L	40 U	40 U	40 U	10 U	40 U	10 U	10 U [10 U]	40 U	40 U	50 U	80 U	80 U	20 U
2-Hexanone	50	ug/L	20 U	20 U	20 U	5.0 U	20 U	5.0 U	5.0 U [5.0 U]	20 U	20 U	25 U	40 U	40 U	10 U
4-Methyl-2-pentanone	- -	ug/L	20 U	20 U	20 U	5.0 U	20 U	5.0 U	5.0 U [5.0 U]	20 U	20 U	25 U	40 U	40 U	10 U
Acetone	50	ug/L	40 U	40 U	40 U	**4 J**	40 U	10 U	10 U [10 U]	40 U	**62**	**56**	80 U	80 U	20 U
Benzene	1	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**4.9 [4.1]**	4.0 U	4.0 U	**3.0 J**	8.0 U	8.0 U	2.0 U
Bromodichloromethane	50	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Bromoform	50	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Bromomethane	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Carbon Disulfide	60	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	**0.44 J**	**1.3 [1.7]**	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Carbon Tetrachloride	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Chlorobenzene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Chloroethane	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Chloroform	7	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Chloromethane	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
cis-1,2-Dichloroethene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**6.1 [4.0]**	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
cis-1,3-Dichloropropene	0.4	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Cyclohexane	- -	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**1.4 [1.6]**	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Dibromochloromethane	50	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Dichlorodifluoromethane	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U* [1.0 U*]	4.0 U*	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Ethylbenzene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**2.2 [2.3]**	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Isopropylbenzene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Methyl acetate	- -	ug/L	10 U	10 U	10 U	2.5 U	10 U	2.5 U	2.5 U [2.5 U]	10 U	10 U	13 U	20 U	20 U	5.0 U
Methyl tert-butyl ether	10	ug/L	**140**	**130**	**150**	**8**	**72**	**140**	**120 [150]**	**81**	**120**	**270**	**220**	**87**	**60**
Methylcyclohexane	- -	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**0.66 J [0.64 J]**	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Methylene Chloride	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	**120**	**84 F1**	8.0 U	8.0 U	2.0 U
Styrene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Tetrachloroethene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Toluene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**0.64 J [0.68 J]**	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
trans-1,2-Dichloroethene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**6.8 [6.5]**	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
trans-1,3-Dichloropropene	0.4	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Trichloroethene	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Trichlorofluoromethane	5	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U [1.0 U]	4.0 U	4.0 U	5.0 U	8.0 U	8.0 U	2.0 U
Vinyl Chloride	2	ug/L	4.0 U	4.0 U	4.0 U	1.0 U	4.0 U	**1.2**	**15 [33]**	4.0 U	**20**	**280 F1**	**250 F1**	**72**	**18**
Xylenes (total)	5	ug/L	8.0 U	8.0 U	8.0 U	2.0 U	8.0 U	2.0 U	**6.6** [7.2]	8.0 U	8.0 U	10 U	16 U	16 U	4.0 U
Inorganics															
Iron, Dissolved	0.3	mg/L	NA	NA	NA	NA	NA	NA	**).058 B** [0.050 U	**0.024 JB**	**0.049 J**	0.050 U	NA	NA	NA
Iron,Total	0.3	mg/L	**17.1**	**33.9**	**3.8**	**4.4**	**1.8**	**2.8**	NA	NA	NA	NA	**1.8**	**6.6**	**5.5**
Manganese, Dissolved	0.3	mg/L	NA	NA	NA	NA	NA	NA	**.0089 B [0.049 E**	**0.059 B**	**0.062**	**0.056**	NA	NA	NA
Manganese, Total	0.3	mg/L	**3.1**	**2.2 B**	**1.0 B**	**0.21**	**0.17 B**	**0.14 B**	NA	NA	NA	NA	**0.088**	**0.16 B**	**0.14 B**
Sodium	20	mg/L	**1,190^**	**1,190 ^**	**1,230^**	**2,190^**	**1930 ^**	**2,570^**	NA	NA	NA	NA	**2,520^**	**2,260**	**2,380^**
General Chemistry															
Alkalinity	- -	mg/L	**500**	**512 B**	**562**	**520**	**434 B**	**654**	**324 [526]**	**577**	**512**	**759**	**667**	**774 B**	**804**
Alkalinity, Bicarbonate	- -		NA	NA	NA	NA	NA	NA	**324 [526]**	**577**	**512**	**759**	NA	NA	NA
Carbon Dioxide	- -	mg/L	**82**	**75**	**55**	**130**	**110**	**100**	NA	NA	NA	NA	**130**	**110**	**54**
Chloride	250	mg/L	**1,970**	**2,190**	**2,270**	**5,260**	**5,420**	**4,460**	NA	NA	NA	NA	**4,060**	**4,100**	**3,720**
Ethane	- -	mg/L	0.15 U	0.083 U	0.170 U	0.038 U	0.083 U	0.170 U	NA	NA	NA	NA	0.15 U	0.17 U	0.170 U
Ethene	- -	mg/L	0.14 U	0.077 U	0.150 U	0.035 U	0.077 U	0.150 U	NA	NA	NA	NA	0.14 U	0.15 U	0.150 U
Methane	- -	mg/L	**0.15**	**1.5**	**1.3**	**0.073**	**0.36**	**0.2**	NA	NA	NA	NA	**0.13**	**0.98**	**0.41**
Ferric Iron	- -		**17.1**	**31.9**	**3.8**	**4.2**	**1.8**	**2.8**	NA	NA	NA	NA	**1.8**	**6.6**	**5.5**
Ferrous Iron	- -		0.10 U HF	**2 HF**	0.10 U HF	**0.17 HF**	0.1 U HF	0.10 U HF	NA	NA	NA	NA	0.10 U HF	0.1 U HF	0.1 U HF
Nitrate Nitrogen	10	mg/L	0.050 U	**0.023 J H**	0.050 U	0.050 U	**0.037 J H**	0.050 U	NA	NA	NA	NA	0.050 U	0.05 U H	0.050 U
Nitrite Nitrogen	1	mg/L	0.050 U	0.050 U H	0.050 U	0.050 U	0.050 U H	0.050 U	NA	NA	NA	NA	0.050 U	0.050 U H	0.050 U

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:			**MW-23-D1R**	**MW-23-D1R**	**MW-23-D1R**	**MW-23-D2R**	**MW-23-D2R**	**MW-23-D2R**	**MW-24-D1**	**MW-24-D1**	**MW-24-D2**	**MW-24-D2**	**MW-24-D2**	**MW-24-D2**	**MW-24-D2**
Approximate Screen Interval (Feet below top of casing):			**20 - 30**	**20 - 30**	**20 - 30**	**34.5 - 44.5**	**34.5 - 44.5**	**34.5 - 44.5**	**20.5 - 30.5**	**20.5 - 30.5**	**36 - 46**	**36 - 46**	**36 - 46**	**36 - 46**	**36 - 46**
Date Collected:			**07/05/17**	**08/27/17**	**10/11/17**	**07/05/17**	**08/27/17**	**10/11/17**	**10/26/16**	**10/26/16**	**10/25/16**	**10/25/16**	**07/05/17**	**08/27/17**	**10/11/17**
Field Notes			**Hydrasleeve**	**Hydrasleeve**	**Hydrasleeve**	**Hydrasleeve**	**Hydrasleeve**	**Hydrasleeve**	**Hydrasleeve**	**Low Flow**	**Hydrasleeve**	**Low Flow**	**Hydrasleeve**	**Hydrasleeve**	**Hydrasleeve**
Total Organic Carbon	- -	mg/L	**16.1 B**	**17.3 B**	**15.4 B**	**5.2 B**	**6.1 B**	**9.7 B**	NA	NA	NA	NA	**12.5 B**	**11.6 B**	**10.8 B**
Sulfate	250	mg/L	**259**	**173**	**178 B**	**861**	**665**	**478 B**	**248 [217]**	**219**	**374**	**270**	**541**	**346**	**298 B**
Sulfide	0.05	mg/L	**8.4**	**15.4**	**26.8**	**29.6**	**36.2**	**20**	**60 [64 F1]**	**56**	**48**	**64**	**84**	**61.8**	**56.4**

Notes:
ug/L: micrograms per liter.
mg/L: milligrams per liter.
U: Indicates the analyte was analyzed for but not detected.
J: Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
F1: MS and/or MSD recovery is outside acceptance lmits.
B: Compound was found in the blank and sample.
H: Sample was prepped or analyzed beyond specified holding time.
HF: Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
*: LCS or LCSD is outside acceptance limits.
^: ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related quality control is outside acceptance limits.
Bolded value: indicates a result above laboratory detection limits.
Shaded cells: Indicates result above the referenced standard.

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:			MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-D2	MW-27-D1
Approximate Screen Interval (Feet below top of casing):			18.5 - 28.5	18.5 - 28.5	18.5 - 28.5	18.5 - 28.5	18.5 - 28.5	34 - 44	34 - 44	34 - 44	34 - 44	34 - 44	21.5 - 31.5
Date Collected:			10/25/16	10/25/16	07/05/17	08/27/17	10/11/17	10/25/16	10/25/16	07/05/17	08/27/17	10/11/17	07/05/17
Field Notes			Hydrasleeve	Low Flow	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Low Flow	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve
	NYSDEC TOGS 1.1.1 Water Guidance Values	Units											
Volatile Organics													
1,1,1-Trichloroethane	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,1,2-Trichloroethane	1	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,1-Dichloroethane	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,1-Dichloroethene	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,2,4-Trichlorobenzene	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,2-Dibromoethane	0.0006	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,2-Dichlorobenzene	3	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,2-Dichloroethane	0.6	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,2-Dichloropropane	1	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,3-Dichlorobenzene	3	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
1,4-Dichlorobenzene	3	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
2-Butanone	50	ug/L	100 U	40 U	100 U	100 U	20 U	20 U	20 U	10 U	80 U	10 U	20 U
2-Hexanone	50	ug/L	50 U	20 U	50 U	50 U	10 U	10 U	10 U	5.0 U	40 U	5.0 U	10 U
4-Methyl-2-pentanone	- -	ug/L	50 U	20 U	50 U	50 U	10 U	10 U	10 U	5.0 U	40 U	5.0 U	10 U
Acetone	50	ug/L	100 U	40 U	100 U	100 U	**6.5 J**	**9.4 J**	**37**	10 U	80 U	10 U	20 U
Benzene	1	ug/L	**8.6 J**	**12**	**8.7 J**	**9.5 J**	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	**1.1 J**
Bromodichloromethane	50	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Bromoform	50	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Bromomethane	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Carbon Disulfide	60	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	**0.6 J**	2.0 U	**0.37 J**	8.0 U	1.0 U	2.0 U
Carbon Tetrachloride	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Chlorobenzene	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Chloroethane	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Chloroform	7	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Chloromethane	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
cis-1,2-Dichloroethene	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	**2.2**
cis-1,3-Dichloropropene	0.4	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Cyclohexane	- -	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Dibromochloromethane	50	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Dichlorodifluoromethane	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Ethylbenzene	5	ug/L	10 U	**3.0 J**	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Isopropylbenzene	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Methyl acetate	- -	ug/L	25 U	10 U	25 U	25 U	5.0 U	5.0 U	5.0 U	2.5 U	20 U	2.5 U	5.0 U
Methyl tert-butyl ether	10	ug/L	**310**	**390**	**290**	**240**	2.0 U	**85**	**43**	1.0 U	8.0 U	**14**	**84**
Methylcyclohexane	- -	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Methylene Chloride	5	ug/L	10 U	**3.6 J**	10 U	10 U	2.0 U	**15**	**81**	1.0 U	8.0 U	1.0 U	2.0 U
Styrene	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Tetrachloroethene	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Toluene	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
trans-1,2-Dichloroethene	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
trans-1,3-Dichloropropene	0.4	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Trichloroethene	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Trichlorofluoromethane	5	ug/L	10 U	4.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	2.0 U
Vinyl Chloride	2	ug/L	**18**	**51**	**28**	10 U	2.0 U	2.0 U	2.0 U	1.0 U	8.0 U	1.0 U	**28**
Xylenes (total)	5	ug/L	20 U	8.0 U	20 U	20 U	4.0 U	4.0 U	4.0 U	2.0 U	16 U	2.0 U	4.0 U
Inorganics													
Iron, Dissolved	0.3	mg/L	0.050 U	0.050 U	NA	NA	NA	**0.055**	0.050 U	NA	NA	NA	NA
Iron,Total	0.3	mg/L	NA	NA	**0.23**	**0.64**	**0.19**	NA	NA	**0.97**	**0.97**	**1.1**	**2.8**
Manganese, Dissolved	0.3	mg/L	**0.025**	**0.037**	NA	NA	NA	**0.063**	**0.14**	NA	NA	NA	NA
Manganese, Total	0.3	mg/L	NA	NA	**0.041**	**0.048 B**	**0.075 B**	NA	NA	**0.42**	**0.31 B**	**0.16 B**	**0.056**
Sodium	20	mg/L	NA	NA	**1,570^**	**1,500**	**304**	NA	NA	**3,930^**	**3,370**	**2,770**	**1,130^**
General Chemistry													
Alkalinity	- -	mg/L	**479**	**591**	**542**	**532 B**	**177**	NA	**653**	**348**	**379**	**435**	**394 B**
Alkalinity, Bicarbonate	- -		**479**	**591**	NA	NA	NA	NA	**653**	NA	NA	NA	NA
Carbon Dioxide	- -	mg/L	NA	NA	**120**	**95**	**10**	NA	NA	**130**	**110**	**55**	**26**
Chloride	250	mg/L	NA	NA	**2,520**	**2,530**	**483**	NA	NA	**9,010**	**7,980**	**8,600**	**2,860**
Ethane	- -	mg/L	NA	NA	0.15U	0.17 U	0.0075 U	NA	NA	0.0075 U	0.083 U	0.170 U	0.38 U
Ethene	- -	mg/L	NA	NA	0.14U	0.15 U	0.0070 U	NA	NA	0.0070 U	0.077 U	0.150 U	0.35 U
Methane	- -	mg/L	NA	NA	**0.25**	**1.2**	**0.01**	NA	NA	**0.076**	**0.092**	**0.67**	**0.55**
Ferric Iron	- -		NA	NA	**0.23**	**0.64**	**0.19**	NA	NA	**0.97**	**0.97**	**1.1**	**2.8**
Ferrous Iron	- -		NA	NA	0.10 U HF	0.1 U HF	0.10 U HF	NA	NA	0.10 U HF	0.10 U HF	0.10 U HF	0.10 U HF
Nitrate Nitrogen	10	mg/L	NA	NA	0.050 U	0.05 U H	**0.6**	NA	NA	0.050 U	0.050 U H	**0.028 J**	0.050 U
Nitrite Nitrogen	1	mg/L	NA	NA	0.050 U	0.050 U H	**5.1**	NA	NA	0.050 U	0.050 U H	0.050 U	0.050 U

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

			Location ID:	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-D2	MW-27-D1
			Approximate Screen Interval (Feet below top of casing):	18.5 - 28.5	18.5 - 28.5	18.5 - 28.5	18.5 - 28.5	18.5 - 28.5	34 - 44	34 - 44	34 - 44	34 - 44	34 - 44	21.5 - 31.5
			Date Collected:	10/25/16	10/25/16	07/05/17	08/27/17	10/11/17	10/25/16	10/25/16	07/05/17	08/27/17	10/11/17	07/05/17
			Field Notes	Hydrasleeve	Low Flow	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Low Flow	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve
Total Organic Carbon	- -	mg/L		NA	NA	**9.1 B**	**10.8 B**	**22.9 B**	NA	NA	**4.3 B**	**4.8 B**	**8.8 B**	**13.7 B**
Sulfate	250	mg/L		**252**	**131**	**313**	**203**	**69.2**	NA	**382**	**1,580**	**1,100**	**1,100**	**308**
Sulfide	0.05	mg/L		**48**	**56**	**44**	**43.2**	1.0 U	**40**	**36**	**24.4**	**16**	**26.8**	**14.4**

Notes:
ug/L: micrograms per liter.
mg/L: milligrams per liter.
U: Indicates the analyte was analyzed for but not detected.
J: Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
F1: MS and/or MSD recovery is outside acceptance lmits.
B: Compound was found in the blank and sample.
H: Sample was prepped or analyzed beyond specified holding time.
HF: Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
*: LCS or LCSD is outside acceptance limits.
^: ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related quality control is outside acceptance limits.
Bolded value: indicates a result above laboratory detection limits.
Shaded cells: Indicates result above the referenced standard.

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-27-D1	MW-27-D2	MW-27-D2	MW-27-D2	MW-28-D1	MW-28-D1	MW-28-D1	MW-28-D2R	MW-28-D2R	MW-28-D2R	MW-29-D1	MW-29-D1	MW-29-D1
Approximate Screen Interval (Feet below top of casing):			21.5 - 31.5	36.5 - 46.5	36.5 - 46.5	36.5 - 46.5	21 - 31	21 - 31	21 - 31	36 -46	36 - 46	36 - 46	20.5 - 30.5	20.5 - 30.5	20.5 - 30.5
Date Collected:			08/27/17	07/05/17	08/27/17	10/11/17	07/05/17	08/27/17	10/11/17	07/05/17	08/27/17	10/11/17	10/26/16	10/26/16	07/05/17
Field Notes			Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Low Flow	Hydrasleeve
Volatile Organics															
1,1,1-Trichloroethane	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,1,2-Trichloroethane	1	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,1-Dichloroethane	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	**0.58 J**	4.0 U	4.0 U	1.0 U	4.0 U	**1.3**	1.0 U	1.0 U	2.0 U
1,1-Dichloroethene	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2,4-Trichlorobenzene	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2-Dibromoethane	0.0006	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2-Dichlorobenzene	3	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2-Dichloroethane	0.6	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2-Dichloropropane	1	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,3-Dichlorobenzene	3	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,4-Dichlorobenzene	3	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
2-Butanone	50	ug/L	20 U	10 U	10 U	10 U	10 U	40 U	40 U	10 U	40 U	10 U	10 U	10 U	20 U
2-Hexanone	50	ug/L	10 U	5.0 U	5.0 U	5.0 U	5.0 U	20 U	20 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	10 U
4-Methyl-2-pentanone	- -	ug/L	10 U	5.0 U	5.0 U	5.0 U	5.0 U	20 U	20 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	10 U
Acetone	50	ug/L	20 U	10 U	10 U	10 U	10 U	40 U	40 U	10 U	40 U	10 U	10 U	10 U	20 U
Benzene	1	ug/L	**1.6 J**	1.0 U	1.0 U	1.0 U	**8.9**	**2.7 J**	**3.7 J**	1.0 U	4.0 U	1.0 U	**5.5**	**32**	**9.7**
Bromodichloromethane	50	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Bromoform	50	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Bromomethane	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Carbon Disulfide	60	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	**0.40 J**	4.0 U	**4.9**	**0.38 J**	4.0 U	**0.95 J**	**0.21 J**	1.0 U	2.0 U
Carbon Tetrachloride	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Chlorobenzene	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Chloroethane	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Chloroform	7	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Chloromethane	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
cis-1,2-Dichloroethene	5	ug/L	**3.2**	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
cis-1,3-Dichloropropene	0.4	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Cyclohexane	- -	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**11**	**21**	**7.6**
Dibromochloromethane	50	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Dichlorodifluoromethane	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U*	1.0 U*	2.0 U
Ethylbenzene	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	**1.2**	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Isopropylbenzene	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**6.4**	**16**	**7.7**
Methyl acetate	- -	ug/L	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U	10 U	2.5 U	10 U	2.5 U	2.5 U	2.5 U	5.0 U
Methyl tert-butyl ether	10	ug/L	**100**	1.0 U	1.0 U	1.0 U	**19**	**6.6**	**4.8**	1.0 U	4.0 U	1.0 U	**23**	**44**	**71**
Methylcyclohexane	- -	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**2.5**	**10**	**1.8 J**
Methylene Chloride	5	ug/L	**0.94 J**	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Styrene	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Tetrachloroethene	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Toluene	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	**1.6**	**3.1**	**2.3**
trans-1,2-Dichloroethene	5	ug/L	**5**	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
trans-1,3-Dichloropropene	0.4	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Trichloroethene	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Trichlorofluoromethane	5	ug/L	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Vinyl Chloride	2	ug/L	**110**	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Xylenes (total)	5	ug/L	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	8.0 U	8.0 U	2.0 U	8.0 U	2.0 U	**4**	**9.7**	**3.7 J**
Inorganics															
Iron, Dissolved	0.3	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.050 U	**0.22 B**	NA
Iron,Total	0.3	mg/L	**1.3**	**12.4**	**11.6**	**9.5**	**3.6**	**0.74**	**0.95**	**6.8**	**6**	**9.3**	NA	NA	**0.46**
Manganese, Dissolved	0.3	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0052 B**	**0.25 B**	NA
Manganese, Total	0.3	mg/L	**0.33 B**	**0.55**	**1.2 B**	**1.7 B**	**0.067**	**0.019 B**	**0.027 B**	**0.34**	**0.50 B**	**0.47 F1 B**	NA	NA	**0.35**
Sodium	20	mg/L	**960**	**2,690^**	**3,140^**	**4,460^**	**418^**	**1,040 ^**	**998**	**3,810^**	**5,340**	**4,750**	NA	NA	**951^**
General Chemistry															
Alkalinity	- -	mg/L	**884**	**408 B**	**303**	**374**	**457**	**365 H B**	**196**	**334**	**337 B**	**412**	**547**	**540**	**556**
Alkalinity, Bicarbonate	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**547**	**540**	NA
Carbon Dioxide	- -	mg/L	**100**	**130**	**100**	**81**	**51**	**15**	**3.8 J**	**120**	**120**	**91**	NA	NA	**180**
Chloride	250	mg/L	**5,640**	**6,330**	**9,140**	**8,290**	**3,120**	**3,310**	**1,530**	**9,090**	**11,300 B**	**6,670**	NA	NA	**1,610**
Ethane	- -	mg/L	0.17 U	0.075 U	0.083 U	0.170 U	0.150 U	0.170 U	0.170 U	0.0075 U	0.083 U	0.170 U	NA	NA	0.300 U
Ethene	- -	mg/L	0.15 U	0.070 U	0.077 U	0.150 U	0.140 U	0.150 U	0.150 U	0.0070 U	0.077 U	0.150 U	NA	NA	0.280 U
Methane	- -	mg/L	**1.1**	**0.053**	**0.18**	**0.35**	**0.29**	**1**	**0.52**	**0.067**	**0.062**	**0.37**	NA	NA	**0.68**
Ferric Iron	- -		**1.3**	**12.4**	**11.6**	**9.1**	**3.6**	**0.74**	**0.95**	**6.7**	**5.6**	**9.1**	NA	NA	**0.46**
Ferrous Iron	- -		0.1 U HF	0.10 U HF	0.1 U HF F1	**0.45 HF**	0.10 U HF	0.1 U HF	0.10 U HF	**0.092 J HF**	**0.42 HF**	**0.16 HF**	NA	NA	0.10 U HF
Nitrate Nitrogen	10	mg/L	0.05 U H	0.050 U	0.05 U H	**0.040 J**	0.050 U	0.05 U H	0.050 U	0.050 U	0.05 U H	0.050 U	NA	NA	0.050 U
Nitrite Nitrogen	1	mg/L	0.050 U H	0.050 U	0.050 U H	0.050 U	0.050 U	0.050 U H	0.050 U	0.050 U	0.050 U H	0.050 U	NA	NA	0.050 U

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

			Location ID:	MW-27-D1	MW-27-D2	MW-27-D2	MW-27-D2	MW-28-D1	MW-28-D1	MW-28-D1	MW-28-D2R	MW-28-D2R	MW-28-D2R	MW-29-D1	MW-29-D1	MW-29-D1
			Approximate Screen Interval (Feet below top of casing):	21.5 - 31.5	36.5 - 46.5	36.5 - 46.5	36.5 - 46.5	21 - 31	21 - 31	21 - 31	36 -46	36 - 46	36 - 46	20.5 - 30.5	20.5 - 30.5	20.5 - 30.5
			Date Collected:	08/27/17	07/05/17	08/27/17	10/11/17	07/05/17	08/27/17	10/11/17	07/05/17	08/27/17	10/11/17	10/26/16	10/26/16	07/05/17
			Field Notes	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Hydrasleeve	Low Flow	Hydrasleeve
Total Organic Carbon	- -	mg/L		**14.4 B**	**6.3 B**	**4.8 B**	**4.7 B**	**13.0 B**	**14.4 B**	**23.9 B**	**4.0 B**	**4.8 B**	**4.5 B**	NA	NA	**13.5 B**
Sulfate	250	mg/L		**699**	**808**	**1,300**	**1,120 B**	**340**	**349**	**196**	**1,620**	**1,370**	**938**	**1.8 J**	5 U	100 U
Sulfide	0.05	mg/L		**1.4**	**12.8**	**16.6**	**8.8**	**4**	**18.2**	**32.8**	**2.4**	**4**	**3.6**	2 U	**1.2**	**0.8 J**

Notes:
ug/L: micrograms per liter.
mg/L: milligrams per liter.
U: Indicates the analyte was analyzed for but not detected.
J: Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
F1: MS and/or MSD recovery is outside acceptance lmits.
B: Compound was found in the blank and sample.
H: Sample was prepped or analyzed beyond specified holding time.
HF: Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
*: LCS or LCSD is outside acceptance limits.
^: ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related quality control is outside acceptance limits.
Bolded value: indicates a result above laboratory detection limits.
Shaded cells: Indicates result above the referenced standard.

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

	Location ID:		MW-29-D1	MW-29-D1
	Approximate Screen Interval (Feet below top of casing):		20.5 - 30.5	20.5 - 30.5
	Date Collected:		08/27/17	10/11/17
	Field Notes		Hydrasleeve	Hydrasleeve
	NYSDEC TOGS 1.1.1 Water Guidance Values	Units		
Volatile Organics				
1,1,1-Trichloroethane	5	ug/L	2.0 U	4.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	2.0 U	4.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	2.0 U	4.0 U
1,1,2-Trichloroethane	1	ug/L	2.0 U	4.0 U
1,1-Dichloroethane	5	ug/L	2.0 U	4.0 U
1,1-Dichloroethene	5	ug/L	2.0 U	4.0 U
1,2,4-Trichlorobenzene	5	ug/L	2.0 U	4.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	2.0 U	4.0 U
1,2-Dibromoethane	0.0006	ug/L	2.0 U	4.0 U
1,2-Dichlorobenzene	3	ug/L	2.0 U	4.0 U
1,2-Dichloroethane	0.6	ug/L	2.0 U	4.0 U
1,2-Dichloropropane	1	ug/L	2.0 U	4.0 U
1,3-Dichlorobenzene	3	ug/L	2.0 U	4.0 U
1,4-Dichlorobenzene	3	ug/L	2.0 U	4.0 U
2-Butanone	50	ug/L	20 U	40 U
2-Hexanone	50	ug/L	10 U	20 U
4-Methyl-2-pentanone	- -	ug/L	10 U	20 U
Acetone	50	ug/L	20 U	40 U
Benzene	1	ug/L	**19**	**4.3**
Bromodichloromethane	50	ug/L	2.0 U	4.0 U
Bromoform	50	ug/L	2.0 U	4.0 U
Bromomethane	5	ug/L	2.0 U	4.0 U
Carbon Disulfide	60	ug/L	2.0 U	4.0 U
Carbon Tetrachloride	5	ug/L	2.0 U	4.0 U
Chlorobenzene	5	ug/L	2.0 U	4.0 U
Chloroethane	5	ug/L	2.0 U	4.0 U
Chloroform	7	ug/L	2.0 U	4.0 U
Chloromethane	5	ug/L	2.0 U	4.0 U
cis-1,2-Dichloroethene	5	ug/L	2.0 U	4.0 U
cis-1,3-Dichloropropene	0.4	ug/L	2.0 U	4.0 U
Cyclohexane	- -	ug/L	**12**	**5.4**
Dibromochloromethane	50	ug/L	2.0 U	4.0 U
Dichlorodifluoromethane	5	ug/L	2.0 U	4.0 U
Ethylbenzene	5	ug/L	2.0 U	4.0 U
Isopropylbenzene	5	ug/L	**9.3**	**5.8**
Methyl acetate	- -	ug/L	5.0 U	10 U
Methyl tert-butyl ether	10	ug/L	**28**	**20**
Methylcyclohexane	- -	ug/L	**5.8**	**1.5 J**
Methylene Chloride	5	ug/L	2.0 U	4.0 U
Styrene	5	ug/L	2.0 U	4.0 U
Tetrachloroethene	5	ug/L	2.0 U	4.0 U
Toluene	5	ug/L	**1.7 J**	4.0 U
trans-1,2-Dichloroethene	5	ug/L	2.0 U	4.0 U
trans-1,3-Dichloropropene	0.4	ug/L	2.0 U	4.0 U
Trichloroethene	5	ug/L	2.0 U	4.0 U
Trichlorofluoromethane	5	ug/L	2.0 U	4.0 U
Vinyl Chloride	2	ug/L	2.0 U	4.0 U
Xylenes (total)	5	ug/L	**4.3**	**4.3 J**
Inorganics				
Iron, Dissolved	0.3	mg/L	NA	NA
Iron,Total	0.3	mg/L	**2.4**	**3.4**
Manganese, Dissolved	0.3	mg/L	NA	NA
Manganese, Total	0.3	mg/L	**0.15 B**	**0.30 B**
Sodium	20	mg/L	**2,470 ^**	**893^**
General Chemistry				
Alkalinity	- -	mg/L	**560 B**	**619**
Alkalinity, Bicarbonate	- -		NA	NA
Carbon Dioxide	- -	mg/L	**150**	**140**
Chloride	250	mg/L	**1,580**	**1,530**
Ethane	- -	mg/L	0.66 U	0.170 U
Ethene	- -	mg/L	0.62 U	0.150 U
Methane	- -	mg/L	**11**	**5.2**
Ferric Iron	- -		**2.4**	**3.4**
Ferrous Iron	- -		0.10 U HF F1	0.10 U HF F1
Nitrate Nitrogen	10	mg/L	0.050 U H	0.050 U
Nitrite Nitrogen	1	mg/L	0.050 U H	0.050 U

Table 2-2
Summary of October 2016 Through October 2017 Groundwater Analytical Data
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

		Location ID:	**MW-29-D1**	**MW-29-D1**
		Approximate Screen Interval (Feet below top of casing):	**20.5 - 30.5**	**20.5 - 30.5**
		Date Collected:	**08/27/17**	**10/11/17**
		Field Notes	**Hydrasleeve**	**Hydrasleeve**
Total Organic Carbon	- -	mg/L	**12.9 B**	**11.3 B**
Sulfate	250	mg/L	100 U	40 U
Sulfide	0.05	mg/L	**101**	**1.2**

Notes:
ug/L: micrograms per liter.
mg/L: milligrams per liter.
U: Indicates the analyte was analyzed for but not detected.
J: Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
F1: MS and/or MSD recovery is outside acceptance lmits.
B: Compound was found in the blank and sample.
H: Sample was prepped or analyzed beyond specified holding time.
HF: Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
*: LCS or LCSD is outside acceptance limits.
^: ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related quality control is outside acceptance limits.
Bolded value: indicates a result above laboratory detection limits.
Shaded cells: Indicates result above the referenced standard.

Table 3-1
Potential Applicable or Relevant and Appropriate Requirements
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Regulation	Citation	Summary of Requirements	Potential ARAR
Potential Chemical-Specific ARARs and TBCs			
New York State			
Environmental Remediation Programs	6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives (SCOs)	Provides guidance for SCOs for various restricted property uses (industrial, commercial, restricted residential, and residential), for the protection of groundwater and ecological resources, and for unrestricted property use.	Restricted Use Commercial SCOs and the Protection of Groundwater SCOs are applicable for site remediation based on current property zoning and use of site as commercial retail store.
New York State Surface Water and Groundwater Quality Standards	6 NYCRR Part 703.6	Establishes quality standards for surface water and groundwater.	Groundwater quality standards are applicable for assessing groundwater quality at the site. Surface water quality standards are not applicable since previous investigations indicated site-related constituents are not adversely affecting Barnum Island Channel waters.
NYSDEC Ambient Water Quality Standards and Guidance Values	Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 (6/98)	Provides a compilation of ambient water quality standards and guidance values for toxic and non-conventional pollutants for use in the NYSDEC programs.	Potentially applicable TBC in evaluating groundwater and surface water quality.
NYSDOH Soil Vapor Intrusion Guidance and Soil Vapor Intrusion Updates	NYSDOH CEH BEEI Soil Vapor Intrusion Guidance (2006) and Soil Vapor Intrusion Updates (September 2013 and August 2015)	Provides guidance for evaluating soil vapor intrusion, and air guideline values derived by NYSDOH for methylene chloride, tetrachlorothene, and trichloroethene.	Potentially applicable TBC in evaluating soil vapor intrusion to indoor air.
Potential Location-Specific ARARs and TBCs			
Federal			
Clean Water Act (CWA) Section 404	33 USC 1344 33 CFR Parts 320-330 40 CFR Parts 230-231	Discharge of dredge or fill materials into waters of the U.S., including wetlands, are regulated by the U.S. Army Corps of Engineers (USACE).	Not applicable. No dredging or filling proposed under the remedial alternatives.
CWA Section 401 Certification	33 USC1341	States have the authority to veto or place conditions on federally permitted activities that may result in water pollution.	Potentially applicable to site.
Rivers and Harbors Act	33 USC 401/403	Prohibits unauthorized obstruction or alteration of navigable waters of the U.S. (dredging, fill, cofferdams, piers, etc.). Requirement for permits affecting navigable waters of the U.S.	Not applicable. No dredging or filling proposed under the remedial alternatives.

Table 3-1
Potential Applicable or Relevant and Appropriate Requirements
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Regulation	Citation	Summary of Requirements	Potential ARAR
National Environmental Policy Act Executive Orders 11988 and 11990	40 CFR 6.302 40 CFR Part 6, Appendix A	Requires federal agencies, to the extent possible, to avoid or minimize adverse impacts associated with the occupation or modification of floodplains and with the destruction or loss of wetlands, if a practical alternative exists. Provides procedures for floodplain management and wetlands protection.	Site defined by FEMA as being in special flood hazard area (SFHA) Zone AE (100-year floodplain). Potentially applicable for remedial activities at site. Remedial activities will be conducted in a manner so as to avoid, to the extent possible, adverse impacts associated with the occupation or modification of floodplains. No wetlands identified at the site.
Hazardous Waste Facility Located on a Floodplain	40 CFR Part 264.18(b)	Requirements for a hazardous waste treatment, storage, or disposal facility located in a 100-year floodplain.	Not applicable. No hazardous waste treatment, storage, or disposal facility proposed under the remedial alternatives.
Endangered Species Act	16 USC 1531 et seq. 50 CFR Part 17 50 CFR Part 402	Requires federal agencies to confirm that the continued existence of any endangered or threatened species and their habitat will not be destroyed or adversely modified by a site action.	Not applicable. Due to site use as a commercial retail facility and low quality habitat at the site, no endangered species were identified.
National Historic Preservation Act	16 USC 470 36 CFR Part 65 36 CFR Part 800	Remedial actions are required to account for the effects of remedial activities on any historic properties included on or eligible for inclusion on the National Register of Historic Places.	Not applicable. The National Register of Historic Places website indicated no records present for historical sites within approximately 1.0 mile of the site.
Archaeological Data Preservation Act	16 USC 469a-1	Provides for the preservation of historical and archaeological data that might otherwise be lost as the result of alteration of the terrain.	Not applicable. The National Register of Historic Places website indicated no records present for historical sites within approximately 1.0 mile of the site.
New York State			
New York State Historic Preservation Act of 1980	9 NYCRR Parts 426-428	Requires protection of historic, architectural, archeological, and cultural property.	Not applicable. The National Register of Historic Places website indicated no records present for historical sites within approximately 1.0 mile of the site.
New York State Floodplain Management Regulations Development Permits	6 NYCRR Part 500	Provides permit requirements for development in areas of special flood hazard (floodplain within a community subject to a one percent or greater chance of flooding in any given year).	Site defined by FEMA as being in SFHA Zone AE (one percent or greater chance of flooding in any given year). Potentially applicable for remedial activities at site. Remedial activities will be conducted in accordance with the statutory requirements of flood associated permits.
Floodplain Management Criteria for State Projects	6 NYCRR Part 502	Established floodplain management practices for projects involving state-owned and state-financed facilities.	Not applicable. Site not state-owned nor has state-financed facilities. .

Table 3-1
Potential Applicable or Relevant and Appropriate Requirements
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Regulation	Citation	Summary of Requirements	Potential ARAR
New York State Freshwater Wetlands Act	ECL Article 24 and 71 6 NYCRR Parts 662-665	Activities in wetlands areas must be conducted to preserve and protect wetlands.	Not applicable. No wetlands identified at the site.
Location standards for hazardous waste treatment, storage, and disposal facilities-100 year floodplain	6 NYCRR 373-2.2	Hazardous waste treatment, storage, or disposal facilities located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout of hazardous waste during a 100-year flood.	Not applicable. No hazardous waste treatment, storage, or disposal facility proposed under the remedial alternatives.
Endangered & Threatened Species of Fish and Wildlife	6 NYCRR Part 182	Identifies endangered and threatened species of fish and wildlife in New York and provides requirements to minimize damage to habitat of an endangered species.	Not applicable. Due to site use as a commercial retail facility and low quality habitat at the site, no endangered species were identified.
New York State Coastal Management Program	Significant Fish and Wildlife Habitat Policies 7 and 8	Significant coastal fish and wildlife habitats must be protected and preserved to maintain their viability as habitats. Fish and wildlife resources in coastal areas must be protected from introduction of hazardous waste and other pollutants which adversely impact the food chain.	Not applicable. Due to site use as a commercial retail facility and low quality habitat at the site, no significant habitat for wildlife was identified and no activities are proposed within the Barnum Island Channel.
Potential Action-Specific ARARs and TBCs			
Federal			
Occupational Safety and Health Act (OSHA)	29 CFR Parts 1910, 1926, and 1904	Establishes health and safety requirements for workers engaged in onsite remedial activities.	Potentially applicable.
RCRA - Preparedness and Prevention	40 CFR Part 264.30-264.31	These regulations outline requirements for safety equipment and spill control when treating, handling, and/or storing hazardous waste.	Potentially applicable. Safety and communication equipment will be utilized at the site as necessary. Local authorities will be familiarized with the site.
RCRA - Contingency Plan and Emergency Procedures	40 CFR Part 264.50-264.56	Provides requirements for outlining emergency procedures to be used following explosions, fires, etc. when storing hazardous waste.	Potentially applicable. Emergency and contingency plans will be developed and implemented during remedial activities. Copies of the plan will be kept onsite.
Clean Water Act - Discharge to Waters of the U.S. and Section 404	40 CFR Parts 403, and 230 Section 404 (b)(1) 33 USC 1344	Establishes site-specific pollutant limitations and performance standards which are designed to protect surface water quality. Types of discharges regulated under the CWA include: indirect discharge to a POTW, and discharge of dredged or fill material into U.S. waters.	Potentially applicable. Would apply for potential discharge of water generated by excavation dewatering and treated in a temporary onsite water treatment system.
CWA Section 401	33 USC 1341	Requires that 401 Water Quality Certification permit be provided to federal permitting agency (USACE) for any activity including, but not limited to, the construction or operation of facilities which may result in any discharge into jurisdictional waters of the U.S. and/or state.	Potentially applicable. Would apply for potential discharge of water generated by excavation dewatering and treated in a temporary onsite water treatment system.
90 Day Accumulation Rule for Hazardous Waste	40 CFR Part 262.34	Allows generators of hazardous waste to store and treat hazardous waste at the generation site for up to 90 days in tanks, containers, and containment buildings without having to obtain a RCRA hazardous waste permit.	Potentially applicable to remedial alternatives that involve the storing or treating of hazardous materials onsite.

Table 3-1
Potential Applicable or Relevant and Appropriate Requirements
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Regulation	Citation	Summary of Requirements	Potential ARAR
RCRA - General Standards	40 CFR Part 264.111	General performance standards requiring minimization of need for further maintenance and control, minimization or elimination of post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products. Also requires decontamination or disposal of contaminated equipment, structures, and soils.	Potentially applicable. Decontamination actions and facilities will be constructed for remedial activities and disassembled after completion.
Standards Applicable to Transporters of Hazardous Waste - RCRA Section 3003	40 CFR Part 263	Establishes the responsibility of off-site transporters of hazardous waste in the handling, transportation, and management of the waste. Requires manifesting, recordkeeping, and immediate action on the event of a discharge.	Potentially applicable to any company(s) contracted to transport hazardous material from the site.
United States Department of Transportation (USDOT) Rules for Transportation of Hazardous Materials	49 CFR Parts 107, 171-174, and 177-179	Requires that hazardous waste transport to offsite disposal facilities be conducted in accordance with applicable DOT requirements.	Potentially applicable to any company(s) contracted to transport hazardous material from the site.
Clean Air Act - National Ambient Air Quality Standards	40 CFR Part 50	Establishes ambient air quality standards for protection of public health.	Potentially applicable. Remedial operations will be performed in a manner that minimizes the production of constituents and particulate matter.
USEPA-Administered Permit Program: The Hazardous Waste Permit Program	RCRA Section 3005 40 CFR Part 270.1	Coves the basic permitting, application, monitoring, and reporting requirements for offsite hazardous waste management facilities.	Potentially applicable. Any offsite facility accepting hazardous waste from the site must be properly permitted. Implementation of the site remedy will include consideration of these requirements.
Land Disposal Requirements	40 CFR Part 268 42 USC Section 6901 et seq.	Restricts land disposal of hazardous waste that exceed specific criteria. Establishes universal treatment standards (UTS) to which hazardous waste must be treated prior to land disposal.	Potentially applicable to remedial activities that include disposal of generated waste material from the site.
New York State			
NYSDEC's Monitoring Well Decommissioning Guidelines	NPL Site Monitoring Well Decommissioning, dated May 1995	Guidance presents procedure for abandonment of monitoring wells at remediation sites.	This guidance potentially applicable for soil or groundwater alternatives that require the decommissioning of monitoring wells onsite.
Use and Protection of Waters	6 NYCRR Part 608.5	Requires that a permit be obtained for any excavation or placement of fill within navigable waters of the state, below the mean high tide.	Not applicable. No dredging or filling proposed under the remedial alternatives.
New York Hazardous Waste Management System - General	6 NYCRR Part 370	Provides definitions of terms and general restrictions for the Part 370 series of hazardous waste management.	Potentially applicable. Hazardous waste is to be managed according to this regulation.

Table 3-1
Potential Applicable or Relevant and Appropriate Requirements
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Regulation	Citation	Summary of Requirements	Potential ARAR
Identification and Listing of Hazardous Wastes	6 NYCRR Part 371	Outlines criteria for determining if a solid waste is a hazardous waste and is subject to regulation under 6 NYCRR Parts 371-376.	Potentially applicable for determining if solid waste generated during implementation of remedial activities are hazardous waste. These regulations do not set cleanup standards, but are considered when developing remedial alternatives.
Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities	6 NYCRR Part 372	Provides guidelines relating to the use of the manifest system and its recordkeeping requirements. Applies to generators, transporters, and facilities in New York State	Potentially applicable to any company(s) contracted to do treatment work at the site or to transport or manage hazardous material generated at the site.
New York Regulations for Transportation of Hazardous Waste	6 NYCRR Part 372.3 a-d	Outlines procedures for the packaging, labeling, manifesting, and transporting of hazardous waste.	Potentially applicable to any company(s) contracted to transport hazardous material from the site.
Waste Transporter Permits	6 NYCRR Part 364	Governs the collection, transport, and delivery of regulated waste within New York State.	Potentially applicable. Properly permitted haulers will be used if any waste materials are transported offsite.
NYSDEC Technical and Administrative Guidance Memorandums (TAGMs)	NYSDEC TAGMs	TAGMs are NYSDEC guidance that are to be considered during the remediation process.	Potential TBC during the remedial process.
Hazardous Waste Treatment, Storage, & Disposal Facility Permitting Requirements	6 NYCRR Part 373-1.1 - 373-1.8	Provides requirements and procedures for obtaining a permit to operate hazardous waste treatment, storage, and disposal facility. Also lists contents and conditions of permits.	Potentially applicable. Any offsite facility accepting waste from the site must be properly permitted.
Land Disposal of a Hazardous Waste	6 NYCRR Part 376	Restricts land disposal of hazardous waste that exceeds specific criteria and provides treatment standards to be met prior to land disposal..	Potentially applicable to remedial activities that include disposal of generated waste material from the site.
NPDES Program Requirements. Administered under New York SPDES	40 CFR Parts 122 Subpart B and 125 Administered under 6 NYCRR Part 750	Establishes permitting requirements for point source discharges; regulates discharge of water into navigable waters including the quantity and quality of discharge.	Potentially applicable if remedial activities involve treatment/disposal of water.
NYSDEC DER-33 - Institutional Controls: A Guide to Drafting and Recording Institutional Controls (December 2010)	NYSDEC DER-33	Technical guidance document that provides guidelines for proper development and recording of institution controls as part of a site remedial program.	Potentially applicable TBC when institutional controls are implemented as a component of the selected remedy.
NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, May 2010	NYSDEC DER-10	Technical guidance document that provides guidelines for identifying, evaluating, and selecting remedial alternatives to address contamination at a site.	Potentially applicable TBC during the remedial process.

Table 3-1
Potential Applicable or Relevant and Appropriate Requirements
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Regulation	Citation	Summary of Requirements	Potential ARAR
NYSDEC DEC-31 Green Remediation Program Policy, January 2011	NYSDEC DER-31	Provides guidelines for the development of site remediation strategies in a manner that minimizes environmental impacts and applies green remediation concepts (e.g., reduction in greenhouse gas emissions, energy consumption and resource use, promotion of recycling of materials, and conservations of water, land, and habitat).	Potentially applicable TBC during the remedial process.

Notes:
ARARs - Applicable or Relevant and Appropriate Requirements.
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act.
CFR - Code of Federal Regulation.
ECL - Environmental Conservation Law.
FEMA - Federal Emergency Management Agency.
NPDES - National Pollutant Discharge Elimination System.
NPL - National Priorities List.
NYCRR - New York Code of Rules and Regulations.
NYSDEC - New York State Department of Environmental Conservation.
NYSDOH - New York State Department of Health.
POTW - Publicly-owned treatment works.
RCRA - Resource Conservation and Recovery Act.
SPDES - State Pollutant Discharge Elimination System.
TBC - To be Considered
USC - United States Code.
USEPA or EPA - United States Environmental Protection Agency.
Shaded cells - Not identified as Potential ARARs or TBCs.

Table 3-2(a)
Summary of SCOs for Soil COCs
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Contaminant	Unrestricted Use SCOs (mg/kg)	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial (mg/kg)
Acetone	0.05	0.05	500
Benzene	0.06	0.06	44
Toluene	0.7	0.7	500
Ethylbenzene	1	1	390
Xylenes (total)	0.26	1.6	500
Methyl tert-butyl ether	0.93	0.93	500
n-butylbenzene	12	12	500
n-propylbenzene	3.9	3.9	500
cis-1,2-Dichloroethene	0.25	0.25	500
Methylene Chloride	0.05	0.05	500
1,2,4-trimethylbenzene	3.6	3.6	190
Trichloroethene	0.47	0.47	200
Vinyl Chloride	0.02	0.02	13
Naphthalene	12	12	500
Phenol	0.33	0.33	500
Arsenic	13	16	16
Mercury	0.18	0.73	2.8

Notes:
SCOs - NYSDEC TOGs for Soil, Subpart 375-6: Remedial Program Soil Cleanup Objectives (NYSDEC, 2006).
COCs - Constituents of Concern.
mg/kg - milligrams per kilogram.

Table 3-2(b)
Summary of TOGS 1.1.1 Water Guidance Values for COCs in Groundwater
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Contaminant	NYSDEC TOGS 1.1.1 Water Guidance Values (µg/L)
Acetone	50
Benzene	1
Toluene	5
Ethylbenzene	5
Xylenes (total)	5
Chloroform	7
cis-1,2-Dichloroethene	5
trans-1,2-Dichloroethene	5
Isopropylbenzene	5
Methylene Chloride	5
Methyl tert-butyl ether	10
Tetrachloroethene	5
Trichloroethene	5
Vinyl Chloride	2
Naphthalene	10
Bis(2-ethylhexyl)phthalate	5
Phenol	1

Notes:
NYSDEC TOGS for Groundwater (standard), Section 703.6 (NYSDEC, 1999).
COCs - Constituents of Concern.
µg/L - micrograms per liter.

Table 3-2(c)
Summary of Ambient Air Guideline Values for Soil Vapor COCs
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Contaminant	NYSDOH Ambient Air Guideline Values (mcg/m^3)
Methylene Chloride	60
Tetrachloroethene	30
Trichloroethene	2

Notes:
New York State Department of Health Ambient Air Guiidelines (Soil Vapor Inrusion Guidance, 2006, Updates, 2013, 2015).
COCs - Constituents of Concern.
mcg/m^3 - micrograms per cubic meter.

Table 3-3
Screening of Remedial Technologies and Process Options
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Applicable Media	General Response Action	Remedial Technology Type	Process Options	Retained ?	Screening Comment
Soil, Groundwater, and Soil Vapor	No Action	No Action	No Action	Yes	Retained for baseline comparison.
	Limited Action	Institutional Controls	Environmental Easement	Yes	May be required to seek approval for site closure. Instrument for memorializing land use restrictions. Contains use restriction(s) and/or any prohibition(s) on the use of land in a manner inconsistent with engineering controls.
Soil, Groundwater, and Soil Vapor	Containment	Horizontal Barriers	Capping	Yes	Isolates receptors from COCs with physical barriers. The site is already 99% covered with asphalt paved parking lots or buildings. Additionally in 2015, approximately four to seven feet of acceptable fill was placed across the entire site. Due to existing site features and fill effectively capping the underlying impacted soils, capping is retained.
Groundwater		Vertical and Horizontal Barriers	Slurry Walls	No	Difficult to install and there is no evidence that site-related groundwater COCs are migrating offsite.
Soil	Ex-Situ Action	Excavation	Excavation	Yes	Significant impacts (greater than one order of magnitude above Commercial Use SCOs) have been previously excavated as part of the IRMs. Difficult to implement due to substantial disruption to retail operations. Only retained as an option for restoring the site to pre-release conditions or unrestricted use.
		Off-Site Disposal	Landfill Disposal	Yes	Suitable only as part of the excavation option for restoring the site to pre-release conditions.
		Ex-Situ Treatment	Thermal Desorption Incineration	No	Space for ex-situ treatment of excavated soil not available onsite or immediately offsite.
Groundwater		Extraction and Treatment	Pump and Treat	Yes	Difficult to implement due to current site constraints and substantial disruption to retail operations. Only retained as an option for restoring the site to pre-release conditions or unrestricted use.
		Ex-Situ Physical Treatment	Granular Activated Carbon (GAC)	Yes	GAC may be an appropriate treatment option for dissolved-phase COCs in water.
			UV Oxidation	No	High energy requirements and equipment maintenance costs.
			Air Stripping	No	Prone to fouling and/or corrosion, especially in a marine environment. Process energy costs are also high. Cleanup using an air stripping system depends on the capture of the entire groundwater plume. Interference with retail store operations and potential customer exposures preclude the recovery well and conveyance line infrastructure necessary to construct a site-wide recovery system.

Table 3-3
Screening of Remedial Technologies and Process Options
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Applicable Media	General Response Action	Remedial Technology Type	Process Options	Retained ?	Screening Comment
Soil	In-Situ Action	Physical Treatment	In-Situ Vitrification (ISV)	No	Seeks to trap or immobilize contaminants in their host media instead of removing them through chemical or physical treatment. Not applicable to materials at or below the water table. There have been very few commercial applications of ISV. Has high upfront cost so not as cost effective as alternate technologies.
			Co-solvent Flushing	No	Technology to treat VOCs less cost-effective than alternate technologies. May also mobilize dissolved-phase contaminants into areas of site not previously impacted.
			Surfactant Enhanced Remediation	No	Highly dependent on uniform distribution of surfactants. May also mobilize dissolved-phase contaminants into areas of site not previously impacted.
			Soil Vapor Extraction (SVE)	No	SVE can be effective as a mass removal technique for volatile COCs in the unsaturated zone. Not generally effective in removing COCs at or below the water table where CVOCs are found. Residual petroleum-related impacts in unsaturated zone are sporadically distributed around the site and are typically within an order of magnitude of the relevant criteria or guidance value.
Soil, Groundwater, and Soil Vapor			Air Sparging (AS)	No	AS effective for removal of volatile COCs in groundwater and saturated soils primarily though volatilization. Also enhances aerobic biodegradation which would be detrimental to anaerobic reductive dechlorination of CVOCs, the primary site COC. SVE system usually implemented in conjunction with AS to remove generated vapor phase contamination and SVE not retained for reasons above. Also could increase the chances of vapor intrusion at this site.
			Multi-phase Extraction (MPE)	No	MPE is a useful technology for remediation of soil and groundwater concurrently; however, it requires extensive well arrays and trenching of the associated vapor and liquid-phase conveyance piping. Installation of a site-wide MPE system is not feasible due to Costco's operations.

Table 3-3
Screening of Remedial Technologies and Process Options
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Applicable Media	General Response Action	Remedial Technology Type	Process Options	Retained ?	Screening Comment
Soil and Groundwater	In-Situ Action	Physical Treatment	Chemical Oxidation	Yes	In-situ chemical oxidation (ISCO) pilot test results indicated ISCO was effective in treating CVOCs.
		Biological Treatment	Enhanced Bioremediation	Yes	Effectiveness of anaerobic and/or aerobic bioremediation at site not clearly defined as pilot studies have not been completed and would be required to determine applicability. However, retained as future option as enhancement to MNA and/or where excavation is impractical or infeasible.
		Monitored Natural Attenuation (MNA)	Soil and Groundwater Monitoring	Yes	May be appropriate for soil and groundwater contamination at the site.

Notes:
COCs - Constituents of Concern.
CVOCs - Chlorinated Volatile Organic Compounds.
IRMs - Interim Remedial Measures.
O&M - Operation and Maintenance.
SCOs - Soil Cleanup Objectives.
VOCs - Volatile Organic Compounds.

Table 4-1
Summary of Net Present Value (NPV) Cost by Alternative
Former Golf Oil Terminal
Chevron Facility #6518040, NYSDEC Site #130165
Oceanside, NY

Alternative 1 - No Action	
Assumed duration	1 years
Estimated NPV Cost	$ 59,048
Alternative 2 - Institutional Controls	
Assumed duration	30 years
Estimated NPV Cost	$ 310,804
Alternative 3 - Monitored Natural Attenuation and Institutional Controls	
Assumed duration	30 years
Estimated NPV Cost	$ 1,055,971
Alternative 4 - ISCO, Monitored Natural Attenuation, and Institutional Controls	
Assumed duration	30 years
Estimated NPV Cost	$ 11,745,356
Alternative 5 - Unrestricted Reuse	
Assumed duration	30 years
Estimated NPV Cost	$ 43,641,481

Notes:

NPV based on 5% discount rate.

NPV costs include:

-All direct and indirect capital costs and engineering costs for the construction of all facilities and process equipment, labor, materials, construction equipment and services.

-All costs for system start up, testing, operation, maintenance and repair, continuous performance and effectiveness monitoring, periodic site condition reviews; and

-All costs for legal, administrative and capital costs associated with the placement of institutional controls on a property and other site management activities and/or certifications.

Table 4-2
Comparative Analysis Summary Table
Former Gulf Terminal
Oceanside, Township of Hempstead, NY

Criterion	Alternative 1 (No Action)	Alternative 2 (ICs)	Alternative 3 (MNA and ICs)	Alternative 4 (ISCO, MNA, and ICs)	Alternative 5 (Unrestricted Use)
Overall Protectiveness of Public Health and Environment	1 This alternative would not be protective of human health and the environment.	2 ICS will provide protection for human health by eliminating contact with soil and groundwater using an environmental easement (EE); however, soil and groundwater impacts would remain while natural attenuation occurs.	4 This alternative should provide overall protection for human health and environment. Existing site features and fill prevent completion of contaminant pathways. Periodic inspections will monitor that pathways remain incomplete. EE will provide protection for human health; however, impacted soil and groundwater left in place to degrade until MNA monitoring confirms natural attenuation of COCs in groundwater to levels acceptable to NYSDEC. Enhanced bioremediation will be proposed if it appears that MNA alone will not address the contamination.	4 This alternative should provide overall protection for human health and environment. Existing site features and fill prevent completion of contaminant pathways. Periodic inspections will monitor that pathways remain incomplete. EE will provide protection for human health; however, impacted soil and groundwater left in place to degrade until MNA monitoring confirms natural attenuation of COCs in groundwater to levels acceptable to NYSDEC.	2 Once implementation of this alternative has been completed, would be protective of human health and the environment by reducing or completely removing the contamination in soil and groundwater. However, during excavation activities and pump and treat system installation, there will be an increased risk of the public coming into contact with contaminated soil and/or asphalt debris. Excavation, dewatering, and transport of excavated materials would create exposure pathways to the public.
Compliance with SCGs	1 Would not be in compliance with SCGs. No action to reduce concentrations of COCs in soil or groundwater.	2 Would not be in compliance with SCGs. No action to reduce concentrations of COCs in soil or groundwater and no monitoring to show reduction by natural attenuation.	3 No action to reduce concentrations of COCs in soil or groundwater. Relies only on MNA to achieve SCGs. It is anticipated that this may take longer than some active technologies to achieve.	4 This alternative will move site conditions toward meeting RAOs. Would reduce the area where MNA would be relied on and the time to achieve SCGs.	5 This alternative complies with SCGs by reducing the mass of soil COCs and removing contaminated groundwater.
Long-Term Effectiveness and Permanence	1 No long-term reliability, effectiveness, or permanence. Residual risks essentially remain unchanged. May not meet RAOs or SCGs.	3 EE would limit land use to commercial or industrial and ensure future uses are consistent with this.	4 MNA would rely on COCs attenuating to non-toxic byproducts through natural attenuation processes. The EE would provide long-term reliability in protecting human health.	4 Although ISCO would reduce the area where MNA would be relied on and the time to achieve SCGs, MNA would rely on post-ISCO COCs attenuating to non-toxic byproducts through natural attenuation processes. The EE would provide long-term reliability in protecting human health.	5 RAOs will be met in the long-term and process will be permanent. Contaminated soil and groundwater will be removed from the site and properly disposed of.
Reduction of Toxicity, Mobility, or Volume of Contamination	1 Will not reduce toxicity, mobility, or volume of contaminants through treatment. Relies on natural attenuation processes only, but no mechanism to monitor this attenuation.	2 Will not reduce toxicity, mobility, or volume of contaminants through treatment. Relies on natural attenuation processes only, but no mechanism to monitor this attenuation.	3 Will not reduce toxicity, mobility, or volume of contaminants through treatment. No immediate reduction in toxicity, mobility, or volume of contaminants; however, contaminants will degrade of time through natural attenuation. MNA may take longer than some active technologies to achieve SCGs; however, while this process occurs, receptor pathways would be monitored to ensure they are incomplete.	4 Overall reduction of toxicity, mobility, and volume of COCs in soil and groundwater through treatment. Would rely on MNA to further reduce concentrations in soil and groundwater. While this process occurs, receptor pathways would be monitored to ensure they are incomplete.	5 Will not reduce toxicity, mobility, or volume of contaminants through treatment but through physical removal.

Table 4-2
Comparative Analysis Summary Table
Former Gulf Terminal
Oceanside, Township of Hempstead, NY

Criterion	Alternative 1 (No Action)	Alternative 2 (ICs)	Alternative 3 (MNA and ICs)	Alternative 4 (ISCO, MNA, and ICs)	Alternative 5 (Unrestricted Use)
Short-Term Impact and Effectiveness	2 Effective in short-term in preventing human exposures to COCs in soil and groundwater due to existing site features and fill effectively capping the underlying media.	4 Effective in short-term in preventing human exposures to COCs in soil and groundwater due to existing site features and fill effectively capping the underlying media. Potential risks associated with site contaminants would additionally be controlled by the EE.	4 Effective in short-term in preventing human exposures to COCs in soil and groundwater due to existing site features and fill effectively capping the underlying media. Potential risks associated with site contaminants would additionally be controlled by the EE.	3 Increased risk to the public during ISCO injections. Effective in short-term in preventing human exposures to COCs in soil and groundwater due to existing site features and fill effectively capping the underlying media. Potential risks associated with site contaminants would additionally be controlled by the EE.	2 During excavation activities and pump and treat system installation, there will be an increased risk of the public coming into contact with contaminated soil and/or asphalt debris. Would be short-term impacts to community associated with truck traffic transporting asphalt debris, soil, and clean backfill from/to the site.
Implementability	5 Readily implementable.	4 Emplacement of an EE easily implemented.	4 Easily implemented.	2 Very difficult to implement due to disruption to business operations. Costco would have to shut down during ISCO injections or injections would have to occur at night while the store is closed.	1 Alternative not technically feasible under current site conditions. Substantial disruption to Costco retail operations, requiring Costco to close during implementation.
Cost Effectiveness	5 $ 59,048	5 $ 310,804	4 $ 1,055,971	2 $ 11,745,356	1 $ 43,641,481
Land Use	5 No ongoing restriction of property uses. Use of the site for commercial purposes would continue. Would not protect against zoning being changed in the future to residential.	4 Ongoing restriction of property use as established in the EE. Use of the site for commercial purposes would continue.	3 Ongoing restriction of property use as established in the EE. Use of the site for commercial purposes would continue. Monitoring team would require periodic access to the site during MNA and indoor air sampling activities, and inspection and sealing of cracks and seams in the Costco floors.	3 Ongoing restriction of property use as established in the EE. Use of the site for commercial purposes would continue. Monitoring team would require periodic access to the site during MNA and indoor air sampling activities, and inspection and sealing of cracks and seams in the Costco floors.	4 No ongoing restriction of property use. Site would be returned to unrestricted use/unrestricted exposure conditions. Access to the site required for periodic monitoring of pump and treat system's effectiveness.
Total Score	**21**	**26**	**29**	**26**	**25**

Note: Yellow highlight indicates alternative with highest score, or the preferred alternative.

Ranking: 4-5 = Satisfactory/Good performance in the category.

2-3 = Moderate performance in the category.

1 = Unsatisfactory performance in the category.

Appendix A:
2017 Supplemental RI SCO Exceedances Maps for Shallow Fill Unit

CITY: SYRACUSE, NY DIV/GROUP: ENV/IM-DV DB: L. FORAKER, R. ALLEN LD: PIC: J. VOGELEY PM: W. McCUNE TM: W. McCUNE LYR: ON=*; OFF=*REF*
Z:\ENVCAD\SYRACUSE\ACTIVE\B0047517\0023\0001\DWG\47517C02.DWG LAYOUT: 7 SAVED: 11/23/2016 4:32 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: C-LD-PDF-GMS PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 1/17/2017 3:37 PM BY: HOWES, DAVID
XREFS:
475117X01
475117X00

G10-S1	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/17/2004
VOCs	
Benzene	**0.16**

G10-D2	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/18/2004
VOCs	
n-Propylbenzene	**4.5**

G10-S2	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/18/2004
VOCs	
Benzene	**0.25**
Ethylbenzene	**7.8**
Xylenes (total)	**6.3**
Naphthalene	**17**
1,2,4-TrimEthylbenzene	**11**
n-Propylbenzene	**6.7**

G10-D1	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/16/2004
VOCs	
Benzene	**3.0**
Xylenes (total)	**1.1**
n-Butylbenzene	**16**
n-Propylbenzene	**25**

G2-D1	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/16/2004
VOCs	
Benzene	**4.1**
Ethylbenzene	**7.3**
Xylenes (total)	**2.3**
Naphthalene	**23**
n-Propylbenzene	**10**
sec-Butylbenzene	**2.2**

G3-S1	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/16/2004
VOCs	
Benzene	**5.7**
Ethylbenzene	**28**
Xylenes (total)	**1.9**
Naphthalene	**36**
n-Butylbenzene	**13**
n-Propylbenzene	**20**

G4-D1	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/16/2004
VOCs	
Benzene	**4.7**
Ethylbenzene	**20**
Xylenes (total)	**2.0**
Naphthalene	**33**
n-Butylbenzene	**12**
n-Propylbenzene	**16**

G4-S1	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/16/2004
VOCs	
Benzene	**3.5**
Ethylbenzene	**40**
Xylenes (total)	**13**
Naphthalene	**20**
1,2,4-TrimEthylbenzene	**8.2**
n-Propylbenzene	**15**

G3-D1	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/16/2004
VOCs	
Benzene	**8.3**
Ethylbenzene	**40**
Xylenes (total)	**1.8**
Naphthalene	**40**
n-Butylbenzene	**14**
n-Propylbenzene	**24**

G4-D2	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/18/2004
VOCs	
Benzene	**4.2**
Ethylbenzene	**41**
Xylenes (total)	**3.1**
Naphthalene	**43**
n-Butylbenzene	**13**
n-Propylbenzene	**20**

G4-S2	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/18/2004
VOCs	
Benzene	**3.2**
Ethylbenzene	**41**
Xylenes (total)	**13**
Naphthalene	**32**
1,2,4-TrimEthylbenzene	**4.8**
n-Propylbenzene	**16**

G9-S2	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/18/2004
VOCs	
Benzene	**1.6**
Ethylbenzene	**31**
Xylenes (total)	**11**
Naphthalene	**17**
1,2,4-TrimEthylbenzene	**7.7**
n-Propylbenzene	**14**

G8-S1	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/16/2004
VOCs	
Benzene	**1.7**
Ethylbenzene	**31**
Xylenes (total)	**3.5**
Naphthalene	**15**
n-Propylbenzene	**13**

PX-D1	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**6.0**
Ethylbenzene	**53**
Xylenes (total)	**3.6**

PX-EAST	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	11/18/2004
VOCs	
Benzene	**3.1**
Ethylbenzene	**17**
Xylenes (total)	**3.1**
Naphthalene	**16**
n-Propylbenzene	**13**

G9-D2	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/18/2004
VOCs	
Benzene	**0.71**
Ethylbenzene	**4.6**
n-Propylbenzene	**7.7**

G9-D1	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/18/2004
VOCs	
Benzene	**5.7**
Ethylbenzene	**25**
Xylenes (total)	**66**
Naphthalene	**21**
1,2,4-TrimEthylbenzene	**12**
n-Butylbenzene	**12**
n-Propylbenzene	**23**

G5-S1	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/16/2004
VOCs	
Benzene	**6.4**
Ethylbenzene	**46**
Xylenes (total)	**4.1**
Naphthalene	**16**
n-Propylbenzene	**19**

G5-S2	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/18/2004
VOCs	
Benzene	**9.1**
Ethylbenzene	**58**
Xylenes (total)	**3.1**
Naphthalene	**13**
n-Butylbenzene	**13**
n-Propylbenzene	**24**

G5-D2	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/18/2004
VOCs	
Benzene	**3.3**
Ethylbenzene	**4.4**
n-Propylbenzene	**8.0**

MW-17	
Historical Depth(feet)	(4)
Current Depth(feet)	(8)
Date	12/12/1995
SVOCs	
Benzo(a)anthracene	**4.4**
Benzo(b)fluoranthene	**4.9**
Benzo(k)fluoranthene	**2.2**
Chrysene	**4.2**

G5-D1	
Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/16/2004
VOCs	
Benzene	**5.7**
Ethylbenzene	**9.1**
Xylenes (total)	**2.5**
n-Propylbenzene	**14**

G6-D2	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/18/2004
VOCs	
Benzene	**6.2**
Ethylbenzene	**3.4**
Naphthalene	**19**
n-Propylbenzene	**12**

G6-D1	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/16/2004
VOCs	
Benzene	**10**
Ethylbenzene	**3.3**
n-Propylbenzene	**12**

G6-S2	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/16/2004
VOCs	
Benzene	**10**
Ethylbenzene	**5.7**
Xylenes (total)	**1.6**
n-Propylbenzene	**10**

G6-S1	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/16/2004
VOCs	
Benzene	**4.2**
Ethylbenzene	**13**
Xylenes (total)	**5.7**
1,2,4-TrimEthylbenzene	**7.4**
n-Propylbenzene	**14**

PX-SOUTH	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	11/18/2004
VOCs	
Benzene	**1.7**
Ethylbenzene	**3.3**
n-Propylbenzene	**4.6**

PX-D4	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**7.9**
Toluene	**0.72**
Ethylbenzene	**63**
Xylenes (total)	**7.6**

G11-D1	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/16/2004
VOCs	
Benzene	**1.6**
Ethylbenzene	**1.3**
Xylenes (total)	**2.1**
n-Propylbenzene	**11**

TP5-2	
Historical Depth(feet)	(5.5)
Current Depth(feet)	(9.5)
Date	12/2/2010
VOCs	
Methylene Chloride	**0.11**

T12-D1	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/17/2004
VOCs	
Benzene	**11**
Ethylbenzene	**6.7**
Xylenes (total)	**2.1**
n-Propylbenzene	**5.1**

T12-S1	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/16/2004
VOCs	
Benzene	**8.2**
Ethylbenzene	**3.6**

T12-D2	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/18/2004
VOCs	
Benzene	**23**
Ethylbenzene	**13**
Xylenes (total)	**2.8**
n-Propylbenzene	**6.7**

T12-S2	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/18/2004
VOCs	
Benzene	**17**
Ethylbenzene	**13**
Xylenes (total)	**3.6**
n-Propylbenzene	**4.6**

AMW-6			
Historical Depth(feet)	(2 - 4)	(4 - 6)	(6 - 8)
Current Depth(feet)	(6 - 8)	(8 - 10)	(10 - 12)
Date	11/18/2010	11/18/2010	11/18/2010
VOCs			
Acetone	0.027 U	**0.059**	**0.18**
Inorganics			
Arsenic	**16.2**	**20.1**	**10.6**

TP6-1	
Historical Depth(feet)	(5)
Current Depth(feet)	(9)
Date	12/3/2010
VOCs	
Acetone	**0.080**
Inorganics	
Arsenic	**28.1**

TP6-3	
Historical Depth(feet)	(5.5)
Current Depth(feet)	(9.5)
Date	12/3/2010
SVOCs	
Benzo(a)anthracene	**2.7 J**
Benzo(b)fluoranthene	**2.8 J**
Chrysene	**2.3 J**

TP10-2	
Historical Depth(feet)	(6)
Current Depth(feet)	(10)
Date	12/7/2010
Inorganics	
Arsenic	**20.7**

Protection of Groundwater SCO	(mg/kg)
1,2,4 Trimethylbenzene	3.6
Acetone	0.05
Arsenic	16
Benzene	0.06
Benzo(a)pyrene	22
Benzo(b)fluoranthene	1.7
Benzo(k)fluoranthene	1.7
Chrysene	1
Ethylbenzene	1.1
Mercury	0.73
Methylene Chloride	0.05
MTBE	0.93
Naphthalene	12
n-Butylbenzene	12
n-Propylbenzene	3.9
Toluene	0.7
Xylenes	1.6

PX-B4	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**0.12**
Ethylbenzene	**1.2**
Xylenes (total)	**1.9**

LB-9	
Historical Depth(feet)	(2.5 - 3)
Current Depth(feet)	(6.5 - 7)
Date	3/11/2004
VOCs	
Benzene	**0.18**
Methylene Chloride	**0.078**

PX-B1	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**1.2**
Ethylbenzene	**2.5**

LB-8	
Historical Depth(feet)	(4 - 4.5)
Current Depth(feet)	(8 - 8.5)
Date	3/11/2004
VOCs	
Benzene	**3.3**
Ethylbenzene	**38**
Xylenes (total)	**13**

PX-C6	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**0.066**
Ethylbenzene	**4.8**

GP-2(2002)	
Historical Depth(feet)	(6)
Current Depth(feet)	(10)
Date	5/2/2002
VOCs	
Ethylbenzene	**8.8**
Xylenes (total)	**11**

LB-2	
Historical Depth(feet)	(4 - 4.5)
Current Depth(feet)	(8 - 8.5)
Date	3/10/2004
VOCs	
Ethylbenzene	**7.5**
Xylenes (total)	**14**

PX-A7	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**5.4**
Toluene	**1.9**
Ethylbenzene	**98**
Xylenes (total)	**160**

PX-A3	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**0.15 [0.18]**
Ethylbenzene	**46 [38]**

GP-9(2002)	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	5/2/2002
VOCs	
Benzene	**0.20**

PX-A2	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**1.9**
Ethylbenzene	**80**
Xylenes (total)	**37**

PX-C1	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Ethylbenzene	**1.4**

MW-31D-2R			
Historical Depth(feet)	(2 - 4)	(4 - 6)	(6 - 8)
Current Depth(feet)	(6 - 8)	(8 - 10)	(10 - 12)
Date	11/17/2010	11/17/2010	11/17/2010
SVOCs			
Benzo(a)anthracene	**3.3**	**0.64 [0.78]**	**8.9**
Benzo(b)fluoranthene	**3.9**	**0.74 [0.75]**	**11**
Benzo(k)fluoranthene	**1.2**	**0.26 [0.28]**	**4.5**
Chrysene	**2.5**	**0.50 [0.61]**	**8.5**

PX-D2	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**14**
Toluene	**2.1**
Ethylbenzene	**230**
Xylenes (total)	**400**

PX-B7	
Historical Depth(feet)	(4 - 4.5)
Current Depth(feet)	(8 - 8.5)
Date	10/30/2002
VOCs	
Benzene	**3.0**
Ethylbenzene	**22**
Xylenes (total)	**3.6**

PX-B6	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**3.5**
Ethylbenzene	**73**
Xylenes (total)	**6.9**

PX-C4	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Ethylbenzene	**20**

PX-C5	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**0.23**
Ethylbenzene	**6.6**

AMW-3			
Historical Depth(feet)	(0 - 2)	(2 - 4)	(4 - 6)
Current Depth(feet)	(4 - 6)	(6 - 8)	(8 - 10)
Date	11/30/2010	11/30/2010	11/30/2010
VOCs			
Benzene	0.13 U	**0.12 U [0.11 J]**	**0.11 J**
Ethylbenzene	**2.4**	**6.7 [10]**	**2.0**
Xylenes (total)	**5.2**	**6.1 [8.2]**	**0.26**
Methylene Chloride	0.13 UJ	0.12 UJ [0.19 UJ]	**0.062 J**
SVOCs			
Naphthalene	**5.4**	**11 [29]**	**2.6 J**

PX-A6	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**0.57**
Ethylbenzene	**9.6**
Xylenes (total)	**21**

PX-A5	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**0.15**
Ethylbenzene	**26**
Xylenes (total)	**6.9**

GP-7(2002)	
Historical Depth(feet)	(3 - 4)
Current Depth(feet)	(7 - 8)
Date	5/2/2002
VOCs	
Benzene	**2.8**
Ethylbenzene	**76**
Xylenes (total)	**3.0**
Naphthalene	**44**

PX-A8	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**0.082**
Ethylbenzene	**16**
Xylenes (total)	**87**

PX-A1	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**0.72**
Ethylbenzene	**32**
Xylenes (total)	**4.2**

GP-10(2002)	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	5/2/2002
VOCs	
Ethylbenzene	**7.2**

PX-C2	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Ethylbenzene	**3.3**

P-18R			
Historical Depth(feet)	(0 - 2)	(4 - 6)	(6 - 8)
Current Depth(feet)	(4 - 6)	(8 - 10)	(10 - 12)
Date	12/2/2010	12/2/2010	12/2/2010
SVOCs			
Benzo(a)anthracene	**2.0**	**0.038 J**	**0.063 J**
Chrysene	**1.8**	**0.040 J**	**0.065 J**

TP12-1	
Historical Depth(feet)	(4.7)
Current Depth(feet)	(8.7)
Date	12/7/2010
Inorganics	
Mercury	**1.35**

PX-D3	
Historical Depth(feet)	(2 - 3)
Current Depth(feet)	(6 - 7)
Date	10/30/2002
VOCs	
Benzene	**0.52**
Ethylbenzene	**3.1**

G8-D1	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/16/2004
VOCs	
Benzene	**0.98**
Ethylbenzene	**1.3**
Xylenes (total)	**5.8**
Naphthalene	**12**
1,2,4-TrimEthylbenzene	**4.7**
n-Butylbenzene	**13**
n-Propylbenzene	**17**

G8-S1	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/16/2004
VOCs	
Benzene	**14**
Toluene	**0.80**
Ethylbenzene	**2.2**
Xylenes (total)	**4.3**
Naphthalene	**15**
n-Butylbenzene	**30**
n-Propylbenzene	**40**

G8-D2	
Historical Depth(feet)	(3 - 3.5)
Current Depth(feet)	(7 - 7.5)
Date	11/18/2004
VOCs	
Benzene	**2.1**
Ethylbenzene	**1.1**
Xylenes (total)	**6.2**
Naphthalene	**21**
1,2,4-TrimEthylbenzene	**4.2**
n-Butylbenzene	**15**
n-Propylbenzene	**20**

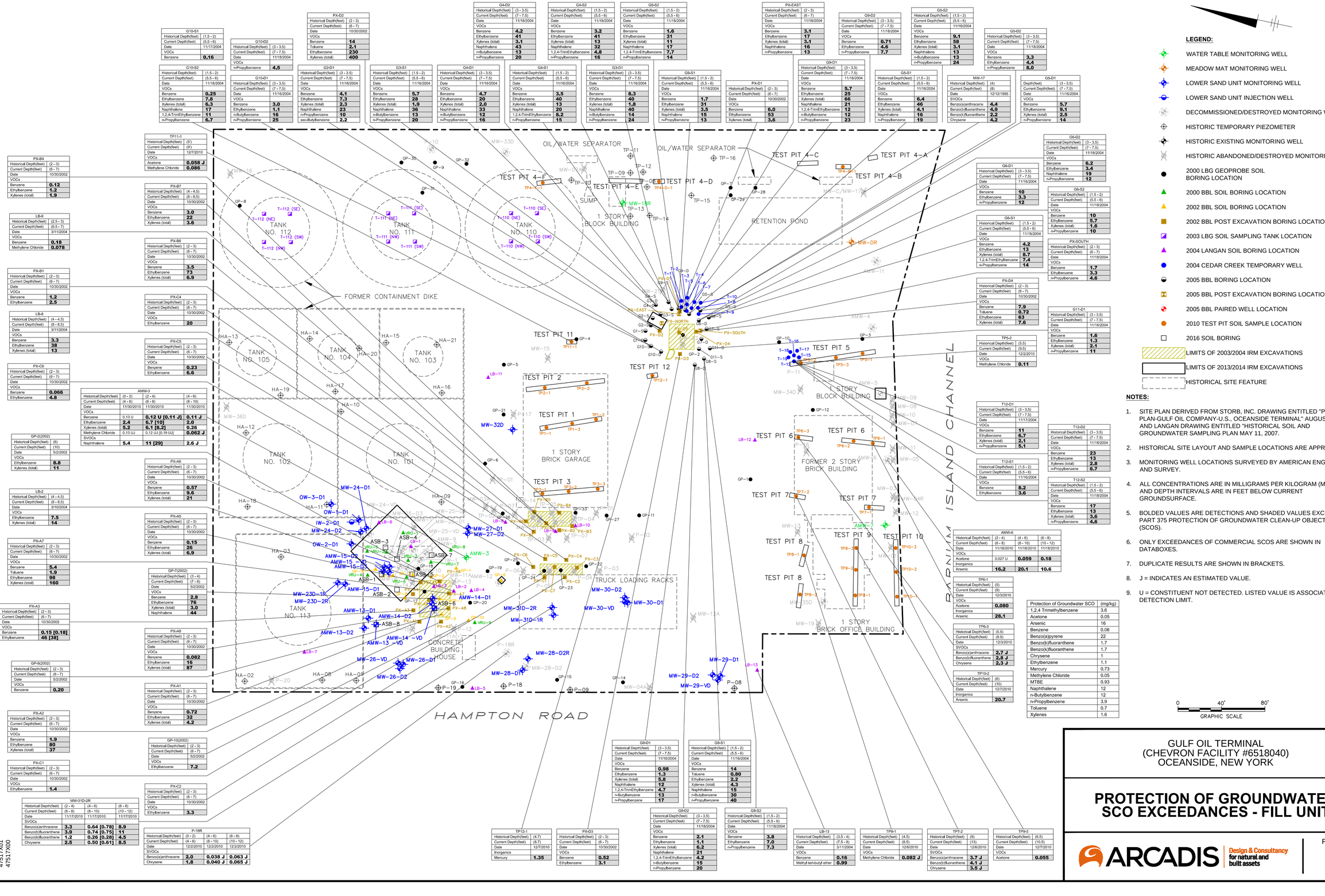
G8-S2	
Historical Depth(feet)	(1.5 - 2)
Current Depth(feet)	(5.5 - 6)
Date	11/18/2004
VOCs	
Benzene	**3.8**
Ethylbenzene	**7.0**
n-Propylbenzene	**7.3**

LB-13	
Historical Depth(feet)	(3.5 - 4)
Current Depth(feet)	(7.5 - 8)
Date	3/11/2004
VOCs	
Benzene	**0.16**
Methyl tert-butyl ether	**0.99**

TP8-1	
Historical Depth(feet)	(4.5)
Current Depth(feet)	(8.5)
Date	12/6/2010
VOCs	
Methylene Chloride	**0.082 J**

TP7-2	
Historical Depth(feet)	(9)
Current Depth(feet)	(13)
Date	12/6/2010
SVOCs	
Benzo(a)anthracene	**3.7 J**
Benzo(b)fluoranthene	**4.1 J**
Chrysene	**3.5 J**

TP9-3	
Historical Depth(feet)	(6.5)
Current Depth(feet)	(10.5)
Date	12/7/2010
VOCs	
Acetone	**0.055**



LEGEND:

- WATER TABLE MONITORING WELL
- MEADOW MAT MONITORING WELL
- LOWER SAND UNIT MONITORING WELL
- LOWER SAND UNIT INJECTION WELL
- DECOMMISSIONED/DESTROYED MONITORING WELL
- HISTORIC TEMPORARY PIEZOMETER
- HISTORIC EXISTING MONITORING WELL
- HISTORIC ABANDONED/DESTROYED MONITORING POINT
- 2000 LBG GEOPROBE SOIL BORING LOCATION
- 2000 BBL SOIL BORING LOCATION
- 2002 BBL SOIL BORING LOCATION
- 2002 BBL POST EXCAVATION BORING LOCATION
- 2003 LBG SOIL SAMPLING TANK LOCATION
- 2004 LANGAN SOIL BORING LOCATION
- 2004 CEDAR CREEK TEMPORARY WELL
- 2005 BBL BORING LOCATION
- 2005 BBL POST EXCAVATION BORING LOCATION
- 2005 BBL PAIRED WELL LOCATION
- 2010 TEST PIT SOIL SAMPLE LOCATION
- 2016 SOIL BORING
- LIMITS OF 2003/2004 IRM EXCAVATIONS
- LIMITS OF 2013/2014 IRM EXCAVATIONS
- HISTORICAL SITE FEATURE

NOTES:

1. SITE PLAN DERIVED FROM STORB, INC. DRAWING ENTITLED "PAVING PLAN-GULF OIL COMPANY-U.S., OCEANSIDE TERMINAL" AUGUST 7, 1976 AND LANGAN DRAWING ENTITLED "HISTORICAL SOIL AND GROUNDWATER SAMPLING PLAN MAY 11, 2007.
2. HISTORICAL SITE LAYOUT AND SAMPLE LOCATIONS ARE APPROXIMATE.
3. MONITORING WELL LOCATIONS SURVEYED BY AMERICAN ENGINEERING AND SURVEY.
4. ALL CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (MG/KG) AND DEPTH INTERVALS ARE IN FEET BELOW CURRENT GROUNDSURFACE.
5. BOLDED VALUES ARE DETECTIONS AND SHADED VALUES EXCEED PART 375 PROTECTION OF GROUNDWATER CLEAN-UP OBJECTIVES (SCOS).
6. ONLY EXCEEDANCES OF COMMERCIAL SCOS ARE SHOWN IN DATABOXES.
7. DUPLICATE RESULTS ARE SHOWN IN BRACKETS.
8. J = INDICATES AN ESTIMATED VALUE.
9. U = CONSTITUENT NOT DETECTED. LISTED VALUE IS ASSOCIATED DETECTION LIMIT.

GULF OIL TERMINAL
(CHEVRON FACILITY #6518040)
OCEANSIDE, NEW YORK

PROTECTION OF GROUNDWATER SCO EXCEEDANCES - FILL UNIT

ARCADIS Design & Consultancy for natural and built assets

FIGURE 7

MW-31D-2R			
Historical Depth(feet)	(2 - 4)	(4 - 6)	(6 - 8)
Current Depth(feet)	(6 - 8)	(8 - 10)	(10 - 12)
Date	11/17/2010	11/17/2010	11/17/2010
SVOCs			
Benzo(a)anthracene	**3.3**	**0.64 [0.78]**	**8.9**
Benzo(a)pyrene	**3.0**	**0.61 [0.63]**	**11**
Benzo(b)fluoranthene	**3.9**	**0.74 [0.75]**	**11**
Dibenzo(a,h)anthracene	**0.27 J**	**0.053 J [0.057 J]**	**1.7 J**
Indeno(1,2,3-cd)pyrene	**0.87**	**0.16 J [0.19 J]**	**5.8**

TP7-2	
Historical Depth(feet)	(5)
Current Depth(feet)	(9)
Date	12/6/2010
SVOCs	
Benzo(a)pyrene	**3.7 J**

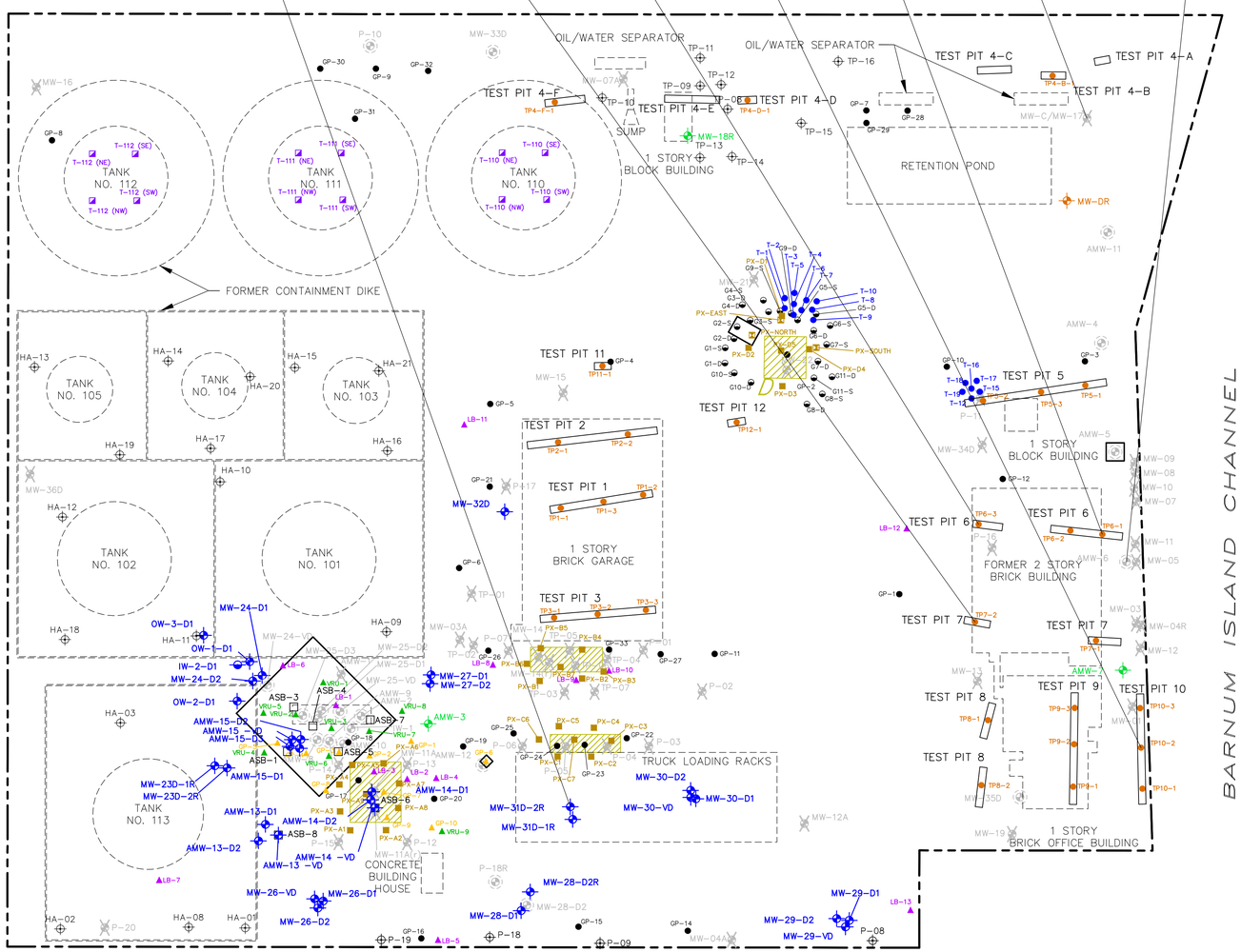
TP6-3	
Historical Depth(feet)	(5,5)
Current Depth(feet)	(9,5)
Date	12/3/2010
SVOCs	
Benzo(a)pyrene	**2.7 J**

TP10-2	
Historical Depth(feet)	(6)
Current Depth(feet)	(10)
Date	12/7/2010
Inorganics	
Arsenic	**20.7**

TP6-1	
Historical Depth(feet)	(5)
Current Depth(feet)	(9)
Date	12/3/2010
Inorganics	
Arsenic	**28.1**

MW-17	
Historical Depth(feet)	(4)
Current Depth(feet)	(8)
Date	12/12/1995
SVOCs	
Benzo(a)pyrene	**4.0**

AMW-6			
Historical Depth(feet)	(2 - 4)	(4 - 6)	(6 - 8)
Current Depth(feet)	(6 - 8)	(8 - 10)	(10 - 12)
Date	11/18/2010	11/18/2010	11/18/2010
Inorganics			
Arsenic	**16.2**	**20.1**	**10.6**



LEGEND:

- WATER TABLE MONITORING WELL
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- LOWER SAND UNIT INJECTION WELL
- DECOMMISSIONED/DESTROYED MONITORING WELL
- HISTORIC TEMPORARY PIEZOMETER
- HISTORIC EXISTING MONITORING WELL
- HISTORIC ABANDONED/DESTROYED MONITORING POINT
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6. ONLY EXCEEDANCES OF COMMERCIAL SCOS ARE SHOWN IN DATABOXES.
7. DUPLICATE RESULTS ARE SHOWN IN BRACKETS.
8. J = INDICATES AN ESTIMATED VALUE.

Commercial Use SCOs	(mg/kg)
Arsenic	16
Benzo(a)anthracene	5.6
Benzo(a)pyrene	1
Benzo(b)fluoranthene	5.6
Dibenzo(a,h)anthracene	0.56
Indeno(1,2,3-cd)pyrene	5.6

0 40' 80'
GRAPHIC SCALE

GULF OIL TERMINAL
(CHEVRON FACILITY #6518040)
OCEANSIDE, NEW YORK

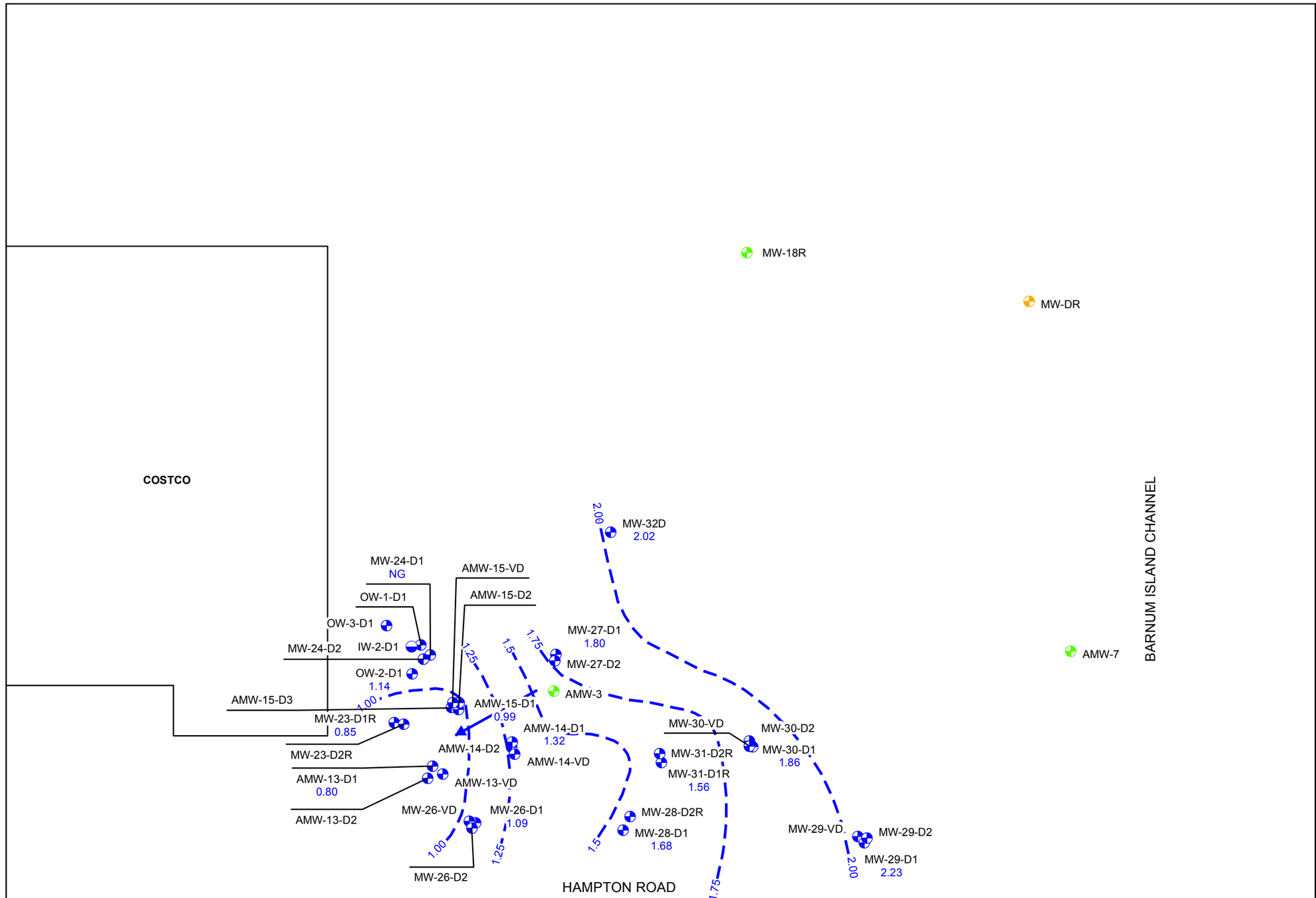
COMMERCIAL SCO EXCEEDANCES IN SOIL - FILL UNIT

ARCADIS Design & Consultancy for natural and built assets

FIGURE
9

CITY: SYRACUSE, NY DIV/GROUP: ENV/IM-DV DB: L. FORAKER, R. ALLEN LD: PIC: J. VOGELEY PM: W. McCUNE TM: W. McCUNE LYR: ON=*; OFF=*REF*
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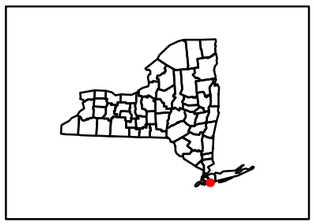
Appendix B:
Recent Groundwater Contour Maps During High and Low Tides



Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- Groundwater Elevation in feet above mean sea level (AMSL)
- Inferred Groundwater Flow Direction

NG: Not Gauged



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

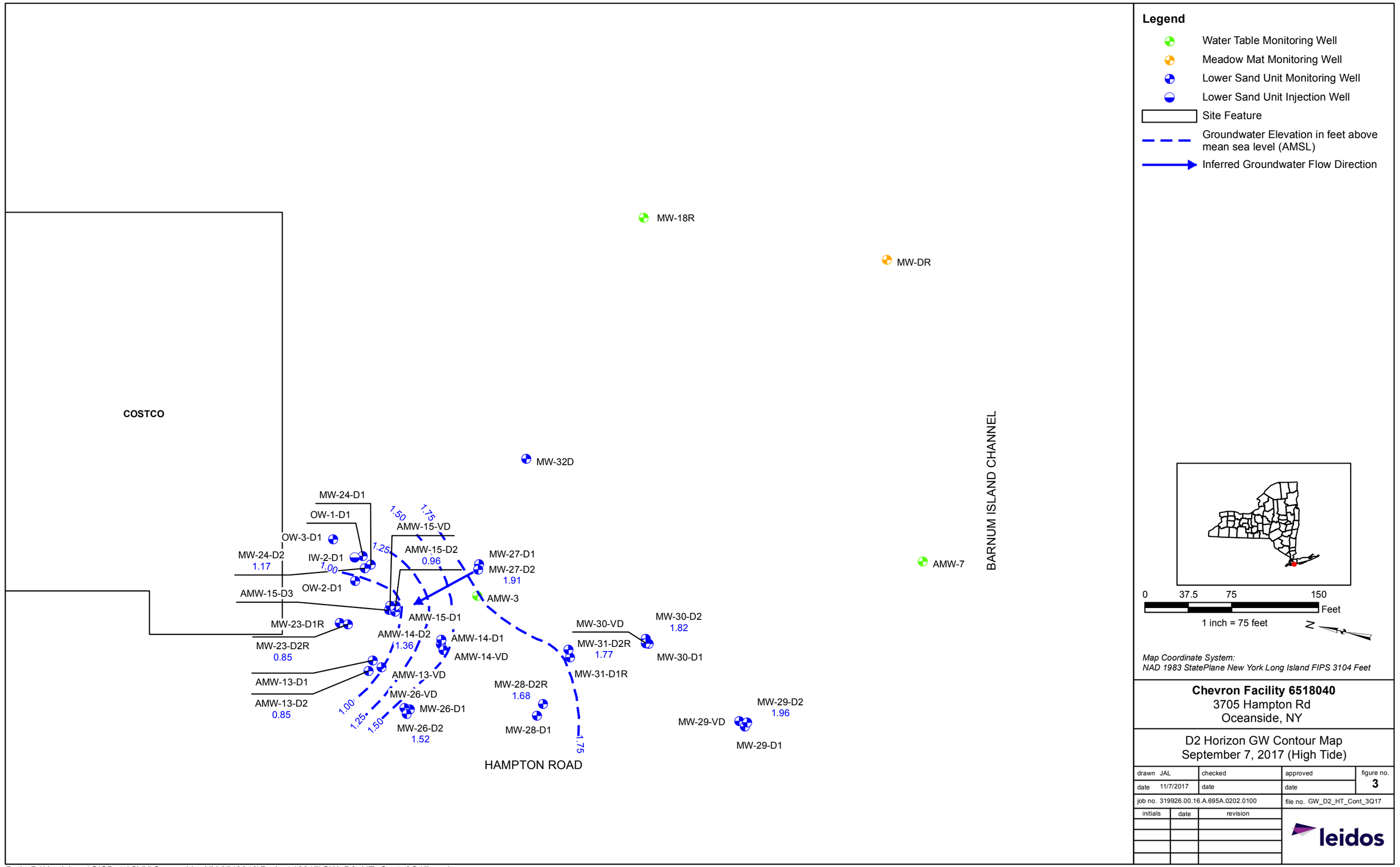
D1 Horizon GW Contour Map
September 7, 2017 (High Tide)

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date 11/7/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. GW_D1_HT_Cont_3Q17

initials	date	revision

leidos

Path: D:\Harrisburg\GISData\CVX\Oceanside, NY 6518040\Projects\2017\GW_D1_HT_Cont_3Q17.mxd



Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- Groundwater Elevation in feet above mean sea level (AMSL)
- Inferred Groundwater Flow Direction

0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

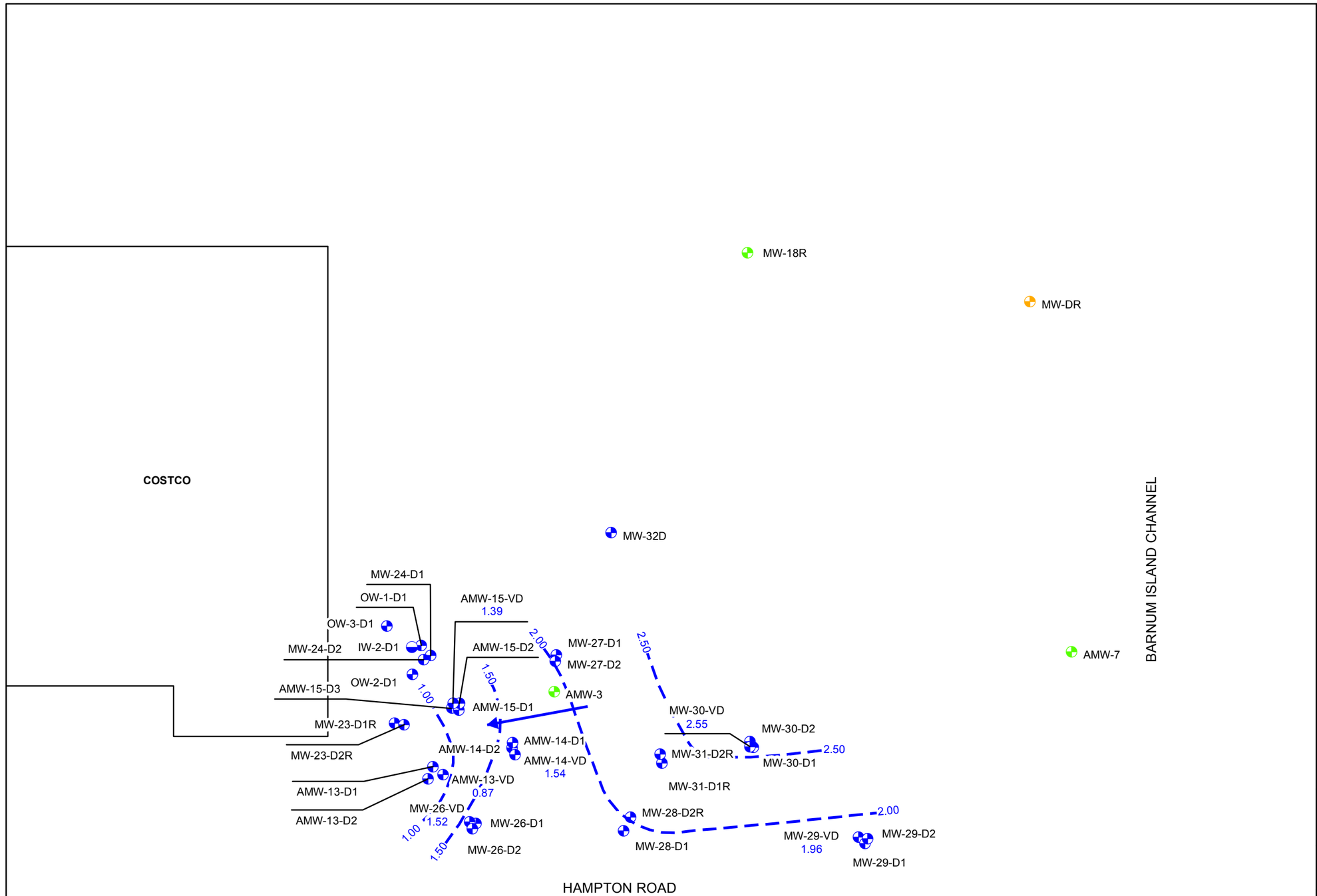
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September 7, 2017 (High Tide)

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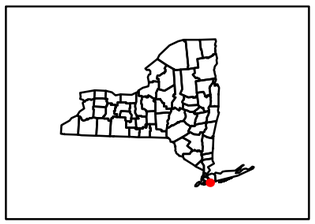
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- Groundwater Elevation in feet above mean sea level (AMSL)
- Inferred Groundwater Flow Direction



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

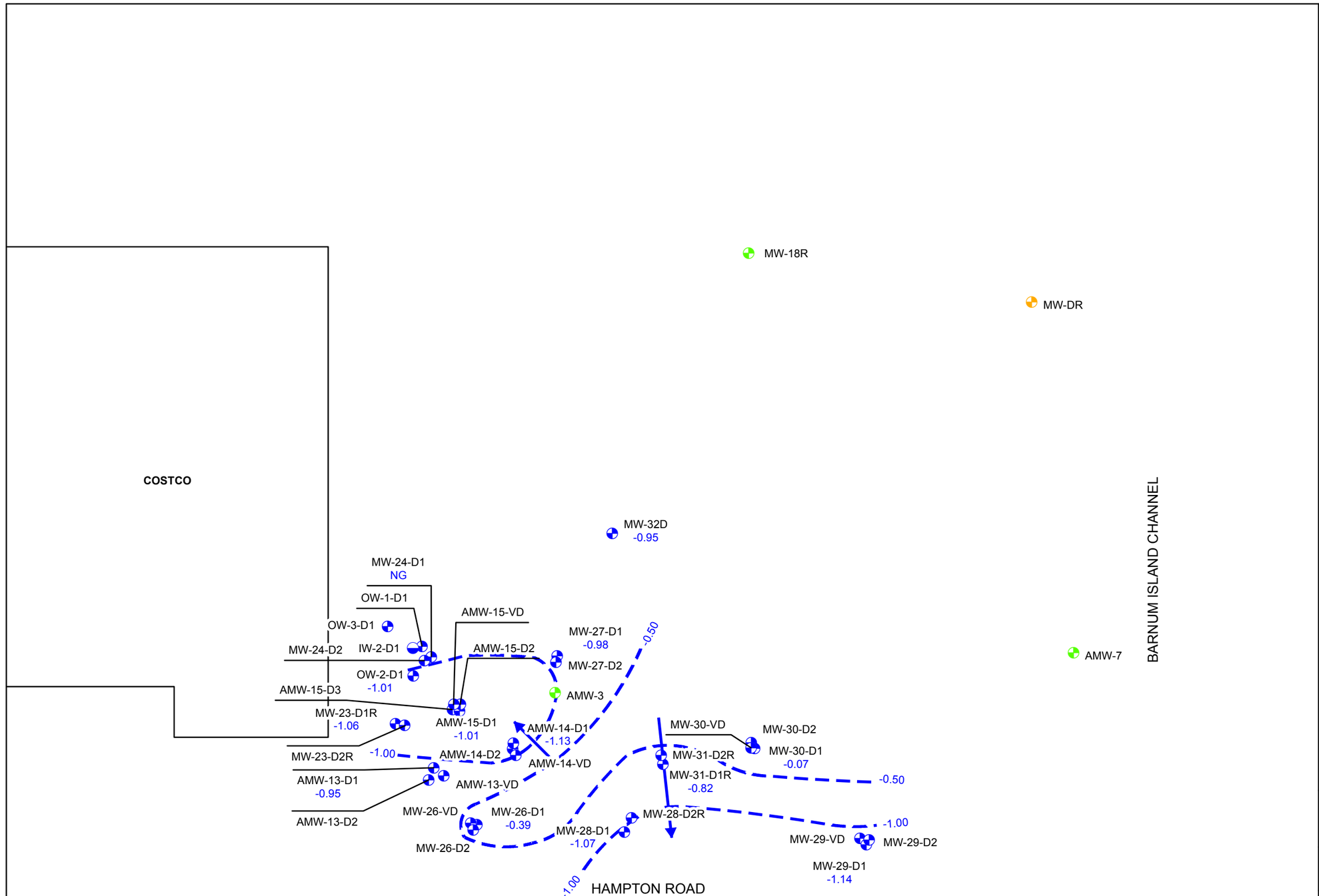
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September 7, 2017 (High Tide)

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date 10/3/2017	date	date	4
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initials	date	revision

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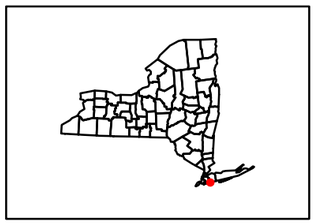
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Groundwater Elevation in feet above mean sea level (AMSL)
- Inferred Groundwater Flow Direction
- Site Feature

NG: Not Gauged



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

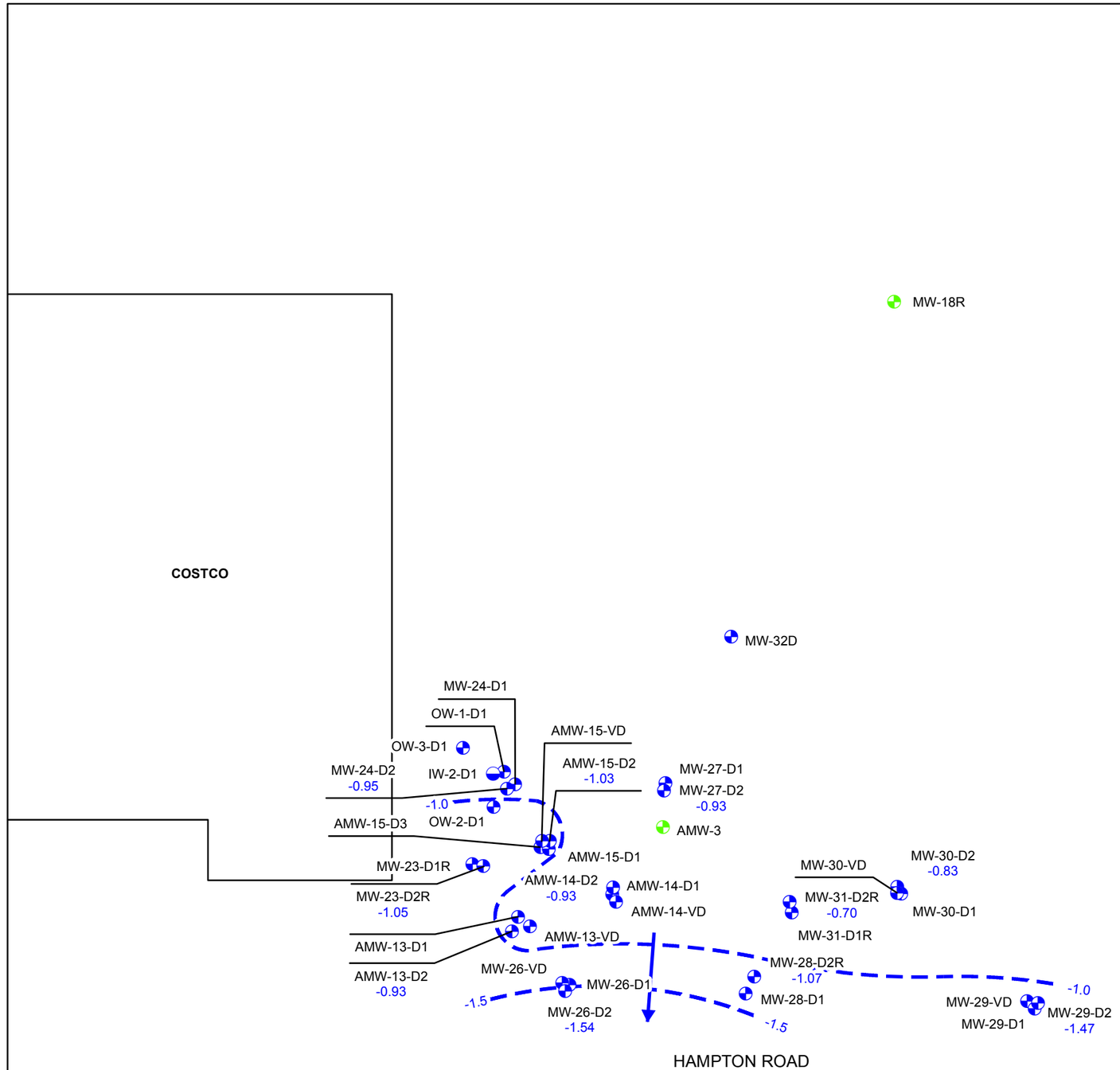
D1 Horizon GW Contour Map
October 31, 2017 (Low Tide)

drawn TAY	checked	approved	figure no.
date 11/7/2017	date	date	5
job no. 319926.00.16.A.695A.0202.0100			file no. GW_D1_LT_Cont_4Q17

initials	date	revision

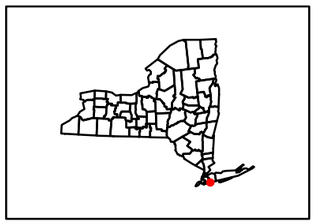
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Groundwater Elevation in feet above mean sea level (AMSL)
- Inferred Groundwater Flow Direction
- Site Feature



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

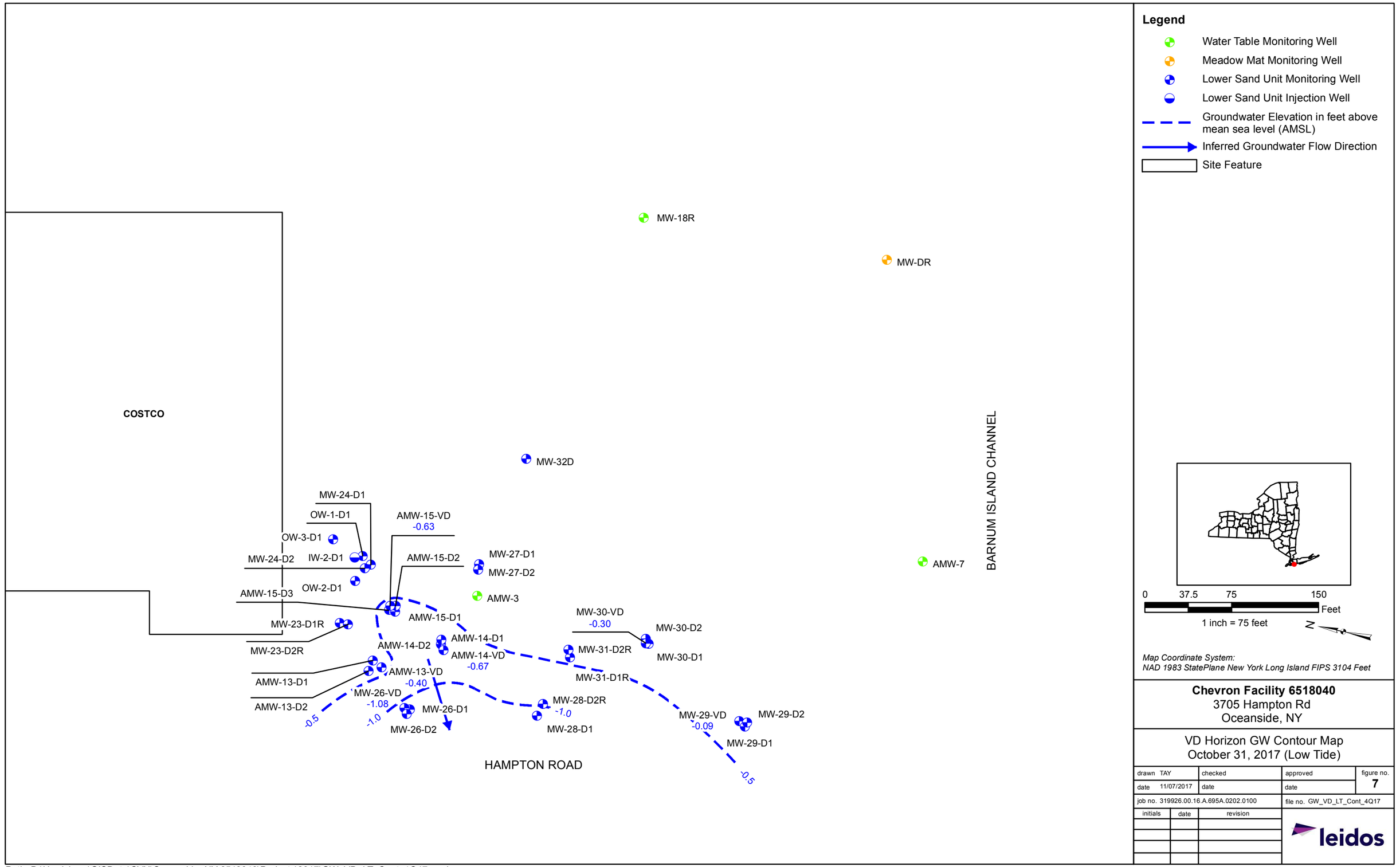
D2 Horizon GW Contour Map
October 31, 2017 (Low Tide)

drawn TAY	checked	approved	figure no.
date 11/07/2017	date	date	6
job no. 319926.00.16.A.695A.0202.0100			file no. GW_D2_LT_Cont_4Q17

initials	date	revision

leidos

Path: D:\Harrisburg\GISData\CVX\Oceanside, NY 6518040\Projects\2017\GW_D2_LT_Cont_4Q17.mxd



Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Groundwater Elevation in feet above mean sea level (AMSL)
- Inferred Groundwater Flow Direction
- Site Feature

0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

VD Horizon GW Contour Map
October 31, 2017 (Low Tide)

drawn TAY	checked	approved	figure no.
date 11/07/2017	date	date	7
job no. 319926.00.16.A.695A.0202.0100			file no. GW_VD_LT_Cont_4Q17

initials	date	revision

leidos

Path: D:\Harrisburg\GISData\CVX\Oceanside, NY 6518040\Projects\2017\GW_VD_LT_Cont_4Q17.mxd

Appendix C:
Pre-RI and RI Soil Sampling Analytical Data Summary Tables

Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth (feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	PX-D1 2 - 3 6 - 7 10/30/02 Shallow Sand Fill - Shallow	PX-D2 2 - 3 6 - 7 10/30/02 Shallow Sand Fill - Shallow	PX-D3 2 - 3 6 - 7 10/30/02 Shallow Sand Fill - Shallow	PX-D4 2 - 3 6 - 7 10/30/02 Shallow Sand Fill - Shallow	PX-D5 4 - 4.5 8 - 8.5 10/30/02 Shallow Sand Fill - Shallow	PX-EAST 2 - 3 6 - 7 11/18/04 Shallow Sand Fill - Shallow	PX-SOUTH 2 - 3 6 - 7 11/18/04 Shallow Sand Fill - Shallow
Area of Site					Former Turbine Pump Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	***6.0***	***14***	***0.52***	***7.9***	ND	***3.1***	***1.7***
Toluene	0.7	0.7	500	mg/kg	0.48	***2.1***	0.11	***0.72***	ND	0.33	ND
Ethylbenzene	1	1	390	mg/kg	***53***	***230***	***3.1***	***63***	ND	***17***	***3.3***
Xylenes (total)	0.26	1.6	500	mg/kg	***3.6***	***400***	*1.5*	***7.6***	ND	***3.1***	*0.60*
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	ND	0.034	ND	0.030	ND	ND
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	***16***	1.0
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	4.7	1.8
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	1.9	0.23 J
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	2.9	0.38 J
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	7.1	3.0
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	***13***	***4.6***
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.96 J	0.17 J
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	2.1	0.99
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	0.28 J	0.097 J
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	ND	ND	ND	ND	NA	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.47	0.47	200	mg/kg	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	NA	NA	NA	NA	NA	NA
Total VOCs	- -	- -	- -	mg/kg	63	650	5.2	79	0.030	73 J	18 J
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	720	18,000	7,400	13,000	12,000	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	0.66	3.2	NA	4.1	NA	0.78	0.98
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	ND	ND	NA	ND	NA	0.75	ND
Benzo(a)anthracene	1	1	5.6	mg/kg	0.096	ND	NA	ND	NA	0.25	0.46
Benzo(a)pyrene	1	22	1	mg/kg	0.082	ND	NA	ND	NA	0.15	0.60
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.12	ND	NA	ND	NA	0.17	0.95
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.050	ND	NA	ND	NA	0.038 J	0.13 J
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.10	ND	NA	ND	NA	0.21	0.68
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	0.15	ND	NA	0.37 J	NA	0.27	0.84
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	ND	NA	ND	NA	ND	ND
Fluoranthene	100	1,000	500	mg/kg	0.37	0.60	NA	1.1	NA	0.83	1.2
Fluorene	30	386	500	mg/kg	1.3	5.4	NA	7.5	NA	1.3	1.6
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	ND	NA	ND	NA	ND	0.16 J
Phenanthrene	100	1,000	500	mg/kg	3.0	12	NA	15	NA	6.3	5.2
Pyrene	100	1,000	500	mg/kg	0.35	1.1	NA	1.3	NA	0.66	1.5
Total SVOCs	- -	- -	- -	mg/kg	6.3	22	NA	29 J	NA	12 J	14 J
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	13,800	11,400	3,880	14,700	ND	NA	NA

See Notes on Page 23

Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	G2-D1	G3-D1	G3-S1	G4-D1	G4-D2	G4-S1	G4-S2
Historical Sample Depth (feet):					3 - 3.5	3 - 3.5	1.5 - 2	3 - 3.5	3 - 3.5	1.5 - 2	1.5 - 2
Current Estimated Sample Depth (feet)					7 - 7.5	7 - 7.5	5.5 - 6	7 - 7.5	7 - 7.5	5.5 - 6	5.5 - 6
Date Collected:					11/16/04	11/16/04	11/16/04	11/16/04	11/18/04	11/16/04	11/18/04
Sampling Event:					Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Turbine Pump Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	***4.1***	***8.3***	***5.7***	***4.7***	***4.2***	***3.5***	***3.2***
Toluene	0.7	0.7	500	mg/kg	0.16 J	ND	0.33	0.27	0.38	0.39	ND
Ethylbenzene	1	1	390	mg/kg	***7.3***	***40***	***28***	***20***	***41***	***40***	***41***
Xylenes (total)	0.26	1.6	500	mg/kg	***2.3***	***1.8***	***1.9***	***2.0***	***3.1***	***13***	***13***
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.22	ND	ND	0.64	ND	ND	ND
Naphthalene	12	12	500	mg/kg	***23***	***40***	***36***	***33***	***43***	***20***	***32***
Isopropylbenzene	- -	- -	- -	mg/kg	3.7	9.4	7.6	6.2	7.6	5.7	6.1
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	1.6	3.1	ND	1.5	1.0 J	***8.2***	***4.8***
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	1.8	1.3 J	1.6	0.73 J	1.5 J	6.1	6.1
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	500	mg/kg	7.3	***14***	***13***	***12***	***13***	9.3	9.0
n-Propylbenzene	3.9	3.9	500	mg/kg	***10***	***24***	***20***	***16***	***20***	***15***	***16***
p-Isopropyltoluene	- -	- -	- -	mg/kg	0.56 J	2.3 J	0.55 J	0.97 J	0.75 J	0.69 J	0.81 J
sec-Butylbenzene	11	11	500	mg/kg	2.2	4.8	4.0	4.1	4.1	2.9	2.7
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	0.21 J	0.46 J	0.35 J	0.37 J	0.37 J	0.24 J	0.29 J
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.47	0.47	200	mg/kg	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	NA	NA	NA	NA	NA	NA
Total VOCs	- -	- -	- -	mg/kg	64 J	150 J	120 J	100 J	140 J	130 J	130 J
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	0.33	0.88	0.85	0.60	1.4	0.87	2.3
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	0.10	0.34	0.33	ND	0.72	0.32 J	1.1
Benzo(a)anthracene	1	1	5.6	mg/kg	0.031 J	0.087	0.11	0.042 J	0.17	0.39	0.34
Benzo(a)pyrene	1	22	1	mg/kg	ND	0.049 J	0.046 J	ND	0.072 J	0.27 J	0.22
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	ND	0.067 J	0.060 J	ND	0.10 J	0.35	0.45
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	ND	0.058	0.056 J	ND	0.10 J	0.46	0.21 J
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	0.040 J	0.12	0.12	0.051 J	0.18 J	0.46	0.48
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	1,000	500	mg/kg	0.13	0.36	0.52	0.19	0.88	0.85	1.6
Fluorene	30	386	500	mg/kg	0.85	2.2	1.7	1.7	2.1	1.8	3.2
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	0.049 J	0.046 J	ND	ND	ND	ND
Phenanthrene	100	1,000	500	mg/kg	1.9	5.6	3.9	3.5	5.2	3.8	8.2
Pyrene	100	1,000	500	mg/kg	0.17	0.63	0.65	0.34	0.59	1.2	1.2
Total SVOCs	- -	- -	- -	mg/kg	3.5 J	10 J	8.4 J	6.4 J	12 J	11 J	19 J
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 23

Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	G5-D1	G5-D2	G5-S1	G5-S2	G6-D1	G6-D2	G6-S1
Historical Sample Depth (feet):					3 - 3.5	3 - 3.5	1.5 - 2	1.5 - 2	3 - 3.5	3 - 3.5	1.5 - 2
Current Estimated Sample Depth (feet)					7 - 7.5	7 - 7.5	5.5 - 6	5.5 - 6	7 - 7.5	7 - 7.5	5.5 - 6
Date Collected:					11/16/04	11/18/04	11/16/04	11/18/04	11/16/04	11/18/04	11/16/04
Sampling Event:					Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Turbine Pump Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	***5.7***	***3.3***	***6.4***	***9.1***	***10***	***6.2***	***4.2***
Toluene	0.7	0.7	500	mg/kg	0.44	0.21	0.57	0.69	0.52	ND	0.57
Ethylbenzene	1	1	390	mg/kg	***9.1***	***4.4***	***46***	***58***	***3.3***	***3.4***	***13***
Xylenes (total)	0.26	1.6	500	mg/kg	***2.5***	*0.60*	***4.1***	***3.1***	*1.4*	*0.82*	***8.7***
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Naphthalene	12	12	500	mg/kg	4.9	9.6	***16***	***13***	1.3	***19***	4.5
Isopropylbenzene	- -	- -	- -	mg/kg	5.2	3.0	7.0	9.1	4.6	4.7	5.0
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	1.9	0.37	1.1 J	0.48 J	0.28 J	1.1 J	***7.4***
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	2.4	1.6	4.6	4.1	0.96 J	6.1	3.7
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	500	mg/kg	7.5	5.0	10	***13***	6.6	6.6	9.4
n-Propylbenzene	3.9	3.9	500	mg/kg	***14***	***8.0***	***19***	***24***	***12***	***12***	***14***
p-Isopropyltoluene	- -	- -	- -	mg/kg	0.87 J	0.73 J	1.2	1.3 J	1.3 J	1.6 J	0.87 J
sec-Butylbenzene	11	11	500	mg/kg	2.4	1.6	3.2	3.9	2.2	2.5	2.7
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	0.22 J	0.19 J	0.28 J	0.38 J	0.40 J	0.28 J	0.28 J
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.47	0.47	200	mg/kg	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	NA	NA	NA	NA	NA	NA
Total VOCs	- -	- -	- -	mg/kg	57 J	39 J	120 J	140 J	45 J	64 J	74 J
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	1.2	0.80	ND	1.8	1.1	0.43	0.71
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	0.42	ND	0.34 J	ND	0.56	ND	0.25
Benzo(a)anthracene	1	1	5.6	mg/kg	0.16 J	ND	0.14 J	0.13 J	0.21	ND	0.17
Benzo(a)pyrene	1	22	1	mg/kg	ND	ND	ND	0.78 J	0.13	ND	0.19
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	ND	ND	0.28 J	0.079 J	0.19	ND	0.23
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	ND	ND	ND	ND	0.21	ND	0.20
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	ND	ND	ND	0.096 J	0.19	ND	0.19
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	0.15 J	0.11 J	0.29 J	0.11 J	0.28	ND	0.26
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	ND	ND	0.21 J	ND	ND	ND
Fluoranthene	100	1,000	500	mg/kg	0.51	0.21 J	0.62	ND	0.60	0.085 J	0.44
Fluorene	30	386	500	mg/kg	2.7	1.4	2.6	0.53	2.4	0.71	2.0
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	ND	ND	*3.1*	0.14	ND	0.17
Phenanthrene	100	1,000	500	mg/kg	5.9	3.4	5.3	8.3	7.7	1.7	6.5
Pyrene	100	1,000	500	mg/kg	0.60	0.30	0.65	0.50	1.0	ND	0.86
Total SVOCs	- -	- -	- -	mg/kg	12 J	6.3 J	10 J	16 J	15	2.9 J	12
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					G6-S2	G8-D1	G8-D2	G8-S1	G8-S2	G9-D1	G9-D2
Historical Sample Depth (feet):					1.5 - 2	3 - 3.5	3 - 3.5	1.5 - 2	1.5 - 2	3 - 3.5	3 - 3.5
Current Estimated Sample Depth (feet)					5.5 - 6	7 - 7.5	7 - 7.5	5.5 - 6	5.5 - 6	7 - 7.5	7 - 7.5
Date Collected:					11/18/04	11/16/04	11/18/04	11/16/04	11/18/04	11/18/04	11/18/04
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Turbine Pump Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	***10***	***0.98***	***2.1***	***14***	***3.8***	***5.7***	***0.71***
Toluene	0.7	0.7	500	mg/kg	0.54	0.36	0.41	***0.80***	0.22	ND	ND
Ethylbenzene	1	1	390	mg/kg	***5.7***	***1.3***	***1.1***	***2.2***	***7.0***	***25***	***4.6***
Xylenes (total)	0.26	1.6	500	mg/kg	***1.6***	***5.8***	***6.2***	***4.3***	*0.84*	***66***	*0.39*
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Naphthalene	12	12	500	mg/kg	4.2	***12***	***21***	***15***	3.0	***21***	11
Isopropylbenzene	- -	- -	- -	mg/kg	4.1	7.0	8.5	17	2.8	8.5	2.9
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	0.54 J	***4.7***	***4.2***	1.7 J	0.19 J	***12***	0.19 J
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	2.4	2.6	2.8	0.85 J	0.38 J	7.0	0.53 J
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	500	mg/kg	6.4	***13***	***15***	***30***	4.9	***12***	5.5
n-Propylbenzene	3.9	3.9	500	mg/kg	***10***	***17***	***20***	***40***	***7.3***	***23***	***7.7***
p-Isopropyltoluene	- -	- -	- -	mg/kg	1.1 J	0.49 J	0.48 J	0.53 J	0.36 J	1.8 J	0.64 J
sec-Butylbenzene	11	11	500	mg/kg	2.1	4.0	4.5	9.0	1.5	3.9	1.8
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	0.26 J	0.44 J	0.52 J	1.0 J	0.16 J	0.40 J	0.18 J
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.47	0.47	200	mg/kg	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	NA	NA	NA	NA	NA	NA
Total VOCs	- -	- -	- -	mg/kg	50 J	70 J	87 J	140 J	32 J	190 J	37 J
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	1.1	0.74	1.6	1.3	1.6	0.71	0.85
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	ND	0.33	ND	0.65	ND	0.41	0.43
Benzo(a)anthracene	1	1	5.6	mg/kg	0.20 J	0.25	0.35	0.55	0.47	0.37	0.095
Benzo(a)pyrene	1	22	1	mg/kg	0.14 J	0.24	0.26	0.39	0.31	0.25	0.043 J
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.23 J	0.26	0.39	0.47	0.41	0.27	0.054 J
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.13 J	0.21	0.15 J	0.51	0.35	0.15	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.11 J	0.20	0.17 J	0.42	0.37	0.25	0.068 J
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	0.36	0.29	0.44	0.55	0.65	0.43	0.12
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	1,000	500	mg/kg	0.64	0.48	0.74	0.89	1.3	0.96	0.39
Fluorene	30	386	500	mg/kg	18	2.1	2.6	5.8	2.3	1.7	1.4
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	0.17	0.15 J	*0.51*	0.28 J	0.15	ND
Phenanthrene	100	1,000	500	mg/kg	6.4	5.7	6.8	12	6.4	4.2	3.2
Pyrene	100	1,000	500	mg/kg	0.78	0.89	0.70	2.1	1.4	1.1	0.32
Total SVOCs	- -	- -	- -	mg/kg	28 J	12	14 J	26	16 J	11	7.0 J
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 23

Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	G9-S1	G9-S2	G10-D1	G10-D2	G10-S1	G10-S2	G11-D1
Historical Sample Depth (feet):					1.5 - 2	1.5 - 2	3 - 3.5	3 - 3.5	1.5 - 2	1.5 - 2	3 - 3.5
Current Estimated Sample Depth (feet)					5.5 - 6	5.5 - 6	7 - 7.5	7 - 7.5	5.5 - 6	5.5 - 6	7 - 7.5
Date Collected:					11/16/04	11/18/04	11/16/04	11/18/04	11/17/04	11/18/04	11/16/04
Sampling Event:					Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Turbine Pump Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	***1.7***	***1.6***	***3.0***	ND	***0.16***	***0.25***	***1.6***
Toluene	0.7	0.7	500	mg/kg	0.26	0.37	ND	ND	ND	ND	ND
Ethylbenzene	1	1	390	mg/kg	***31***	***31***	***1.1***	0.27	0.24	***7.8***	***1.3***
Xylenes (total)	0.26	1.6	500	mg/kg	***3.5***	***11***	*0.97*	0.091	0.25	***6.3***	***2.1***
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Naphthalene	12	12	500	mg/kg	***15***	***17***	4.5	1.2	0.58	***17***	4.3
Isopropylbenzene	- -	- -	- -	mg/kg	4.5	4.7	9.7	1.5	0.23 J	2.3	4.2
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	0.86 J	***7.7***	ND	ND	0.27	***11***	2.0
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	8.2	6.9	1.1 J	0.15 J	0.67	4.8	1.3 J
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	500	mg/kg	7.2	7.2	***16***	3.7	0.45	6.4	9.0
n-Propylbenzene	3.9	3.9	500	mg/kg	***13***	***14***	***25***	***4.5***	0.52	***6.7***	***11***
p-Isopropyltoluene	- -	- -	- -	mg/kg	1.2 J	1.1 J	0.34 J	0.26 J	0.092	1.2	0.34 J
sec-Butylbenzene	11	11	500	mg/kg	2.2	2.1	5.3	1.3	0.15 J	2.0	2.7
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	0.18 J	0.18 J	0.49 J	0.18 J	0.035 J	0.16 J	0.29 J
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.47	0.47	200	mg/kg	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	NA	NA	NA	NA	NA	NA
Total VOCs	- -	- -	- -	mg/kg	89 J	100 J	67 J	13 J	3.6 J	66 J	40 J
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	ND	0.60	0.47	0.21	ND	1.9	0.52
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	0.25 J	0.43	ND	ND	ND	0.80	0.16
Benzo(a)anthracene	1	1	5.6	mg/kg	0.23 J	0.13	0.054 J	0.036 J	0.040 J	0.44	0.084
Benzo(a)pyrene	1	22	1	mg/kg	0.34 J	0.079	0.035 J	0.047 J	0.035 J	0.43	0.074
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.47	0.11	0.050 J	0.032 J	0.046 J	0.80	0.16
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.34 J	0.032 J	ND	ND	0.046 J	0.15	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.32 J	0.096	ND	0.047 J	0.039 J	0.37	0.043 J
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	0.35 J	0.16	0.074 J	0.058 J	0.062 J	0.68	0.085
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	1,000	500	mg/kg	0.99	0.44	0.20	0.14	0.088	1.3	0.20
Fluorene	30	386	500	mg/kg	1.9	0.79	1.3	0.42	0.18	1.8	1.3
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	0.33 J	ND	ND	ND	ND	0.14	0.056 J
Phenanthrene	100	1,000	500	mg/kg	3.3	3.0	2.9	1.0	0.37	8.0	2.9
Pyrene	100	1,000	500	mg/kg	1.3	0.40	0.29	0.12	0.21	1.2	0.39
Total SVOCs	- -	- -	- -	mg/kg	10 J	6.3 J	5.4 J	2.1 J	1.1 J	18	6.0 J
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 23

Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Historical Sample Depth (feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	GP-1(1995) 6 10 12/15/95 Shallow Sand Fill - Shallow	GP-1(2002) 6 10 05/02/02 Shallow Sand Fill - Shallow	GP-2(1995) 6 10 12/15/95 Shallow Sand Fill - Shallow	GP-2(2002) 6 10 05/02/02 Shallow Sand Fill - Shallow	GP-3(1995) 2 6 12/15/95 Shallow Sand Fill - Shallow	GP-3(2002) 2 6 05/02/02 Shallow Sand Fill - Shallow	GP-4(1995) 2 6 12/15/95 Shallow Sand Fill - Shallow
Area of Site					Former VRU Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	NA	ND	NA	ND	NA	0.017	NA
Toluene	0.7	0.7	500	mg/kg	NA	ND	NA	ND	NA	ND	NA
Ethylbenzene	1	1	390	mg/kg	NA	0.052	NA	***8.8***	NA	ND	NA
Xylenes (total)	0.26	1.6	500	mg/kg	NA	ND	NA	***11***	NA	0.0082	NA
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	500	mg/kg	NA	0.44	NA	6.2	NA	ND	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	ND	NA	ND	NA	ND	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	ND	NA	ND	NA	ND	NA
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	ND	NA	ND	NA	ND	NA
Trichloroethene	0.47	0.47	200	mg/kg	NA	ND	NA	ND	NA	ND	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	ND	NA	ND	NA	ND	NA
Total VOCs	- -	- -	- -	mg/kg	NA	0.49	NA	26	NA	0.025	NA
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	ND	NA	ND	NA	ND	NA	ND
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	ND	NA	ND	NA	ND	NA	0.38
Benzo(a)anthracene	1	1	5.6	mg/kg	ND	NA	ND	NA	0.37	NA	0.89
Benzo(a)pyrene	1	22	1	mg/kg	ND	NA	ND	NA	0.40	NA	*1.1*
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	ND	NA	ND	NA	0.46	NA	***2.2***
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	ND	NA	ND	NA	ND	NA	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	ND	NA	ND	NA	ND	NA	0.68
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	0.81	NA	0.99	NA	0.40	NA	ND
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	NA	ND	NA	ND	NA	ND
Fluoranthene	100	1,000	500	mg/kg	ND	NA	ND	NA	0.74	NA	ND
Fluorene	30	386	500	mg/kg	ND	NA	ND	NA	ND	NA	ND
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	NA	ND	NA	ND	NA	ND
Phenanthrene	100	1,000	500	mg/kg	ND	NA	2.3	NA	0.42	NA	0.95
Pyrene	100	1,000	500	mg/kg	ND	NA	ND	NA	0.62	NA	ND
Total SVOCs	- -	- -	- -	mg/kg	0.81	NA	3.3	NA	3.4	NA	6.2
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth (feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	GP-4(2002) 2 6 05/02/02 Shallow Sand Fill - Shallow	GP-4D(1995) 2 6 12/15/95 Shallow Sand Fill - Shallow	GP-5(2002) 2 - 4 6 - 8 05/02/02 Shallow Sand Fill - Shallow	GP-6(1995) 2 6 12/15/95 Shallow Sand Fill - Shallow	GP-7(2002) 3 - 4 7 - 8 05/02/02 Shallow Sand Fill - Shallow	GP-8(2002) 1 - 2 5 - 6 05/02/08 Shallow Sand Fill - Shallow	GP-9(2002) 2 - 3 6 - 7 05/02/02 Shallow Sand Fill - Shallow
Area of Site					Former VRU Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	ND	NA	ND	NA	***2.8***	ND	***0.20***
Toluene	0.7	0.7	500	mg/kg	ND	NA	ND	NA	ND	ND	0.18
Ethylbenzene	1	1	390	mg/kg	ND	NA	ND	NA	***76***	0.0020	0.18
Xylenes (total)	0.26	1.6	500	mg/kg	ND	NA	ND	NA	***3.0***	0.0044	*0.53*
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Naphthalene	12	12	500	mg/kg	ND	NA	ND	NA	***44***	ND	1.8
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	ND	NA	ND	NA	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	ND	NA	ND	NA	ND	ND	ND
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	ND	NA	ND	NA	ND	ND	ND
Trichloroethene	0.47	0.47	200	mg/kg	0.10	NA	0.0076	NA	ND	ND	ND
Vinyl Chloride	0.02	0.02	13	mg/kg	ND	NA	ND	NA	ND	ND	ND
Total VOCs	- -	- -	- -	mg/kg	0.10	NA	0.0076	NA	130	0.0064	2.9
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	NA	ND	NA	ND	NA	NA	NA
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	NA	ND	NA	ND	NA	NA	NA
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	0.57	NA	ND	NA	NA	NA
Benzo(a)pyrene	1	22	1	mg/kg	NA	0.82	NA	ND	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	***1.7***	NA	ND	NA	NA	NA
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	ND	NA	ND	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	0.55	NA	ND	NA	NA	NA
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	NA	ND	NA	ND	NA	NA	NA
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	ND	NA	ND	NA	NA	NA
Fluoranthene	100	1,000	500	mg/kg	NA	ND	NA	ND	NA	NA	NA
Fluorene	30	386	500	mg/kg	NA	ND	NA	ND	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	ND	NA	ND	NA	NA	NA
Phenanthrene	100	1,000	500	mg/kg	NA	0.75	NA	4.2	NA	NA	NA
Pyrene	100	1,000	500	mg/kg	NA	0.84	NA	ND	NA	NA	NA
Total SVOCs	- -	- -	- -	mg/kg	NA	5.2	NA	4.2	NA	NA	NA
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	GP-10(2002)	PX-A1	PX-A2	PX-A3	PX-A6	PX-A7	PX-A8
Historical Sample Depth (feet):					2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3
Current Estimated Sample Depth (feet)					6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7	6 - 7
Date Collected:					05/02/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	10/30/02
Sampling Event:					Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former VRU Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	ND	***0.72***	***1.9***	***0.15***	***0.57***	***5.4***	***0.082***
Toluene	0.7	0.7	500	mg/kg	0.12	0.19	0.42	0.099	0.17	***1.9***	0.38
Ethylbenzene	1	1	390	mg/kg	***7.2***	***32***	***80***	***46***	***9.6***	***98***	***16***
Xylenes (total)	0.26	1.6	500	mg/kg	*0.64*	***4.2***	***37***	*1.3*	***21***	***160***	***87***
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	NA	ND	ND	ND	ND	ND	ND
Naphthalene	12	12	500	mg/kg	0.64	NA	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Trichloroethene	0.47	0.47	200	mg/kg	ND	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	ND	NA	NA	NA	NA	NA	NA
Total VOCs	- -	- -	- -	mg/kg	8.6	37	120	48	31	260	100
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	7,300	3,500	76	670	6,400	1,200
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	NA	3.6	1.2	0.74	0.49	0.55	ND
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	NA	1.4	0.87	0.45 J	0.039 J	0.41 J	ND
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	0.43 J	ND	ND	0.040 J	ND	ND
Benzo(a)pyrene	1	22	1	mg/kg	NA	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	ND	ND	ND	0.045 J	ND	ND
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	ND	ND	ND	0.033 J	ND	ND
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	NA	0.46 J	0.31 J	ND	0.061 J	ND	ND
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	ND	ND	ND	ND	ND	ND
Fluoranthene	100	1,000	500	mg/kg	NA	1.9	1.2	0.66 J	0.15	0.40 J	ND
Fluorene	30	386	500	mg/kg	NA	5.5	2.4	1.2	0.34	1.5	0.78
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	ND	ND	ND	ND	ND	ND
Phenanthrene	100	1,000	500	mg/kg	NA	61	41	16	0.30	3.3	1.3
Pyrene	100	1,000	500	mg/kg	NA	1.6	1.0	0.54 J	0.14	0.44	ND
Total SVOCs	- -	- -	- -	mg/kg	NA	76 J	48 J	20 J	1.6 J	6.6 J	2.1
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	17,700	6,680	4,480	5.03	6.76	2.38

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	PX-A9	LB-1	LB-2	LB-2	LB-3	LB-3	LB-3
Historical Sample Depth (feet):					4 - 4.5	17.5 - 18	4 - 4.5	16.5 - 17	2.5 - 3	13.5 - 14	18.5 - 19
Current Estimated Sample Depth (feet)					8 - 8.5	21.5 - 22	8 - 8.5	20.5 - 21	6.5 - 7	17.5 - 18	22.5 - 23
Date Collected:					10/30/02	03/10/04	03/10/04	03/10/04	03/10/04	03/10/04	03/10/04
Sampling Event:					Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Deep Sand Layer - D1 Unit
Area of Site					Former VRU Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	ND	0.0013	0.033	0.00071	ND	ND	ND
Toluene	0.7	0.7	500	mg/kg	ND	0.0020	0.098	ND	ND	ND	ND
Ethylbenzene	1	1	390	mg/kg	ND	0.0011	***7.5***	0.00087 J	0.32 J	ND	ND
Xylenes (total)	0.26	1.6	500	mg/kg	0.10	0.00072 J	***14***	0.0016	ND	ND	ND
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.051	0.077	ND	0.017	ND	0.0031	0.22
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	0.00060 J	ND	0.0010 J	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	***0.26 J***	0.040 J	0.098	ND	ND	0.043
Methylene Chloride	0.05	0.05	500	mg/kg	NA	0.045	ND	ND	ND	ND	ND
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	ND	0.38	ND	0.11	ND	3.2 J	0.21
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	0.0050 J	ND	0.0039 J	ND	ND	ND
Trichloroethene	0.47	0.47	200	mg/kg	NA	***1.3***	ND	0.091	ND	ND	0.0075 J
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	0.010	ND	0.0085	ND	ND	ND
Total VOCs	- -	- -	- -	mg/kg	0.15	2.0 J	22 J	0.33 J	0.32 J	3.2 J	0.48 J
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	ND	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	5.6	mg/kg	ND	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	mg/kg	ND	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	ND	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	ND	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	ND	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1,000	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Fluorene	30	386	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1,000	500	mg/kg	0.055	NA	NA	NA	NA	NA	NA
Pyrene	100	1,000	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Total SVOCs	- -	- -	- -	mg/kg	0.055	NA	NA	NA	NA	NA	NA
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	ND	NA	NA	NA	NA	NA	NA

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Table 4
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Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	LB-4	LB-4	LB-6	VRU-4	VRU-4	VRU-4	VRU-7
Historical Sample Depth (feet):					4 - 4.5	17.5 - 18	18 - 18.5	9.5 - 10	10.5 - 11	17.5 - 18	7.5 - 8
Current Estimated Sample Depth (feet)					8 - 8.5	21.5 - 22	22.5 - 23	13.5 - 14	14.5 - 15	21.5 - 22	11.5 - 12
Date Collected:					03/10/04	03/10/04	03/11/04	09/22/04	09/22/04	09/22/04	09/22/04
Sampling Event:					Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Deep Sand Layer - D1 Unit	Meadow Mat	Meadow Mat	Meadow Mat	Meadow Mat
Area of Site					Former VRU Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	ND	ND	0.012	0.042	***0.76***	ND	ND
Toluene	0.7	0.7	500	mg/kg	ND	ND	0.028	0.19	0.32	ND	ND
Ethylbenzene	1	1	390	mg/kg	ND	ND	0.011	0.20	0.21	ND	0.032
Xylenes (total)	0.26	1.6	500	mg/kg	ND	ND	0.035	*0.68*	*0.61*	ND	0.071
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	0.060	0.18	***2.2***	***18***	ND	0.0088
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	ND	0.00085 J	0.0029 J	ND	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	ND	0.24 J	***0.57***	***2.2***	0.052	0.0054 J	0.13
Methylene Chloride	0.05	0.05	500	mg/kg	ND	ND	0.024	0.029	0.0099	***0.24***	***0.086***
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	ND	0.16	1.0 J	2.8	22	5.5	ND
Tetrachloroethene	1.3	1.3	150	mg/kg	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	ND	0.011	0.032	0.055	0.029	ND	ND
Trichloroethene	0.47	0.47	200	mg/kg	ND	0.0027 J	***2.9***	0.0020 J	ND	ND	ND
Vinyl Chloride	0.02	0.02	13	mg/kg	ND	0.0021 J	0.0068	***0.052***	***0.20***	ND	ND
Total VOCs	- -	- -	- -	mg/kg	ND	0.47 J	4.9 J	8.5 J	43	5.7 J	0.33
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Total SVOCs	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	NA	4.64	33	22.2	ND

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	VRU-7	VRU-7	VRU-8	VRU-8	VRU-8	VRU-9	VRU-9
Historical Sample Depth (feet):					12 - 12.5	14 - 14.5	8 - 8.5	10.5	14 - 14.5	7.5 - 8	9.5 - 10
Current Estimated Sample Depth (feet)					16 - 16.5	18 - 18.5	12 - 12.5	14.5	18 - 18.5	11.5 - 12	13.5 - 14
Date Collected:					09/22/04	09/22/04	09/22/04	09/22/04	09/22/04	09/22/04	09/22/04
Sampling Event:					Meadow Mat	Meadow Mat	Meadow Mat	Meadow Mat	Meadow Mat	Meadow Mat	Meadow Mat
Area of Site					Former VRU Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.0093	ND	ND	***0.083***	ND	0.012	0.040
Toluene	0.7	0.7	500	mg/kg	0.0050	ND	ND	0.029	ND	0.0034	ND
Ethylbenzene	1	1	390	mg/kg	0.38	ND	ND	0.012	ND	ND	ND
Xylenes (total)	0.26	1.6	500	mg/kg	*0.70*	ND	ND	0.044	ND	0.0049	ND
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.48	0.0078	0.18	0.14	0.035	0.0060	0.32
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	***0.44***	ND	***0.40***	ND	0.051	0.12	0.13
Methylene Chloride	0.05	0.05	500	mg/kg	***0.14***	0.030	***0.056***	0.039	***0.19***	0.016	***0.051***
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	1.5	0.41	0.26	3.9	1.7	ND	3.0
Tetrachloroethene	1.3	1.3	150	mg/kg	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.0049 J	ND	ND	ND	ND	0.0016 J	ND
Trichloroethene	0.47	0.47	200	mg/kg	ND	ND	ND	ND	ND	0.0031 J	0.0059 J
Vinyl Chloride	0.02	0.02	13	mg/kg	***1.4 E***	ND	ND	***0.026 J***	ND	0.016	***0.42***
Total VOCs	- -	- -	- -	mg/kg	5.0 J	0.44	0.89	4.2 J	1.9	0.18 J	3.9 J
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Fluorene	30	386	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Pyrene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Total SVOCs	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	10,800	18,100	1,320	20,100	17,200	ND	27,100

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	VRU-9	MW-24-VD	MW-24-VD	MW-24-VD	MW-25-VD	MW-25-VD	MW-26-VD
Historical Sample Depth (feet):					12.5 - 13	19 - 19.5	68 - 68.5	73 - 73.5	18 - 18.5	68 - 68.5	19 - 21
Current Estimated Sample Depth (feet)					16.5 - 17	23 - 23.5	72 - 72.5	77 - 77.5	22 - 22.5	72 - 72.5	23 - 25
Date Collected:					09/22/04	12/20/06	12/21/06	12/21/06	12/14/06	12/15/06	12/28/06
Sampling Event:					Meadow Mat	Deep Sand Layer - D3 Unit	Deep Sand Layer - D3 Unit	Deep Sand Layer - D3 Unit	Deep Sand Layer - D3 Unit	Deep Sand Layer - D3 Unit	Deep Sand Layer - D3 Unit
Area of Site					Former VRU Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	***0.083***	ND	ND	ND	ND	ND	ND
Toluene	0.7	0.7	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1	1	390	mg/kg	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	0.26	1.6	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.56	ND	ND	ND	0.0087	ND	ND
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	0.031	0.017	0.028	0.021	ND	ND
Carbon Disulfide	- -	- -	- -	mg/kg	NA	0.0073	ND	ND	0.0097	ND	0.0016 J
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	***0.27***	ND	ND	ND	0.015	ND	ND
Methylene Chloride	0.05	0.05	500	mg/kg	***0.12***	0.019	ND	ND	0.031	ND	0.044
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	3.3	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1.3	1.3	150	mg/kg	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.016 J	ND	ND	ND	ND	ND	ND
Trichloroethene	0.47	0.47	200	mg/kg	0.036	0.0030 J	ND	ND	0.011	ND	ND
Vinyl Chloride	0.02	0.02	13	mg/kg	***0.21***	ND	ND	ND	ND	ND	ND
Total VOCs	- -	- -	- -	mg/kg	4.6 J	0.060 J	0.017	0.028	0.097	ND	0.045 J
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	ND	ND	ND	ND	ND	ND
Acenaphthene	20	98	500	mg/kg	NA	ND	ND	ND	0.020 J	ND	ND
Acenaphthylene	100	107	500	mg/kg	NA	ND	ND	ND	0.018 J	ND	ND
Anthracene	100	1,000	500	mg/kg	NA	ND	ND	ND	0.017 J	ND	ND
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	ND	ND	ND	0.073 J	ND	ND
Benzo(a)pyrene	1	22	1	mg/kg	NA	ND	ND	ND	0.078 J	ND	ND
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	ND	ND	ND	0.064 J	ND	ND
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	ND	ND	ND	0.035	ND	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	ND	ND	ND	0.066 J	ND	ND
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	ND	0.058 J	ND	ND	0.082 B	0.11
Chrysene	1	1	56	mg/kg	NA	ND	ND	ND	0.068 J	ND	ND
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	ND	ND	ND	ND	ND	ND
Fluoranthene	100	1,000	500	mg/kg	NA	ND	ND	ND	0.15	ND	ND
Fluorene	30	386	500	mg/kg	NA	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	ND	ND	ND	0.034 J	ND	ND
Phenanthrene	100	1,000	500	mg/kg	NA	0.024 J	ND	ND	0.054 J	ND	ND
Pyrene	100	1,000	500	mg/kg	NA	ND	ND	ND	0.15	ND	ND
Total SVOCs	- -	- -	- -	mg/kg	NA	0.024 J	0.058 J	ND	0.82 J	0.082	0.11
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	16,500	2,190	ND	8,120	ND	ND	ND

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	MW-26-VD	HA-01	HA-02	LB-7	LB-7	PX-B1	PX-B2
Historical Sample Depth (feet):					58 - 60	0.5	0.5	1.5 - 2	14 - 14.5	2 - 3	2 - 3
Current Estimated Sample Depth (feet)					62 - 64	4.5	4.5	5.5 - 6	18 - 18.5	6 - 7	6 - 7
Date Collected:					12/29/06	02/29/96	02/29/96	03/15/04	03/15/04	10/30/02	10/30/02
Sampling Event:					Deep Sand Layer - D3 Unit	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former VRU Area	Former Tank No. 113				Former Garage Building Area	
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	ND	NA	NA	ND	0.0041	***1.2***	ND
Toluene	0.7	0.7	500	mg/kg	ND	NA	NA	ND	ND	0.074	ND
Ethylbenzene	1	1	390	mg/kg	ND	NA	NA	ND	ND	***2.5***	ND
Xylenes (total)	0.26	1.6	500	mg/kg	ND	NA	NA	0.0025	ND	*1.1*	ND
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	NA	NA	ND	0.0060	0.063	0.022
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	ND	NA	NA	ND	ND	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	0.0014	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	ND	NA	NA	ND	ND	NA	NA
Methylene Chloride	0.05	0.05	500	mg/kg	ND	NA	NA	ND	ND	NA	NA
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	ND	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	ND	NA	NA	ND	0.23	ND	ND
Tetrachloroethene	1.3	1.3	150	mg/kg	ND	NA	NA	ND	ND	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	ND	NA	NA	ND	ND	NA	NA
Trichloroethene	0.47	0.47	200	mg/kg	ND	NA	NA	ND	ND	NA	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	ND	NA	NA	ND	ND	NA	NA
Total VOCs	- -	- -	- -	mg/kg	0.0014	NA	NA	0.0025	0.24	4.8	0.022
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	4.8	400
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	ND	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	ND	ND	ND	NA	NA	ND	0.077
Acenaphthylene	100	107	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	ND	ND	ND	NA	NA	0.48	ND
Benzo(a)anthracene	1	1	5.6	mg/kg	ND	ND	ND	NA	NA	0.37	0.043 J
Benzo(a)pyrene	1	22	1	mg/kg	ND	ND	ND	NA	NA	0.26	ND
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	ND	ND	ND	NA	NA	0.21	0.038 J
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	ND	ND	ND	NA	NA	0.16	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	ND	ND	ND	NA	NA	0.19	ND
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.074	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	ND	ND	ND	NA	NA	0.33	0.041 J
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	ND	ND	NA	NA	ND	ND
Fluoranthene	100	1,000	500	mg/kg	ND	ND	ND	NA	NA	1.2	0.11
Fluorene	30	386	500	mg/kg	ND	ND	ND	NA	NA	1.9	0.15
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	ND	ND	NA	NA	0.15	ND
Phenanthrene	100	1,000	500	mg/kg	ND	ND	ND	NA	NA	4.5	0.38
Pyrene	100	1,000	500	mg/kg	ND	ND	ND	NA	NA	1.0	0.10
Total SVOCs	- -	- -	- -	mg/kg	0.074	ND	ND	NA	NA	11	0.94 J
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	1,450	NA	NA	NA	NA	7,870	2,180

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	PX-B3	PX-B4	PX-B5	PX-B6	PX-B7	LB-8	LB-8
Historical Sample Depth (feet):					2 - 3	2 - 3	2 - 3	2 - 3	4 - 4.5	4 - 4.5	22 - 22.5
Current Estimated Sample Depth (feet)					6 - 7	6 - 7	6 - 7	6 - 7	8 - 8.5	8 - 8.5	26 - 26.5
Date Collected:					10/30/02	10/30/02	10/30/02	10/30/02	10/30/02	03/11/04	03/11/04
Sampling Event:					Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit
Area of Site					Former Garage Building Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.043	***0.12***	ND	***3.5***	***3.0***	***3.3***	ND
Toluene	0.7	0.7	500	mg/kg	0.10	ND	ND	0.22	0.11	0.30	ND
Ethylbenzene	1	1	390	mg/kg	ND	***1.2***	ND	***73***	***22***	***38***	ND
Xylenes (total)	0.26	1.6	500	mg/kg	0.20	***1.9***	ND	***6.9***	***3.6***	***13***	ND
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.026	0.026	ND	0.096	ND	ND	0.014
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	NA	NA	NA	NA	ND	ND
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	NA	NA	NA	NA	ND	ND
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	ND	ND
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	ND	ND	ND	ND	ND	ND	0.089
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	NA	ND	ND
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	NA	NA	NA	NA	ND	ND
Trichloroethene	0.47	0.47	200	mg/kg	NA	NA	NA	NA	NA	ND	ND
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	NA	NA	NA	NA	ND	ND
Total VOCs	- -	- -	- -	mg/kg	0.37	3.2	ND	84	29	54	0.10
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	41	5,400	10,000	6,400	ND	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	ND	0.53	1.0	0.74	ND	NA	NA
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	ND	0.35	1.0	0.87	ND	NA	NA
Benzo(a)anthracene	1	1	5.6	mg/kg	ND	0.60	0.45	0.91	ND	NA	NA
Benzo(a)pyrene	1	22	1	mg/kg	ND	0.71	0.30	0.60	ND	NA	NA
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	ND	0.79	0.30	0.55	ND	NA	NA
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	ND	0.27	0.12	0.15	ND	NA	NA
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	ND	0.56	0.23	0.52	ND	NA	NA
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	ND	0.76	0.42	0.89	ND	NA	NA
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	ND	0.062 J	0.061 J	ND	NA	NA
Fluoranthene	100	1,000	500	mg/kg	ND	1.7	1.3	3.1	ND	NA	NA
Fluorene	30	386	500	mg/kg	ND	0.61	2.5	1.7	ND	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	0.27	0.12	0.18	ND	NA	NA
Phenanthrene	100	1,000	500	mg/kg	ND	1.8	5.9	6.4	ND	NA	NA
Pyrene	100	1,000	500	mg/kg	ND	1.6	1.4	2.1	ND	NA	NA
Total SVOCs	- -	- -	- -	mg/kg	ND	11	15 J	19 J	ND	NA	NA
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	2,500	15,200	15,200	8,330	3,670	NA	NA

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					LB-9	LB-9	LB-10	LB-10	LB-11	LB-11	MW-32D
Historical Sample Depth (feet):					2.5 - 3	19.5 - 20	4 - 4.5	24 - 24.5	3.5 - 4	24 - 24.5	27 - 27.5
Current Estimated Sample Depth (feet)					6.5 - 7	23.5 - 24	8 - 8.5	28 - 28.5	7.5 - 8	28 - 28.5	31 - 31.5
Date Collected:					03/11/04	03/11/04	03/12/04	03/12/04	03/12/04	03/12/04	12/13/06
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Deep Sand Layer - D1 Unit
Area of Site					Former Garage Building Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	***0.18***	ND	ND	ND	0.033	ND	ND
Toluene	0.7	0.7	500	mg/kg	ND	ND	ND	ND	0.055	ND	ND
Ethylbenzene	1	1	390	mg/kg	0.078	ND	ND	ND	0.0025	ND	ND
Xylenes (total)	0.26	1.6	500	mg/kg	0.086 J	ND	ND	ND	0.0087	ND	ND
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	0.0065	ND	0.00065 J	0.017	0.0042	ND
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	0.0014 J
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	0.05	0.05	500	mg/kg	***0.078***	ND	ND	ND	0.0025	ND	ND
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	ND
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	ND	0.11	ND	0.035 J	ND	0.062	ND
Tetrachloroethene	1.3	1.3	150	mg/kg	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.47	0.47	200	mg/kg	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	0.02	0.02	13	mg/kg	ND	ND	ND	ND	ND	ND	ND
Total VOCs	- -	- -	- -	mg/kg	0.42 J	0.12	ND	0.035 J	0.12	0.066	0.0014 J
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	ND
Acenaphthene	20	98	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Anthracene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	NA	NA	NA	NA	NA	ND
Benzo(a)pyrene	1	22	1	mg/kg	NA	NA	NA	NA	NA	NA	ND
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	NA	NA	NA	NA	NA	ND
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	NA	NA	NA	NA	NA	ND
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	0.070
Chrysene	1	1	56	mg/kg	NA	NA	NA	NA	NA	NA	ND
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	NA	NA	NA	NA	NA	ND
Fluoranthene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Fluorene	30	386	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	NA	NA	NA	NA	NA	ND
Phenanthrene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Pyrene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Total SVOCs	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	0.070
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	ND

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	MW-32D	MW-19	LB-12	LB-12	LB-12	T12-S1	T12-S2
Historical Sample Depth (feet):					31 - 31.5	10	3.5 - 4	11.5 - 12	21 - 21.5	1.5 - 2	1.5 - 2
Current Estimated Sample Depth (feet)					35 - 35.5	14	7.5 - 8	15.5 - 16	25 - 26.5	5.5 - 6	5.5 - 6
Date Collected:					12/13/06	12/12/95	03/12/04	03/12/04	03/12/04	11/16/04	11/18/04
Sampling Event:					Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Meadow Mat	Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Garage Building Area	Southwest Area					
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	ND	NA	ND	0.0013 J	ND	***8.2***	***17***
Toluene	0.7	0.7	500	mg/kg	ND	NA	ND	ND	ND	ND	0.54
Ethylbenzene	1	1	390	mg/kg	ND	NA	0.23	ND	ND	***3.6***	***13***
Xylenes (total)	0.26	1.6	500	mg/kg	ND	NA	*0.33*	ND	ND	*1.4*	***3.6***
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	NA	ND	ND	0.0052	ND	ND
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	2.4	6.5
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	1.7	2.1
1,1-Dichloroethene	0.33	0.33	500	mg/kg	ND	NA	ND	ND	ND	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	0.36 J	2.3
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	0.55 J	2.9
Acetone	0.05	0.05	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	0.0029 J	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	ND	NA	ND	ND	ND	NA	NA
Methylene Chloride	0.05	0.05	500	mg/kg	ND	NA	ND	ND	ND	NA	NA
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	4.2	3.9
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	3.4	***4.6***
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.54 J	0.87 J
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	1.2 J	1.2 J
Styrene	- -	- -	- -	mg/kg	ND	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	0.28 J	0.26 J
Tertiary butyl alcohol	- -	- -	- -	mg/kg	ND	NA	ND	ND	0.030 J	NA	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	ND	NA	ND	ND	ND	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	ND	NA	ND	ND	ND	NA	NA
Trichloroethene	0.47	0.47	200	mg/kg	ND	NA	ND	ND	ND	NA	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	ND	NA	ND	ND	ND	NA	NA
Total VOCs	- -	- -	- -	mg/kg	0.0029 J	NA	0.56	0.0013 J	0.035 J	28 J	59 J
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	ND	NA	NA	NA	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	ND	ND	NA	NA	NA	1.4	1.9
Acenaphthylene	100	107	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	ND	ND	NA	NA	NA	0.47	0.92
Benzo(a)anthracene	1	1	5.6	mg/kg	ND	ND	NA	NA	NA	0.34	0.62
Benzo(a)pyrene	1	22	1	mg/kg	ND	ND	NA	NA	NA	0.23	0.45
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	ND	ND	NA	NA	NA	0.27	0.56
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	ND	ND	NA	NA	NA	0.20 J	0.16 J
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	ND	ND	NA	NA	NA	0.25	0.39
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.091	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	ND	ND	NA	NA	NA	0.35	0.74
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	ND	NA	NA	NA	ND	ND
Fluoranthene	100	1,000	500	mg/kg	ND	ND	NA	NA	NA	1.1	2.1
Fluorene	30	386	500	mg/kg	ND	ND	NA	NA	NA	1.9	2.9
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	ND	NA	NA	NA	0.15 J	0.16 J
Phenanthrene	100	1,000	500	mg/kg	ND	ND	NA	NA	NA	4.7	7.9
Pyrene	100	1,000	500	mg/kg	ND	ND	NA	NA	NA	1.3	1.5
Total SVOCs	- -	- -	- -	mg/kg	0.091	ND	NA	NA	NA	13 J	20 J
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	ND	NA	NA	NA	NA	NA	NA

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	T12-D1	T12-D2	MW-34D	MW-34D	MW-35D	MW-35D	MW-16
Historical Sample Depth (feet):					3 - 3.5	3 - 3.5	25 - 25.5	29 - 29.5	15 - 15.5	20 - 20.5	9
Current Estimated Sample Depth (feet)					7 - 7.5	7 - 7.5	29- 29.5	33 - 33.5	19 - 19.5	24 - 24.5	13
Date Collected:					11/17/04	11/18/04	12/12/06	12/12/06	12/11/06	12/11/06	12/12/95
Sampling Event:					Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Deep Sand Layer - D1 Unit	Deep Sand Layer - D1 Unit	Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow
Area of Site					Southwest Area						Former Tank No. 112
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	***11***	***23***	ND	ND	ND	ND	NA
Toluene	0.7	0.7	500	mg/kg	0.36	0.52	ND	ND	ND	ND	NA
Ethylbenzene	1	1	390	mg/kg	***6.7***	***13***	ND	ND	ND	ND	NA
Xylenes (total)	0.26	1.6	500	mg/kg	***2.1***	***2.8***	ND	ND	ND	ND	NA
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	ND	ND	ND	ND	ND	NA
Naphthalene	12	12	500	mg/kg	3.3	3.5	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	2.4	3.1	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	NA	ND	ND	ND	ND	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	0.70 J	0.67 J	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	0.90	1.1 J	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	ND	ND	0.0094 J	0.0057 J	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	0.0074	0.011	0.0026 J	0.0027 J	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	NA	ND	ND	ND	ND	NA
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	0.0029	0.023	0.0049	0.0051	NA
n-Butylbenzene	12	12	500	mg/kg	8.5	6.3	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	***5.1***	***6.7***	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	0.67 J	0.90	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	1.9	2.0	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	ND	ND	ND	ND	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	0.36 J	0.41 J	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	NA	ND	ND	ND	ND	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	ND	ND	ND	ND	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	NA	ND	ND	ND	ND	NA
Trichloroethene	0.47	0.47	200	mg/kg	NA	NA	ND	ND	ND	ND	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	NA	ND	ND	ND	ND	NA
Total VOCs	- -	- -	- -	mg/kg	44 J	63 J	0.010	0.033	0.017 J	0.014 J	NA
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	ND	ND	ND	ND	NA
Acenaphthene	20	98	500	mg/kg	3.0	2.3	ND	ND	ND	ND	ND
Acenaphthylene	100	107	500	mg/kg	NA	NA	ND	ND	ND	ND	NA
Anthracene	100	1,000	500	mg/kg	1.1	1.2	ND	ND	ND	ND	ND
Benzo(a)anthracene	1	1	5.6	mg/kg	0.82	0.50	ND	ND	ND	ND	ND
Benzo(a)pyrene	1	22	1	mg/kg	0.56	0.39	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.87	0.42	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.51	0.29	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.48	0.30	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	0.11	ND	0.078	0.056	NA
Chrysene	1	1	56	mg/kg	0.91	0.64	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	1,000	500	mg/kg	2.7	1.8	ND	ND	ND	ND	ND
Fluorene	30	386	500	mg/kg	4.3	2.9	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	0.45	0.30	ND	ND	ND	ND	ND
Phenanthrene	100	1,000	500	mg/kg	11	8.2	ND	ND	ND	ND	ND
Pyrene	100	1,000	500	mg/kg	3.1	1.7	ND	ND	ND	ND	ND
Total SVOCs	- -	- -	- -	mg/kg	30	21	0.11	ND	0.078	0.056	ND
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	ND	ND	1,500	ND	NA

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	T-112 (NE)	T-112 (NW)	T-112 (SE)	T-112 (SW)	MW-17	MW-18	MW-33D
Historical Sample Depth (feet):					1 - 2	1 - 2	1 - 2	1 - 2	4	4	19 - 19.5
Current Estimated Sample Depth (feet)					5 - 6	5 - 6	5 - 6	5 - 6	8	8	23 - 23.5
Date Collected:					01/28/03	01/28/03	01/28/03	01/28/03	12/12/95	12/12/95	12/12/06
Sampling Event:					Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit
Area of Site					Former Tank No. 112				Former OWS Area		
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	ND	ND	ND	ND	NA	NA	ND
Toluene	0.7	0.7	500	mg/kg	ND	ND	ND	ND	NA	NA	ND
Ethylbenzene	1	1	390	mg/kg	ND	ND	ND	ND	NA	NA	ND
Xylenes (total)	0.26	1.6	500	mg/kg	ND	ND	*0.56*	*0.43*	NA	NA	ND
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	ND	ND	ND	NA	NA	ND
Naphthalene	12	12	500	mg/kg	ND	ND	0.079	0.38	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	ND	ND	ND	ND	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	ND	ND	0.27	0.51	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	ND	ND	4.2	4.5	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	0.0054
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
n-Butylbenzene	12	12	500	mg/kg	ND	ND	1.4	1.4	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	ND	ND	0.051	0.091	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	ND	ND	0.056	0.11	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	ND	ND	0.024	0.028	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	ND	ND	ND	ND	NA	NA	ND
tert-Butylbenzene	5.9	5.9	500	mg/kg	ND	ND	0.037	0.029	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	ND
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	NA	NA	ND
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Trichloroethene	0.47	0.47	200	mg/kg	NA	NA	NA	NA	NA	NA	ND
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	NA	NA	NA	NA	NA	ND
Total VOCs	- -	- -	- -	mg/kg	ND	ND	6.7	7.5	NA	NA	0.0054
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	ND	ND	2.8	4.4	NA	NA	ND
Acenaphthene	20	98	500	mg/kg	NA	NA	NA	NA	0.66	ND	ND
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	NA	ND
Anthracene	100	1,000	500	mg/kg	NA	NA	NA	NA	1.8	ND	ND
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	NA	NA	NA	***4.4***	ND	ND
Benzo(a)pyrene	1	22	1	mg/kg	NA	NA	NA	NA	*4.0*	ND	ND
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	NA	NA	NA	***4.9***	ND	ND
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	NA	NA	NA	0.76	ND	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	NA	NA	NA	***2.2***	ND	ND
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	0.13
Chrysene	1	1	56	mg/kg	NA	NA	NA	NA	***4.2***	ND	ND
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	NA	NA	NA	ND	ND	ND
Fluoranthene	100	1,000	500	mg/kg	NA	NA	NA	NA	13	ND	ND
Fluorene	30	386	500	mg/kg	ND	ND	ND	ND	0.71	4.8	ND
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	NA	NA	NA	*0.85*	ND	ND
Phenanthrene	100	1,000	500	mg/kg	ND	ND	ND	ND	6.5	9.1	ND
Pyrene	100	1,000	500	mg/kg	NA	NA	NA	NA	10	ND	ND
Total SVOCs	- -	- -	- -	mg/kg	ND	ND	2.8	4.4	54	14	0.13
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	ND

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	MW-33D	T-110 (NE)	T-110 (NW)	T-110 (SE)	T-110 (SW)	T-111 (NE)	T-111 (NW)
Historical Sample Depth (feet):					23 - 23.5	1 - 2	1 - 2	1 - 2	1 - 2	1 - 2	1 - 2
Current Estimated Sample Depth (feet)					27 - 27.5	5 - 6	5 - 6	5 - 6	5 - 6	5 - 6	5 - 6
Date Collected:					12/12/06	01/31/03	01/31/03	01/31/03	01/31/03	01/31/03	01/31/03
Sampling Event:					Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former OWS Area	Former Tank No. 110				Former Tank No. 111	
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	ND	ND	ND	ND	ND	ND	ND
Toluene	0.7	0.7	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1	1	390	mg/kg	ND	ND	ND	ND	0.0090	ND	ND
Xylenes (total)	0.26	1.6	500	mg/kg	ND	0.042	0.024	0.022	0.098	ND	ND
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Naphthalene	12	12	500	mg/kg	NA	ND	ND	ND	ND	ND	ND
Isopropylbenzene	- -	- -	- -	mg/kg	NA	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.33	0.33	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	ND	ND	ND	ND	ND	ND
Acetone	0.05	0.05	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	0.0018 J	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.05	0.05	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
n-Butylbenzene	12	12	500	mg/kg	NA	ND	ND	ND	ND	ND	ND
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	11	11	500	mg/kg	NA	ND	ND	ND	ND	ND	ND
Styrene	- -	- -	- -	mg/kg	ND	0.010	ND	ND	0.0070	0.012	0.0050
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	ND	ND	ND	ND	ND	ND
Tertiary butyl alcohol	- -	- -	- -	mg/kg	ND	NA	NA	NA	NA	NA	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	ND	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Trichloroethene	0.47	0.47	200	mg/kg	ND	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	ND	NA	NA	NA	NA	NA	NA
Total VOCs	- -	- -	- -	mg/kg	0.0018 J	0.052	0.024	0.022	0.11	0.012	0.0050
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	20	98	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Acenaphthylene	100	107	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	1	1	5.6	mg/kg	ND	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1	22	1	mg/kg	ND	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	ND	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	ND	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.063	NA	NA	NA	NA	NA	NA
Chrysene	1	1	56	mg/kg	ND	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	NA	NA	NA	NA	NA	NA
Fluoranthene	100	1,000	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Fluorene	30	386	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	NA	NA	NA	NA	NA	NA
Phenanthrene	100	1,000	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Pyrene	100	1,000	500	mg/kg	ND	NA	NA	NA	NA	NA	NA
Total SVOCs	- -	- -	- -	mg/kg	0.063	ND	ND	ND	ND	ND	ND
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	ND	NA	NA	NA	NA	NA	NA

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	T-111 (SE)	T-111 (SW)	MW-36D	MW-36D	PX-C1	PX-C2	PX-C3
Historical Sample Depth (feet):					1 - 2	1 - 2	23 - 23.5	31 - 31.5	2 - 3	2 - 3	2 - 3
Current Estimated Sample Depth (feet)					5 - 6	5 - 6	27 - 27.5	35 - 35.5	6 - 7	6 - 7	6 - 7
Date Collected:					01/31/03	01/31/03	12/19/06	12/19/06	10/30/02	10/30/02	10/30/02
Sampling Event:					Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Tank No. 111		Former Tank No. 102		Former Loading Rack Area		
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	ND	ND	ND	ND	0.050	0.042	ND
Toluene	0.7	0.7	500	mg/kg	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1	1	390	mg/kg	ND	ND	ND	ND	***1.4***	***3.3***	0.70
Xylenes (total)	0.26	1.6	500	mg/kg	0.0060	ND	ND	ND	*0.35*	*0.83*	ND
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	ND	ND	ND	ND	0.026	0.031	0.031
Naphthalene	12	12	500	mg/kg	ND	ND	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	ND	ND	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	NA	ND	ND	NA	NA	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	ND	ND	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	ND	ND	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	ND	0.018	NA	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	0.0022 J	0.0015	NA	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	NA	ND	ND	NA	NA	NA
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	0.012	ND	NA	NA	NA
n-Butylbenzene	12	12	500	mg/kg	ND	ND	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	ND	ND	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	ND	ND	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	ND	ND	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	0.0090	0.014	ND	ND	NA	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	ND	ND	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	NA	NA	ND	ND	ND	ND	ND
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	ND	ND	NA	NA	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	NA	ND	ND	NA	NA	NA
Trichloroethene	0.47	0.47	200	mg/kg	NA	NA	ND	ND	NA	NA	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	NA	ND	ND	NA	NA	NA
Total VOCs	- -	- -	- -	mg/kg	0.015	0.014	0.014 J	0.019	1.8	4.2	0.73
TPH											
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	4,200	6,100	7,400
Semivolatile Organics											
2-Methylnaphthalene	- -	- -	- -	mg/kg	ND	ND	ND	ND	NA	NA	NA
Acenaphthene	20	98	500	mg/kg	NA	NA	ND	ND	2.8	1.2	1.5
Acenaphthylene	100	107	500	mg/kg	NA	NA	ND	ND	NA	NA	NA
Anthracene	100	1,000	500	mg/kg	NA	NA	ND	ND	1.4	0.59	ND
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	NA	ND	ND	0.46	0.22	0.14
Benzo(a)pyrene	1	22	1	mg/kg	NA	NA	ND	ND	0.20	0.10	0.086
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	NA	ND	ND	0.22	0.10	0.10
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	NA	ND	ND	0.095 J	0.055 J	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	NA	ND	ND	0.18	0.080	0.071
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	0.088	0.10	NA	NA	NA
Chrysene	1	1	56	mg/kg	NA	NA	ND	ND	0.47	0.023	0.17
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	NA	ND	ND	ND	ND	ND
Fluoranthene	100	1,000	500	mg/kg	NA	NA	ND	ND	2.5	1.3	0.80
Fluorene	30	386	500	mg/kg	ND	ND	ND	ND	4.3	2.2	2.0
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	NA	ND	ND	ND	ND	ND
Phenanthrene	100	1,000	500	mg/kg	ND	ND	ND	ND	8.5	5.8	7.6
Pyrene	100	1,000	500	mg/kg	NA	NA	ND	ND	1.9	0.95	0.64
Total SVOCs	- -	- -	- -	mg/kg	ND	ND	0.088	0.10	23 J	12 J	13
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	1,720	ND	5,990	4,630	10,100

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	PX-C4	PX-C5	PX-C6	PX-C7	MW-30-VD	MW-30-VD	LB-5	LB-5
Historical Sample Depth (feet):					2 - 3	2 - 3	2 - 3	4 - 4.5	28 - 30	68 - 70	3.5 - 4	16.5 - 17
Current Estimated Sample Depth (feet)					6 - 7	6 - 7	6 - 7	8 - 8.5	32 - 34	72 - 74	7.5 - 8	20.5 - 21
Date Collected:					10/30/02	10/30/02	10/30/02	10/30/02	12/27/06	12/27/06	03/10/04	03/10/04
Sampling Event:					Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Deep Sand Layer - D3 Unit	Deep Sand Layer - D3 Unit	Shallow Sand Fill -	Deep Sand Layer - D1
Area of Site					Former Loading Rack Area						Along Hampton Road	
Volatile Organics												
Benzene	0.06	0.06	44	mg/kg	0.039	***0.23***	***0.066***	ND	ND	0.0046	0.0021	ND
Toluene	0.7	0.7	500	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1	1	390	mg/kg	***20***	***6.6***	***4.8***	ND	ND	ND	0.017	ND
Xylenes (total)	0.26	1.6	500	mg/kg	*0.38*	*1.1*	*0.27*	ND	ND	ND	0.00078 J	ND
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.029	ND	ND	0.035	ND	ND	0.0012	0.043
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	NA	NA	NA	NA	ND	ND	ND	ND
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	NA	NA	ND	ND	NA	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	NA	NA	0.0024 J	0.0022 J	NA	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	NA	NA	NA	NA	ND	ND	0.0013 J	0.0011 J
Methylene Chloride	0.05	0.05	500	mg/kg	NA	NA	NA	NA	0.0083	***0.12***	ND	ND
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	NA	NA	ND	ND	NA	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	ND	ND	ND	ND	0.028	0.0089 J	ND	0.15
Tetrachloroethene	1.3	1.3	150	mg/kg	NA	NA	NA	NA	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	NA	NA	NA	NA	ND	ND	ND	ND
Trichloroethene	0.47	0.47	200	mg/kg	NA	NA	NA	NA	ND	ND	0.0017 J	0.0026 J
Vinyl Chloride	0.02	0.02	13	mg/kg	NA	NA	NA	NA	ND	ND	ND	ND
Total VOCs	- -	- -	- -	mg/kg	21	7.9	5.1	0.035	0.039 J	0.13 J	0.024 J	0.20 J
TPH												
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	9,400	8,800	5,000	ND	NA	NA	NA	NA
Semivolatile Organics												
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	ND	ND	NA	NA
Acenaphthene	20	98	500	mg/kg	ND	0.58	0.61	ND	ND	ND	NA	NA
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	ND	ND	NA	NA
Anthracene	100	1,000	500	mg/kg	ND	ND	ND	ND	ND	ND	NA	NA
Benzo(a)anthracene	1	1	5.6	mg/kg	0.12	0.051 J	0.047 J	ND	ND	ND	NA	NA
Benzo(a)pyrene	1	22	1	mg/kg	0.077	ND	ND	ND	ND	ND	NA	NA
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.11	0.040 J	ND	ND	ND	ND	NA	NA
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	ND	ND	ND	ND	ND	ND	NA	NA
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.068 J	0.033 J	0.027 J	ND	ND	ND	NA	NA
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	0.12	0.15	NA	NA
Chrysene	1	1	56	mg/kg	0.14	0.063 J	0.061 J	ND	ND	ND	NA	NA
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	ND	ND	ND	ND	ND	ND	NA	NA
Fluoranthene	100	1,000	500	mg/kg	0.53	0.27	0.25	ND	ND	ND	NA	NA
Fluorene	30	386	500	mg/kg	3.5	0.90	1.2	ND	ND	ND	NA	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	ND	ND	ND	ND	ND	ND	NA	NA
Phenanthrene	100	1,000	500	mg/kg	5.7	4.0	3.1	ND	ND	ND	NA	NA
Pyrene	100	1,000	500	mg/kg	0.50	0.24	0.23	ND	ND	ND	NA	NA
Total SVOCs	- -	- -	- -	mg/kg	11 J	6.1 J	5.5 J	ND	0.12	0.15	NA	NA
TOC												
Total Organic Carbon	- -	- -	- -	mg/kg	10,800	5,350	3,380	6,980	ND	ND	NA	NA

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Table 4
Summary of Pre-2010 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	LB-13	LB-13	MW-29-VD	MW-29-VD	MW-20
Historical Sample Depth (feet):					3.5 - 4	17.5 - 18	19 - 21	58 - 60	11
Current Estimated Sample Depth (feet)					7.5 - 8	21.5	23 - 25	62 - 64	15
Date Collected:					03/11/04	03/11/04	12/26/06	12/26/06	12/13/95
Sampling Event:					Shallow Sand Fill -	Deep Sand Layer - D1	Deep Sand Layer - D3	Deep Sand Layer - D3	Shallow Sand Fill -
Area of Site					Along Hampton Road				
Volatile Organics									
Benzene	0.06	0.06	44	mg/kg	***0.16***	0.014	ND	ND	NA
Toluene	0.7	0.7	500	mg/kg	ND	ND	ND	ND	NA
Ethylbenzene	1	1	390	mg/kg	ND	ND	ND	ND	NA
Xylenes (total)	0.26	1.6	500	mg/kg	ND	0.0016 J	ND	ND	NA
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	***0.99***	0.26	ND	ND	NA
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA
Isopropylbenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA
1,1-Dichloroethene	0.33	0.33	500	mg/kg	ND	ND	ND	ND	NA
1,2,4-Trimethylbenzene	3.6	3.6	190	mg/kg	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8.4	8.4	190	mg/kg	NA	NA	NA	NA	NA
Acetone	0.05	0.05	500	mg/kg	NA	NA	ND	ND	NA
Carbon Disulfide	- -	- -	- -	mg/kg	NA	NA	ND	ND	NA
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	ND	ND	ND	ND	NA
Methylene Chloride	0.05	0.05	500	mg/kg	ND	ND	***0.11***	ND	NA
n-Butylbenzene	12	12	500	mg/kg	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	3.9	500	mg/kg	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA
sec-Butylbenzene	11	11	500	mg/kg	NA	NA	NA	NA	NA
Styrene	- -	- -	- -	mg/kg	NA	NA	ND	ND	NA
tert-Butylbenzene	5.9	5.9	500	mg/kg	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	- -	- -	mg/kg	ND	0.030	ND	ND	NA
Tetrachloroethene	1.3	1.3	150	mg/kg	ND	ND	ND	ND	NA
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	ND	ND	ND	ND	NA
Trichloroethene	0.47	0.47	200	mg/kg	ND	ND	ND	ND	NA
Vinyl Chloride	0.02	0.02	13	mg/kg	ND	ND	ND	ND	NA
Total VOCs	- -	- -	- -	mg/kg	1.1	0.30 J	0.11	ND	NA
TPH									
Total Petroleum Hydrocarbons	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA
Semivolatile Organics									
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	ND	ND	NA
Acenaphthene	20	98	500	mg/kg	NA	NA	ND	ND	ND
Acenaphthylene	100	107	500	mg/kg	NA	NA	ND	ND	NA
Anthracene	100	1,000	500	mg/kg	NA	NA	ND	ND	ND
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	NA	ND	ND	ND
Benzo(a)pyrene	1	22	1	mg/kg	NA	NA	ND	ND	ND
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	NA	ND	ND	ND
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	NA	ND	ND	ND
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	NA	ND	ND	ND
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	0.14	0.072	NA
Chrysene	1	1	56	mg/kg	NA	NA	ND	ND	ND
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	NA	ND	ND	ND
Fluoranthene	100	1,000	500	mg/kg	NA	NA	ND	ND	ND
Fluorene	30	386	500	mg/kg	NA	NA	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	NA	ND	ND	ND
Phenanthrene	100	1,000	500	mg/kg	NA	NA	ND	ND	ND
Pyrene	100	1,000	500	mg/kg	NA	NA	ND	ND	ND
Total SVOCs	- -	- -	- -	mg/kg	NA	NA	0.14	0.072	ND
TOC									
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	ND	ND	NA

See Notes on Page 23

Table 4
Summary of pre-2010 Soil Analytical Data

Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Town of Hempstead, NY

Notes:

1. Unrestricted Use SCO, Restricted use SCO for commercial use, and protection of groundwater are from 6 NYCRR Part 375-6.8.
2. Field duplicate sample results are presented in brackets, [ ].
3. Designations:
   - Gray font = Analyte was not detected.
   - Italic font = Analyte was detected above unrestricted use SCO.
   - Black Bold Italic font = Analyte detected above restricted - protection of groundwater SCO.
   - Gray Shading = Analyte detected above restricted - commercial use SCO.
4. Abbreviations:
   - - - = 6 NYCRR SCO not available.
   - 6 NYCRR = Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York.
   - ft = feet.
   - mg/kg = milligrams per kilogram or part per million.
   - NA = Not Analyzed.
   - ND = Not detected.
   - SCO = Soil Cleanup Objectives.
   - VOC = Volatile Organic Compounds.
   - SVOC = Semi-Volatile Organic Compounds.
5. Qualifier Definitions:
   - B = Analyte was detected in the blank and sample.
   - E = Analyte exceeded calibration range.
   - J = Estimated value. Result is greater than the RL but less than the MDL.
   - R = Rejected results.
   - U = Analyte not detected at listed reporting detection limit.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	AMW-3 0 - 2 4 - 6 11/30/10 Shallow Sand Fill - Shallow	AMW-3 2 - 4 6 - 8 11/30/10 Shallow Sand Fill - Shallow	AMW-3 4 - 6 8 - 10 11/30/10 Shallow Sand Fill - Shallow	ASB-1 23 - 25 - 06/07/16 Deep Sand Layer - D1 Unit	ASB-1 28 - 30 - 06/07/16 Deep Sand Layer - D1 Unit	ASB-2-SD 24 - 25 - 06/03/16 Deep Sand Layer - D1 Unit	ASB-2-SD 28 - 30 - 06/03/16 Deep Sand Layer - D1 Unit
Area of Site					Former VRU Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.13 U	0.12 U	***0.11 J***	0.0075 U	0.0077 U	0.00050 J	0.13 U
Toluene	0.7	0.7	500	mg/kg	0.11 J	0.20	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Ethylbenzene	1	1	390	mg/kg	***2.4***	***6.7***	***2.0***	0.0075 U	0.0077 U	0.0065 U	0.13 U
Xylenes (total)	0.26	1.6	500	mg/kg	***5.2***	***6.1***	*0.26*	0.015 U	0.015 U	0.013 U	0.26 U
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.13 U	0.12 U	0.12 U	0.027	0.022	0.083	0.050 J
Isopropylbenzene	- -	- -	- -	mg/kg	1.2	3.5	1.6	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 UF1	0.0077 U	0.0065 U	0.13 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 UF1	0.0077 U	0.0065 U	0.13 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 UF1	0.0077 U	0.0065 U	0.13 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
2-Butanone	0.12	0.12	500	mg/kg	0.64 U	0.59 U	0.62 U	0.037 UF1	0.038 U	0.033 U	0.66 U
2-Hexanone	- -	- -	- -	mg/kg	0.64 U	0.59 U	0.62 U	0.037 UF1	0.038 U	0.033 U	0.66 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	0.64 U	0.59 U	0.62 U	0.037 UF1	0.038 U	0.033 U	0.66 U
Acetone	0.05	0.05	500	mg/kg	0.64 U	0.59 U	0.62 U	0.037 U	0.038 U	0.033 U	0.66 U
Bromodichloromethane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Bromoform	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Bromomethane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Carbon Disulfide	- -	- -	- -	mg/kg	0.13 UJ	0.12 UJ	0.12 UJ	0.012	0.0077 U	0.0058 J	0.13 U
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Chlorobenzene	1.1	1.1	500	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Chloroethane	- -	- -	- -	mg/kg	0.13 UJ	0.12 UJ	0.12 UJ	0.0075 U	0.0077 U	0.0065 U	0.13 U
Chloroform	0.37	0.37	350	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Chloromethane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Cyclohexane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Dibromochloromethane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Methyl acetate	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Methylcyclohexane	- -	- -	- -	mg/kg	2.9	2.5	2.4	0.0075 U	0.0077 U	0.0065 U	0.13 U
Methylene Chloride	0.05	0.05	500	mg/kg	0.13 UJ	0.12 UJ	***0.062 J***	0.0075 U	0.0077 U	0.0099 B	0.13 U
Styrene	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Tetrachloroethene	1.3	1.3	150	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Total VOCs	- -	- -	- -	mg/kg	12 J	19	6.4 J	0.039	0.022	0.099 J	0.12 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Trichloroethene	0.47	0.47	200	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	0.13 U
Vinyl Chloride	0.02	0.02	13	mg/kg	0.13 U	0.12 U	0.12 U	0.0075 U	0.0077 U	0.0065 U	***0.067 J***

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	AMW-3 0 - 2 4 - 6 11/30/10 Shallow Sand Fill - Shallow	AMW-3 2 - 4 6 - 8 11/30/10 Shallow Sand Fill - Shallow	AMW-3 4 - 6 8 - 10 11/30/10 Shallow Sand Fill - Shallow	ASB-1 23 - 25 - 06/07/16 Deep Sand Layer - D1 Unit	ASB-1 28 - 30 - 06/07/16 Deep Sand Layer - D1 Unit	ASB-2-SD 24 - 25 - 06/03/16 Deep Sand Layer - D1 Unit	ASB-2-SD 28 - 30 - 06/03/16 Deep Sand Layer - D1 Unit
Area of Site					Former VRU Area						
Semivolatile Organics											
Naphthalene	12	12	500	mg/kg	5.4	11	2.6 J	0.24 U	NA	2.1 U	NA
1,1'-Biphenyl	- -	- -	- -	mg/kg	0.58 J	0.61 J	0.029 J	0.24 U	NA	2.1 UF1	NA
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 UF1	NA
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
2,4-Dichlorophenol	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
2,4-Dimethylphenol	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
2,4-Dinitrophenol	- -	- -	- -	mg/kg	4.3 U	4.0 U	0.41 U	2.3 U	NA	21 U	NA
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
2-Chloronaphthalene	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
2-Chlorophenol	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
2-Methylnaphthalene	- -	- -	- -	mg/kg	16	27	4.2 J	0.24 U	NA	2.1 U	NA
2-Methylphenol	0.33	0.33	500	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
2-Nitroaniline	- -	- -	- -	mg/kg	4.3 U	4.0 U	0.41 U	0.46 U	NA	4.1 U	NA
2-Nitrophenol	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.46 U	NA	4.1 U	NA
3-Nitroaniline	- -	- -	- -	mg/kg	4.3 U	4.0 U	0.41 U	0.46 U	NA	4.1 U	NA
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	4.3 U	4.0 U	0.41 U	0.46 U	NA	4.1 U	NA
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
4-Chloroaniline	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 UF2	NA
4-Methylphenol	0.33	0.33	500	mg/kg	4.3 U	4.0 U	0.41 U	0.46 U	NA	4.1 U	NA
4-Nitroaniline	- -	- -	- -	mg/kg	4.3 U	4.0 U	0.41 U	0.46 U	NA	4.1 U	NA
4-Nitrophenol	- -	- -	- -	mg/kg	4.3 U	4.0 U	0.41 U	0.46 U	NA	4.1 UF1	NA
Acenaphthene	20	98	500	mg/kg	0.99 J	0.81 J	0.12 J	0.24 U	NA	2.1 U	NA
Acenaphthylene	100	107	500	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Acetophenone	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Anthracene	100	1,000	500	mg/kg	0.37 J	0.43 J	0.050 J	0.24 U	NA	2.1 U	NA
Atrazine	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Benzaldehyde	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 UF1	NA
Benzo(a)anthracene	1	1	5.6	mg/kg	0.37 J	0.26 J	0.019 J	0.24 U	NA	2.1 U	NA
Benzo(a)pyrene	1	22	1	mg/kg	0.23 J	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.27 J	0.20 J	0.21 U	0.24 U	NA	2.1 UF2	NA
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.18 J	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 UF1F2	NA
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	2.2 UB	2.0 UB	0.21 UB	0.24 U	NA	2.1 U	NA
Butylbenzylphthalate	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Caprolactam	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Carbazole	- -	- -	- -	mg/kg	0.14 J	2.0 U	0.033 J	0.24 U	NA	2.1 U	NA
Chrysene	1	1	56	mg/kg	0.29 J	0.23 J	0.017 J	0.24 U	NA	2.1 U	NA
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Dibenzofuran	7	210	350	mg/kg	0.79 J	0.76 J	0.13 J	0.24 U	NA	2.1 U	NA
Diethylphthalate	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Dimethylphthalate	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	AMW-3 0 - 2 4 - 6 11/30/10 Shallow Sand Fill - Shallow	AMW-3 2 - 4 6 - 8 11/30/10 Shallow Sand Fill - Shallow	AMW-3 4 - 6 8 - 10 11/30/10 Shallow Sand Fill - Shallow	ASB-1 23 - 25 - 06/07/16 Deep Sand Layer - D1 Unit	ASB-1 28 - 30 - 06/07/16 Deep Sand Layer - D1 Unit	ASB-2-SD 24 - 25 - 06/03/16 Deep Sand Layer - D1 Unit	ASB-2-SD 28 - 30 - 06/03/16 Deep Sand Layer - D1 Unit
Area of Site					**Former VRU Area**						
Semivolatile Organics (Cont.)											
Di-n-Butylphthalate	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Di-n-Octylphthalate	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Fluoranthene	100	1,000	500	mg/kg	1.0 J	0.69 J	0.059 J	0.24 U	NA	2.1 U	NA
Fluorene	30	386	500	mg/kg	1.1 J	1.3 J	0.29 J	0.24 U	NA	2.1 U	NA
Hexachlorobenzene	0.33	3.2	6	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Hexachlorobutadiene	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Hexachloroethane	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Isophorone	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 UF2	NA
Nitrobenzene	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 UF1	NA
Pentachlorophenol	0.8	0.8	6.7	mg/kg	4.3 U	4.0 U	0.41 U	0.46 U	NA	4.1 U	NA
Phenanthrene	100	1,000	500	mg/kg	3.6	3.2	0.45	0.24 U	NA	2.1 U	NA
Phenol	0.33	0.33	500	mg/kg	2.2 U	2.0 U	0.21 U	0.24 U	NA	2.1 U	NA
Pyrene	100	1,000	500	mg/kg	0.94 J	0.67 J	0.058 J	0.24 U	NA	2.1 U	NA
Total SVOCs	- -	- -	- -	mg/kg	32 J	47 J	8.1 J	ND	NA	ND	NA
Inorganics											
Aluminum	- -	- -	- -	mg/kg	4,860 J	2,230 J	2,810 J	2,810 F1	NA	3,130	NA
Antimony	- -	- -	- -	mg/kg	19.9 U	18.1 U	18.4 U	21.8 U	NA	18.8 U	NA
Arsenic	13	16	16	mg/kg	2.00 J	2.20 J	2.30 J	1.90 J	NA	0.950 J	NA
Barium	350	820	400	mg/kg	26.7	14.0	16.0	5.50	NA	10.1	NA
Beryllium	7.2	47	590	mg/kg	0.224 J	0.166 J	0.113 J	0.120 J	NA	0.0530 J	NA
Cadmium	2.5	7.5	9.3	mg/kg	0.282 J	0.231 J	0.246 UBJ	0.290 U	NA	0.250 U	NA
Calcium	- -	- -	- -	mg/kg	28,000	113,000	1,670	235	NA	286 B	NA
Chromium	- -	- -	- -	mg/kg	7.46	4.68	5.67	5.50	NA	6.30	NA
Cobalt	- -	- -	- -	mg/kg	2.44	1.76	1.76	0.930	NA	1.40	NA
Copper	50	1,720	270	mg/kg	14.5 J	7.00 J	7.40 J	2.60	NA	4.70	NA
Ferrous Iron	- -	- -	- -	mg/kg	0.600 J	1.60 J	0.500 J	NA	NA	NA	NA
Iron	- -	- -	- -	mg/kg	5,670 J	5,180 J	5,450 J	3,280 F1	NA	4,510	NA
Lead	63	450	1,000	mg/kg	*69.6 J*	52.4 J	25.9 J	2.60	NA	2.60	NA
Magnesium	- -	- -	- -	mg/kg	5,250	63,000	1,330	592	NA	878	NA
Manganese	1,600	2,000	10,000	mg/kg	76.6 J	100 J	68.7 J	28.5 BF1	NA	46.0	NA
Mercury	0.18	0.73	2.8	mg/kg	0.0329	0.0525	0.0184 J	0.0260 U	NA	0.0250 U	NA
Nickel	30	130	310	mg/kg	7.11	4.78 J	5.19 J	3.80 J	NA	4.20 J	NA
Potassium	- -	- -	- -	mg/kg	548	490	498	371	NA	595	NA
Selenium	3.9	4	1,500	mg/kg	5.30 U	4.80 U	4.90 U	0.940 JB	NA	5.00 U	NA
Silver	2	8.3	1,500	mg/kg	0.662 U	0.602 U	0.614 U	0.870 U	NA	0.750 U	NA
Sodium	- -	- -	- -	mg/kg	119 J	153 J	66.9 J	312	NA	325	NA
Thallium	- -	- -	- -	mg/kg	7.90 U	7.20 U	7.40 U	8.70 U	NA	7.50 U	NA
Vanadium	- -	- -	- -	mg/kg	8.76	11.5	8.45	7.30	NA	7.00	NA
Zinc	109	2,480	10,000	mg/kg	57.3 J	21.1 J	20.2 J	5.10	NA	7.60	NA
Miscellaneous											
Sulfate	- -	- -	- -	mg/kg	78 J	400	570 J	NA	NA	NA	NA
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	6,440	7,720	6,430 J	1,490 F2F1	NA	1,000 U	NA

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	ASB-3 20.5 - 21.5 - 06/08/16 Deep Sand Layer - D1 Unit	ASB-3 28 - 30 - 06/08/16 Deep Sand Layer - D1 Unit	ASB-4 24 - 25 - 06/06/16 Deep Sand Layer - D1 Unit	ASB-4 28 - 30 - 06/06/16 Deep Sand Layer - D1 Unit	ASB-5 20.5 - 21 - 06/02/16 Deep Sand Layer - D1 Unit	ASB-5 28 - 30 - 06/02/16 Deep Sand Layer - D1 Unit	ASB-6 26 - 28 - 06/13/16 Deep Sand Layer - D1 Unit
Area of Site							**Former VRU Area**				
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.0011 J	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.00096 J*
Toluene	0.7	0.7	500	mg/kg	0.0011 J	0.0059 U	0.0059 U	0.15 U	0.12 U	0.00054 J	0.00084 J
Ethylbenzene	1	1	390	mg/kg	0.0011 J	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.00051 J*
Xylenes (total)	0.26	1.6	500	mg/kg	0.012 U	0.012 U	0.012 U	0.29 U	0.25 U	0.012 U	0.011 U
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.0026 J	0.018	0.0018 J	0.15 U	0.21	0.0049 J	0.057
Isopropylbenzene	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
2-Butanone	0.12	0.12	500	mg/kg	0.029 U	0.029 U	0.029 U	0.73 U	0.62 U	0.030 U	0.029 U
2-Hexanone	- -	- -	- -	mg/kg	0.029 U	0.029 U	0.029 U	0.73 U	0.62 U	0.030 U	0.029 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	0.029 U	0.029 U	0.029 U	0.73 U	0.62 U	0.030 U	0.029 U
Acetone	0.05	0.05	500	mg/kg	0.029 U	0.029 U	0.029 U	0.73 U	0.62 U*	0.030 U	0.029 U
Bromodichloromethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
Bromoform	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
Bromomethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
Carbon Disulfide	- -	- -	- -	mg/kg	0.0078	0.0059 U	0.0029 J	0.15 U	0.12 U	0.0061 U	0.0057 U
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
Chlorobenzene	1.1	1.1	500	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
Chloroethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
Chloroform	0.37	0.37	350	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
Chloromethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.0059 U	0.027	0.0039 J	***0.96***	0.12 U	0.0017 J	0.0057 U*
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
Cyclohexane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
Dibromochloromethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
Methyl acetate	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
Methylcyclohexane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
Methylene Chloride	0.05	0.05	500	mg/kg	0.049	0.0048 J	0.0032 JB	***0.077 J***	0.12 U	0.0061 U	0.0057 U
Styrene	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
Tetrachloroethene	1.3	1.3	150	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
Total VOCs	- -	- -	- -	mg/kg	0.063 J	0.061 J	0.020 J	1.6 J	0.55	0.011 J	0.12 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U
Trichloroethene	0.47	0.47	200	mg/kg	0.0059 U	0.010	0.0079	0.081 J	0.20	0.0061 U	0.0057 U
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.0059 U	0.0059 U	0.0059 U	0.15 U	0.12 U	0.0061 U	0.0057 U*
Vinyl Chloride	0.02	0.02	13	mg/kg	0.0059 U	0.0013 J	0.0059 U	***0.45***	***0.14***	0.0040 J	***0.061 ****

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	ASB-3 20.5 - 21.5 - 06/08/16 Deep Sand Layer - D1 Unit	ASB-3 28 - 30 - 06/08/16 Deep Sand Layer - D1 Unit	ASB-4 24 - 25 - 06/06/16 Deep Sand Layer - D1 Unit	ASB-4 28 - 30 - 06/06/16 Deep Sand Layer - D1 Unit	ASB-5 20.5 - 21 - 06/02/16 Deep Sand Layer - D1 Unit	ASB-5 28 - 30 - 06/02/16 Deep Sand Layer - D1 Unit	ASB-6 26 - 28 - 06/13/16 Deep Sand Layer - D1 Unit
Area of Site					Former VRU Area						
Semivolatile Organics											
Naphthalene	12	12	500	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
1,1'-Biphenyl	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2,4-Dichlorophenol	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2,4-Dimethylphenol	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2,4-Dinitrophenol	- -	- -	- -	mg/kg	NA	2.0 U	2.0 U	NA	2.0 U	NA	1.9 U
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2-Chloronaphthalene	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2-Chlorophenol	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2-Methylphenol	0.33	0.33	500	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
2-Nitroaniline	- -	- -	- -	mg/kg	NA	0.40 U	0.39 U	NA	0.40 U	NA	0.38 U
2-Nitrophenol	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	NA	0.40 U	0.39 U	NA	0.40 U	NA	0.38 U
3-Nitroaniline	- -	- -	- -	mg/kg	NA	0.40 U	0.39 U	NA	0.40 U	NA	0.38 U
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	NA	0.40 U	0.39 U	NA	0.40 U	NA	0.38 U
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
4-Chloroaniline	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
4-Methylphenol	0.33	0.33	500	mg/kg	NA	0.40 U	0.39 U	NA	0.40 U	NA	0.38 U
4-Nitroaniline	- -	- -	- -	mg/kg	NA	0.40 U	0.39 U	NA	0.40 U	NA	0.38 U
4-Nitrophenol	- -	- -	- -	mg/kg	NA	0.40 U	0.39 U	NA	0.40 U*	NA	0.38 U
Acenaphthene	20	98	500	mg/kg	NA	0.21 U	0.051 J	NA	0.21 U	NA	0.20 U
Acenaphthylene	100	107	500	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Acetophenone	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Anthracene	100	1,000	500	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Atrazine	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Benzaldehyde	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Benzo(a)pyrene	1	22	1	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Butylbenzylphthalate	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Caprolactam	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Carbazole	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Chrysene	1	1	56	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Dibenzofuran	7	210	350	mg/kg	NA	0.21 U	0.044 J	NA	0.21 U	NA	0.20 U
Diethylphthalate	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Dimethylphthalate	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	ASB-3 20.5 - 21.5 - 06/08/16 Deep Sand Layer - D1 Unit	ASB-3 28 - 30 - 06/08/16 Deep Sand Layer - D1 Unit	ASB-4 24 - 25 - 06/06/16 Deep Sand Layer - D1 Unit	ASB-4 28 - 30 - 06/06/16 Deep Sand Layer - D1 Unit	ASB-5 20.5 - 21 - 06/02/16 Deep Sand Layer - D1 Unit	ASB-5 28 - 30 - 06/02/16 Deep Sand Layer - D1 Unit	ASB-6 26 - 28 - 06/13/16 Deep Sand Layer - D1 Unit
Area of Site							Former VRU Area				
Semivolatile Organics (Cont.)											
Di-n-Butylphthalate	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Di-n-Octylphthalate	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Fluoranthene	100	1,000	500	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Fluorene	30	386	500	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Hexachlorobenzene	0.33	3.2	6	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Hexachlorobutadiene	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Hexachloroethane	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Isophorone	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Nitrobenzene	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Pentachlorophenol	0.8	0.8	6.7	mg/kg	NA	0.40 U	0.39 U	NA	0.40 U	NA	0.38 U
Phenanthrene	100	1,000	500	mg/kg	NA	0.21 U	0.12 J	NA	0.21 U	NA	0.20 U
Phenol	0.33	0.33	500	mg/kg	NA	0.21 U	0.20 U	NA	***0.58***	NA	0.20 U
Pyrene	100	1,000	500	mg/kg	NA	0.21 U	0.20 U	NA	0.21 U	NA	0.20 U
Total SVOCs	- -	- -	- -	mg/kg	NA	ND	0.22 J	NA	0.58	NA	ND
Inorganics											
Aluminum	- -	- -	- -	mg/kg	NA	1,610	NA	NA	5,540	NA	13,400
Antimony	- -	- -	- -	mg/kg	NA	17.8 U	NA	NA	17.9 U	NA	17.4 U
Arsenic	13	16	16	mg/kg	NA	1.10 J	NA	NA	1.00 J	NA	1.50 J
Barium	350	820	400	mg/kg	NA	8.50	NA	NA	4.70	NA	22.2
Beryllium	7.2	47	590	mg/kg	NA	0.0760 J	NA	NA	0.0420 J	NA	0.330
Cadmium	2.5	7.5	9.3	mg/kg	NA	0.240 U	NA	NA	0.240 U	NA	0.0560 J
Calcium	- -	- -	- -	mg/kg	NA	242	NA	NA	773 B	NA	295 B
Chromium	- -	- -	- -	mg/kg	NA	4.70	NA	NA	4.80	NA	18.8
Cobalt	- -	- -	- -	mg/kg	NA	1.10	NA	NA	0.350 J	NA	3.40
Copper	50	1,720	270	mg/kg	NA	2.20	NA	NA	1.20	NA	6.40
Ferrous Iron	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
Iron	- -	- -	- -	mg/kg	NA	1,760	NA	NA	3,120	NA	6,590
Lead	63	450	1,000	mg/kg	NA	1.60	NA	NA	3.00	NA	3.60
Magnesium	- -	- -	- -	mg/kg	NA	512	NA	NA	671	NA	2,040 B
Manganese	1,600	2,000	10,000	mg/kg	NA	26.9 B	NA	NA	33.7	NA	68.8 B
Mercury	0.18	0.73	2.8	mg/kg	NA	0.0250 U	NA	NA	0.0230 U	NA	0.0220 U
Nickel	30	130	310	mg/kg	NA	3.60 J	NA	NA	1.90 J	NA	16.6
Potassium	- -	- -	- -	mg/kg	NA	430	NA	NA	310	NA	1,710
Selenium	3.9	4	1,500	mg/kg	NA	0.760 JB	NA	NA	4.80 U	NA	4.70 U
Silver	2	8.3	1,500	mg/kg	NA	0.710 U	NA	NA	0.720 U	NA	0.700 U
Sodium	- -	- -	- -	mg/kg	NA	211	NA	NA	1,070	NA	735 B
Thallium	- -	- -	- -	mg/kg	NA	7.10 U	NA	NA	7.20 U	NA	7.00 U
Vanadium	- -	- -	- -	mg/kg	NA	5.10	NA	NA	7.40	NA	15.2
Zinc	109	2,480	10,000	mg/kg	NA	6.90	NA	NA	2.80	NA	22.8
Miscellaneous											
Sulfate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	NA
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	1,110	NA	NA	16,600	NA	1,710

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	ASB-6 36 - 38 - 06/13/16 Deep Sand Layer - D1 Unit	ASB-7 21 - 23 - 06/01/16 Deep Sand Layer - D1 Unit	ASB-7 30 - 32 - 06/01/16 Deep Sand Layer - D1 Unit	ASB-8 20 - 21 - 06/14/16 Deep Sand Layer - D1 Unit	ASB-8 26 - 28 - 06/14/16 Deep Sand Layer - D1 Unit	ASB-8 36 - 38 - 06/14/16 Deep Sand Layer - D1 Unit	MW-25-D3 21 - 23 25 - 27 12/09/10 Deep Sand Layer - D3 Unit
Area of Site							Former VRU Area				
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.0055 U*	0.019	0.0048 U	0.00060 J	0.0059 U	0.0059 U	0.0059 U
Toluene	0.7	0.7	500	mg/kg	0.0055 U	0.018	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Ethylbenzene	1	1	390	mg/kg	0.0055 U*	0.011	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Xylenes (total)	0.26	1.6	500	mg/kg	0.011 U	0.039	0.0096 U	0.011 U	0.012 U	0.012 U	0.012 U
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.00060 J	0.052	0.0048 U	0.011	0.018	0.0059 U	0.014
Isopropylbenzene	- -	- -	- -	mg/kg	0.0055 U*	0.0017 J	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.0055 U	0.0016 J	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
2-Butanone	0.12	0.12	500	mg/kg	0.028 U	0.027 U	0.024 U	0.028 U	0.030 U	0.030 U	0.029 U
2-Hexanone	- -	- -	- -	mg/kg	0.028 U	0.027 U	0.024 U	0.028 U	0.030 U	0.030 U	0.029 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	0.028 U	0.027 U	0.024 U	0.028 U	0.030 U	0.030 U	0.029 U
Acetone	0.05	0.05	500	mg/kg	0.028 U	0.027 U	0.024 U	0.028 U	0.030 U	0.030 U	0.020 J
Bromodichloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Bromoform	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Bromomethane	- -	- -	- -	mg/kg	0.0055 U*	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Carbon Disulfide	- -	- -	- -	mg/kg	0.0055 U	0.013	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.010
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Chlorobenzene	1.1	1.1	500	mg/kg	0.0055 U*	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Chloroethane	- -	- -	- -	mg/kg	0.0055 U*	0.0053 U*	0.0048 U*	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Chloroform	0.37	0.37	350	mg/kg	0.0055 U	0.0053 U	0.00047 J	0.0056 U	0.00045 JB	0.0059 U	0.0059 U
Chloromethane	- -	- -	- -	mg/kg	0.0055 U*	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.0055 U*	***2.7***	0.0048 U	0.00079 J	0.0059 U	0.0059 U	0.010
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0055 U*	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Cyclohexane	- -	- -	- -	mg/kg	0.0055 U*	0.0015 J	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Dibromochloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.0055 U*	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Methyl acetate	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Methylcyclohexane	- -	- -	- -	mg/kg	0.0055 U	0.00096 J	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Methylene Chloride	0.05	0.05	500	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0028 JB	0.0065 B	0.0058 JB	***0.12 B***
Styrene	- -	- -	- -	mg/kg	0.0055 U*	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Tetrachloroethene	1.3	1.3	150	mg/kg	0.0055 U*	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Total VOCs	- -	- -	- -	mg/kg	0.00060 J	3.5 J	0.00047 J	0.015 J	0.025 J	0.0058 J	0.18 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.0055 U*	0.019	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Trichloroethene	0.47	0.47	200	mg/kg	0.0055 U	0.016	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0031 J
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.0055 U*	0.0053 U	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0059 U
Vinyl Chloride	0.02	0.02	13	mg/kg	0.0055 U*	***0.58***	0.0048 U	0.0056 U	0.0059 U	0.0059 U	0.0020 J

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	ASB-6 36 - 38 - 06/13/16 Deep Sand Layer - D1 Unit	ASB-7 21 - 23 - 06/01/16 Deep Sand Layer - D1 Unit	ASB-7 30 - 32 - 06/01/16 Deep Sand Layer - D1 Unit	ASB-8 20 - 21 - 06/14/16 Deep Sand Layer - D1 Unit	ASB-8 26 - 28 - 06/14/16 Deep Sand Layer - D1 Unit	ASB-8 36 - 38 - 06/14/16 Deep Sand Layer - D1 Unit	MW-25-D3 21 - 23 25 - 27 12/09/10 Deep Sand Layer - D3 Unit
Area of Site							Former VRU Area				
Semivolatile Organics											
Naphthalene	12	12	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
1,1'-Biphenyl	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2,4-Dichlorophenol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2,4-Dimethylphenol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2,4-Dinitrophenol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	1.9 U	0.39 U
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2-Chloronaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2-Chlorophenol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2-Methylnaphthalene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2-Methylphenol	0.33	0.33	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
2-Nitroaniline	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.38 U	0.39 U
2-Nitrophenol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.38 U	0.20 U
3-Nitroaniline	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.38 U	0.39 U
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.38 U	0.39 U
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
4-Chloroaniline	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
4-Methylphenol	0.33	0.33	500	mg/kg	NA	NA	NA	NA	NA	0.38 U	0.39 U
4-Nitroaniline	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.38 U	0.39 U
4-Nitrophenol	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.38 U	0.39 U
Acenaphthene	20	98	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Acenaphthylene	100	107	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Acetophenone	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Anthracene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Atrazine	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Benzaldehyde	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Benzo(a)anthracene	1	1	5.6	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Benzo(a)pyrene	1	22	1	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.49
Butylbenzylphthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Caprolactam	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Carbazole	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Chrysene	1	1	56	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Dibenzofuran	7	210	350	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Diethylphthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Dimethylphthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	ASB-6 36 - 38 - 06/13/16 Deep Sand Layer - D1 Unit	ASB-7 21 - 23 - 06/01/16 Deep Sand Layer - D1 Unit	ASB-7 30 - 32 - 06/01/16 Deep Sand Layer - D1 Unit	ASB-8 20 - 21 - 06/14/16 Deep Sand Layer - D1 Unit	ASB-8 26 - 28 - 06/14/16 Deep Sand Layer - D1 Unit	ASB-8 36 - 38 - 06/14/16 Deep Sand Layer - D1 Unit	MW-25-D3 21 - 23 25 - 27 12/09/10 Deep Sand Layer - D3 Unit
Area of Site							Former VRU Area				
Semivolatile Organics (Cont.)											
Di-n-Butylphthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Di-n-Octylphthalate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Fluoranthene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Fluorene	30	386	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Hexachlorobenzene	0.33	3.2	6	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Hexachlorobutadiene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Hexachloroethane	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Isophorone	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Nitrobenzene	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Pentachlorophenol	0.8	0.8	6.7	mg/kg	NA	NA	NA	NA	NA	0.38 U	0.39 U
Phenanthrene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Phenol	0.33	0.33	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Pyrene	100	1,000	500	mg/kg	NA	NA	NA	NA	NA	0.19 U	0.20 U
Total SVOCs	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	ND	0.49
Inorganics											
Aluminum	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	244	2,410
Antimony	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	17.3 U	18.1 U
Arsenic	13	16	16	mg/kg	NA	NA	NA	NA	NA	0.490 J	2.30 J
Barium	350	820	400	mg/kg	NA	NA	NA	NA	NA	0.930	10.5
Beryllium	7.2	47	590	mg/kg	NA	NA	NA	NA	NA	0.230 U	0.225 J
Cadmium	2.5	7.5	9.3	mg/kg	NA	NA	NA	NA	NA	0.0350 J	0.0660 J
Calcium	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	22.1 JB	553
Chromium	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.750	8.06
Cobalt	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.300 J	1.99
Copper	50	1,720	270	mg/kg	NA	NA	NA	NA	NA	1.20 U	3.40
Ferrous Iron	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	2.40 UJ
Iron	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	444	5,350
Lead	63	450	1,000	mg/kg	NA	NA	NA	NA	NA	0.750 J	2.30
Magnesium	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	29.3 B	928
Manganese	1,600	2,000	10,000	mg/kg	NA	NA	NA	NA	NA	2.00 B	37.5
Mercury	0.18	0.73	2.8	mg/kg	NA	NA	NA	NA	NA	0.0240 U	0.0229 J
Nickel	30	130	310	mg/kg	NA	NA	NA	NA	NA	0.430 J	4.37 J
Potassium	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	52.0	607
Selenium	3.9	4	1,500	mg/kg	NA	NA	NA	NA	NA	0.760 JB	4.80 U
Silver	2	8.3	1,500	mg/kg	NA	NA	NA	NA	NA	0.690 U	0.604 U
Sodium	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	161 U	752
Thallium	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	6.90 U	7.20 U
Vanadium	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	0.750	10.7
Zinc	109	2,480	10,000	mg/kg	NA	NA	NA	NA	NA	0.740 J	8.40
Miscellaneous											
Sulfate	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	NA	400
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	NA	NA	NA	NA	NA	1,950	1,220 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	MW-23-D2R 18 - 20 22 - 24 12/07/10 Deep Sand Layer - D2 Unit	AMW-4 2 - 4 6 - 8 11/18/10 Shallow Sand Fill - Shallow	AMW-4 4 - 6 8 - 10 11/18/10 Shallow Sand Fill - Shallow	AMW-4 6 - 8 10 - 12 11/18/10 Shallow Sand Fill - Shallow	AMW-6 2 - 4 6 - 8 11/18/10 Shallow Sand Fill - Shallow	AMW-6 4 - 6 8 - 10 11/18/10 Shallow Sand Fill - Shallow	AMW-6 6 - 8 10 - 12 11/18/10 Shallow Sand Fill - Shallow
Area of Site					Former Tank No. 113	Southwest Area					
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Toluene	0.7	0.7	500	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Ethylbenzene	1	1	390	mg/kg	0.0060 UJ	0.0053 U	0.20 J	0.088 J	0.0055 U	0.0057 U	0.036 U
Xylenes (total)	0.26	1.6	500	mg/kg	0.012 U	0.011 U	0.46 U	0.20 U	0.011 U	0.011 U	0.071 U
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Isopropylbenzene	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.39	0.22	0.0055 U	0.0057 U	0.016 J
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.0060 UJ	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.0060 UJ	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.0060 UJ	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.0060 UJ	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.0060 UJ	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.0060 UJ	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.0060 UJ	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
2-Butanone	0.12	0.12	500	mg/kg	0.030 UJ	0.027 U	1.2 U	0.51 U	0.027 U	0.011 J	0.034 J
2-Hexanone	- -	- -	- -	mg/kg	0.030 UJ	0.027 U	1.2 U	0.51 U	0.027 U	0.028 U	0.18 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	0.030 UJ	0.027 U	1.2 U	0.51 U	0.027 U	0.028 U	0.18 U
Acetone	0.05	0.05	500	mg/kg	0.017 J	0.027 U	1.2 U	0.51 U	0.027 U	***0.059***	***0.18***
Bromodichloromethane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Bromoform	- -	- -	- -	mg/kg	0.0060 UJ	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Bromomethane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Carbon Disulfide	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Chlorobenzene	1.1	1.1	500	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Chloroethane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Chloroform	0.37	0.37	350	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Chloromethane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Cyclohexane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Dibromochloromethane	- -	- -	- -	mg/kg	0.0060 UJ	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Methyl acetate	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Methylcyclohexane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	3.2	1.3	0.0055 U	0.0057 U	0.018 J
Methylene Chloride	0.05	0.05	500	mg/kg	0.019	0.0052 J	0.23 U	0.10 U	0.0062	0.0090	0.049
Styrene	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Tetrachloroethene	1.3	1.3	150	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Total VOCs	- -	- -	- -	mg/kg	0.036 J	0.0052 J	3.8 J	1.6 J	0.0062	0.079 J	0.30 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Trichloroethene	0.47	0.47	200	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U
Vinyl Chloride	0.02	0.02	13	mg/kg	0.0060 U	0.0053 U	0.23 U	0.10 U	0.0055 U	0.0057 U	0.036 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	MW-23-D2R 18 - 20 22 - 24 12/07/10 Deep Sand Layer - D2 Unit	AMW-4 2 - 4 6 - 8 11/18/10 Shallow Sand Fill - Shallow	AMW-4 4 - 6 8 - 10 11/18/10 Shallow Sand Fill - Shallow	AMW-4 6 - 8 10 - 12 11/18/10 Shallow Sand Fill - Shallow	AMW-6 2 - 4 6 - 8 11/18/10 Shallow Sand Fill - Shallow	AMW-6 4 - 6 8 - 10 11/18/10 Shallow Sand Fill - Shallow	AMW-6 6 - 8 10 - 12 11/18/10 Shallow Sand Fill - Shallow
Area of Site					Former Tank No. 113	Southwest Area					
Semivolatile Organics											
Naphthalene	12	12	500	mg/kg	0.20 U	0.18 U	2.5	0.44 J	3.6 U	0.088 J	0.029 J
1,1'-Biphenyl	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2,4-Dichlorophenol	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2,4-Dimethylphenol	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2,4-Dinitrophenol	- -	- -	- -	mg/kg	0.39 U	0.35 U	R	1.7 U	7.0 U	0.74 U	0.47 U
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2-Chloronaphthalene	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2-Chlorophenol	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2-Methylnaphthalene	- -	- -	- -	mg/kg	0.20 U	0.18 U	9.5	1.2	3.6 U	0.24 J	0.097 J
2-Methylphenol	0.33	0.33	500	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
2-Nitroaniline	- -	- -	- -	mg/kg	0.39 U	0.35 U	1.9 U	1.7 U	7.0 U	0.74 U	0.47 U
2-Nitrophenol	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	0.20 U	0.18 U	R	0.88 U	3.6 U	0.38 U	0.24 U
3-Nitroaniline	- -	- -	- -	mg/kg	0.39 U	0.35 U	1.9 UJ	1.7 U	7.0 U	0.74 U	0.47 U
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	0.39 UJ	0.35 U	1.9 UJ	1.7 U	7.0 U	0.74 U	0.47 U
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
4-Chloroaniline	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
4-Methylphenol	0.33	0.33	500	mg/kg	0.39 U	0.35 U	1.9 U	1.7 U	7.0 U	0.74 U	0.47 U
4-Nitroaniline	- -	- -	- -	mg/kg	0.39 U	0.35 U	1.9 U	1.7 U	7.0 U	0.74 U	0.47 U
4-Nitrophenol	- -	- -	- -	mg/kg	0.39 U	0.35 U	1.9 UJ	1.7 U	7.0 U	0.74 U	0.47 U
Acenaphthene	20	98	500	mg/kg	0.084 J	0.18 U	1.1	0.46 J	3.6 U	0.14 J	0.026 J
Acenaphthylene	100	107	500	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.025 J
Acetophenone	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 UJ	0.38 UJ	0.24 UJ
Anthracene	100	1,000	500	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.27 J	0.052 J
Atrazine	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Benzaldehyde	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Benzo(a)anthracene	1	1	5.6	mg/kg	0.20 U	0.020 J	0.42 J	0.26 J	0.44 J	0.56	0.15 J
Benzo(a)pyrene	1	22	1	mg/kg	0.20 U	0.018 J	0.36 J	0.30 J	0.42 J	0.54	0.16 J
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.20 U	0.021 J	0.42 J	0.38 J	0.52 J	0.63	0.19 J
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.20 U	0.014 J	0.25 J	0.24 J	0.30 J	0.39	0.12 J
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.20 U	0.18 U	0.21 J	0.88 U	3.6 U	0.25 J	0.074 J
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.25 UB	0.18 U	1.0 U	0.88 U	3.6 U	0.96	0.63
Butylbenzylphthalate	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Caprolactam	- -	- -	- -	mg/kg	0.20 U	0.18 U	R	0.88 U	3.6 U	0.38 U	0.24 U
Carbazole	- -	- -	- -	mg/kg	0.078 J	0.18 U	1.0 U	0.88 U	3.6 U	0.13 J	0.029 J
Chrysene	1	1	56	mg/kg	0.20 U	0.018 J	0.42 J	0.29 J	0.44 J	0.64	0.17 J
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	0.20 UJ	0.18 U	1.0 U	0.88 U	3.6 U	0.11 J	0.036 J
Dibenzofuran	7	210	350	mg/kg	0.071 J	0.18 U	0.79 J	0.88 U	3.6 U	0.11 J	0.027 J
Diethylphthalate	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Dimethylphthalate	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					MW-23-D2R	AMW-4	AMW-4	AMW-4	AMW-6	AMW-6	AMW-6
Historical Sample Depth(feet):					18 - 20	2 - 4	4 - 6	6 - 8	2 - 4	4 - 6	6 - 8
Current Estimated Sample Depth (feet)					22 - 24	6 - 8	8 - 10	10 - 12	6 - 8	8 - 10	10 - 12
Date Collected:					12/07/10	11/18/10	11/18/10	11/18/10	11/18/10	11/18/10	11/18/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Deep Sand Layer - D2 Unit	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Tank No. 113	Southwest Area					
Semivolatile Organics (Cont.)											
Di-n-Butylphthalate	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Di-n-Octylphthalate	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 UJ	0.88 U	3.6 U	0.38 U	0.24 U
Fluoranthene	100	1,000	500	mg/kg	0.029 J	0.036 J	1.3	0.77 J	1.0 J	1.1	0.28
Fluorene	30	386	500	mg/kg	0.067 J	0.18 U	1.5	0.66 J	3.6 U	0.28 J	0.064 J
Hexachlorobenzene	0.33	3.2	6	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Hexachlorobutadiene	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Hexachloroethane	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	0.20 U	0.18 U	0.20 J	0.16 J	3.6 U	0.34 J	0.10 J
Isophorone	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Nitrobenzene	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Pentachlorophenol	0.8	0.8	6.7	mg/kg	0.39 U	0.35 U	1.9 UJ	1.7 U	7.0 U	0.74 U	0.47 U
Phenanthrene	100	1,000	500	mg/kg	0.24	0.022 J	3.0	1.0	0.74 J	1.1	0.27
Phenol	0.33	0.33	500	mg/kg	0.20 U	0.18 U	1.0 U	0.88 U	3.6 U	0.38 U	0.24 U
Pyrene	100	1,000	500	mg/kg	0.016 J	0.029 J	1.3	1.0	0.83 J	1.0	0.24
Total SVOCs	- -	- -	- -	mg/kg	0.59 J	0.18 J	23 J	7.2 J	4.7 J	8.9 J	2.8 J
Inorganics											
Aluminum	- -	- -	- -	mg/kg	2,270	8,070 J	1,390 J	4,010 J	3,660 J	3,620 J	8,470 J
Antimony	- -	- -	- -	mg/kg	17.4 U	16.1 U	17.7 U	15.7 U	16.4 U	17.1 U	20.9 U
Arsenic	13	16	16	mg/kg	1.00 J	3.80	1.10 J	2.00 J	***16.2***	***20.1***	10.6
Barium	350	820	400	mg/kg	7.26	26.6	7.89	22.1	32.5	44.4	44.6
Beryllium	7.2	47	590	mg/kg	0.157 J	0.362	0.0530 J	0.186 J	0.174 J	0.185 J	0.448
Cadmium	2.5	7.5	9.3	mg/kg	0.232 U	0.193 J	0.0550 J	0.0920 J	0.199 J	0.356	0.468
Calcium	- -	- -	- -	mg/kg	526	556	218	428	5,420	1,520	2,140
Chromium	- -	- -	- -	mg/kg	6.70	10.6	2.53	5.58	7.77	6.12	22.7
Cobalt	- -	- -	- -	mg/kg	1.01	4.27	0.924	2.64	2.04	2.12	4.84
Copper	50	1,720	270	mg/kg	4.10	4.80	1.50	4.00	11.5	11.5	14.7
Ferrous Iron	- -	- -	- -	mg/kg	0.900 J	R	R	1.70 J	R	R	R
Iron	- -	- -	- -	mg/kg	3,640	10,100 J	1,860 J	5,410 J	6,630 J	5,890 J	18,200 J
Lead	63	450	1,000	mg/kg	1.80 J	8.20 J	4.70 J	9.00 J	50.8 J	*80.2 J*	43.8 J
Magnesium	- -	- -	- -	mg/kg	641	1,070	309	638	2,300	577	2,900
Manganese	1,600	2,000	10,000	mg/kg	31.6	246	25.4	60.8	63.1	52.6	180
Mercury	0.18	0.73	2.8	mg/kg	0.0235 U	0.0173 J	0.0240 U	0.0226	0.0785	*0.199*	0.122
Nickel	30	130	310	mg/kg	3.31 J	6.07 J	1.58 J	4.47 J	4.81 J	4.56 J	13.0 J
Potassium	- -	- -	- -	mg/kg	387	305 J	202 J	298 J	432 J	332 J	1,630 J
Selenium	3.9	4	1,500	mg/kg	4.60 U	4.30 U	4.70 U	4.20 U	4.40 U	4.60 U	5.60 U
Silver	2	8.3	1,500	mg/kg	0.581 U	0.536 U	0.590 U	0.523 U	0.546 U	0.571 U	0.698 U
Sodium	- -	- -	- -	mg/kg	205	83.1 J	34.0 J	36.2 J	524	153 J	392
Thallium	- -	- -	- -	mg/kg	7.00 U	6.40 U	7.10 U	6.30 U	6.60 U	6.90 U	8.40 U
Vanadium	- -	- -	- -	mg/kg	5.91	13.6	3.38	7.78	9.48	7.67	24.8
Zinc	109	2,480	10,000	mg/kg	5.00	20.8	4.40	10.3	51.6	96.9	75.0
Miscellaneous											
Sulfate	- -	- -	- -	mg/kg	320	170	60 J	110 U	89 J	120 U	130 J
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	1,210 U	2,320	8,850	3,610	4,960	3,250	15,800

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	AMW-7 4 - 6 8 - 10 11/29/10 Shallow Sand Fill - Shallow	AMW-7 8 - 10 11/29/10 Shallow Sand Fill - Shallow	AMW-7 10 - 12 11/29/10 Shallow Sand Fill - Shallow	TP-5-1 5 9 12/02/10 Shallow Sand Fill - Shallow	TP-5-2 5.5 9.5 12/02/10 Shallow Sand Fill - Shallow	TP-5-3 6 10 12/02/10 Shallow Sand Fill - Shallow	TP-6-1 5 9 12/03/10 Shallow Sand Fill - Shallow
Area of Site					Southwest Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Toluene	0.7	0.7	500	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Ethylbenzene	1	1	390	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Xylenes (total)	0.26	1.6	500	mg/kg	0.011 U	0.011 U	0.013 U	0.21 J	0.064 U	0.21 U	0.011 U
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.0055 U	0.0055 U	0.0046 J	0.15 U	0.032 U	0.10 U	0.0053 U
Isopropylbenzene	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.17	0.032 U	0.057 J	0.0053 U
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
2-Butanone	0.12	0.12	500	mg/kg	0.027 U	0.027 U	0.0052 J	0.77 U	0.16 U	0.52 U	0.0079 J
2-Hexanone	- -	- -	- -	mg/kg	0.027 U	0.027 U	0.032 U	0.77 U	0.16 U	0.52 U	0.026 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	0.027 U	0.027 U	0.032 U	0.77 U	0.16 U	0.52 U	0.026 U
Acetone	0.05	0.05	500	mg/kg	0.0063 J	0.037	***0.050***	0.77 U	0.16 U	0.52 U	***0.080***
Bromodichloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Bromoform	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Bromomethane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Carbon Disulfide	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0053 J	0.15 U	0.032 U	0.10 U	0.0053 U
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Chlorobenzene	1.1	1.1	500	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Chloroethane	- -	- -	- -	mg/kg	0.0055 UJ	0.0055 UJ	0.0065 UJ	0.15 U	0.032 U	0.10 U	0.0053 U
Chloroform	0.37	0.37	350	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Chloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.0055 U	0.0055 U	0.0015 J	0.15 U	0.032 U	0.10 U	0.0053 U
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Cyclohexane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.17	0.032 U	0.10 U	0.0053 U
Dibromochloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.0055 UJ	0.0055 UJ	0.0065 UJ	0.15 U	0.032 U	0.10 U	0.0053 U
Methyl acetate	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.28	0.032 U	0.10 U	0.0053 U
Methylcyclohexane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.87	0.014 J	0.071 J	0.0053 U
Methylene Chloride	0.05	0.05	500	mg/kg	0.0076	0.016	0.023	0.15 U	***0.11***	0.10 U	0.038 J
Styrene	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Tetrachloroethene	1.3	1.3	150	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Total VOCs	- -	- -	- -	mg/kg	0.014 J	0.053	0.093 J	1.7 J	0.12 J	0.13 J	0.13 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Trichloroethene	0.47	0.47	200	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.0055 U	0.0055 U	0.0065 U	0.15 U	0.032 U	0.10 U	0.0053 U
Vinyl Chloride	0.02	0.02	13	mg/kg	0.0055 U	0.0055 U	0.0032 J	0.15 U	0.032 U	0.10 U	0.0053 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					AMW-7	AMW-7	AMW-7	TP-5-1	TP-5-2	TP-5-3	TP-6-1
Historical Sample Depth(feet):					4 - 6	8 - 10	10 - 12	5	5.5	6	5
Current Estimated Sample Depth (feet)					8 - 10			9	9.5	10	9
Date Collected:					11/29/10	11/29/10	11/29/10	12/02/10	12/02/10	12/02/10	12/03/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Southwest Area						
Semivolatile Organics											
Naphthalene	12	12	500	mg/kg	0.18 U	0.19 U	0.22 U	0.19 J	0.20 U	1.8 U	1.8 U
1,1'-Biphenyl	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2,4-Dichlorophenol	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2,4-Dimethylphenol	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2,4-Dinitrophenol	- -	- -	- -	mg/kg	0.36 U	0.37 U	0.42 U	0.52 U	0.38 U	3.5 U	3.5 UJ
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2-Chloronaphthalene	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2-Chlorophenol	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2-Methylnaphthalene	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.092 J	0.14 J	1.8 U	1.8 U
2-Methylphenol	0.33	0.33	500	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
2-Nitroaniline	- -	- -	- -	mg/kg	0.36 U	0.37 U	0.42 U	0.52 U	0.38 U	3.5 U	3.5 U
2-Nitrophenol	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
3-Nitroaniline	- -	- -	- -	mg/kg	0.36 U	0.37 U	0.42 U	0.52 U	0.38 U	3.5 U	3.5 U
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	0.36 U	0.37 U	0.42 U	0.52 U	0.38 U	3.5 U	3.5 U
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
4-Chloroaniline	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
4-Methylphenol	0.33	0.33	500	mg/kg	0.36 U	0.37 U	0.42 U	0.52 U	0.38 U	3.5 U	3.5 U
4-Nitroaniline	- -	- -	- -	mg/kg	0.36 U	0.37 U	0.42 U	0.52 U	0.38 U	3.5 U	3.5 U
4-Nitrophenol	- -	- -	- -	mg/kg	0.36 U	0.37 U	0.42 U	0.52 U	0.38 U	3.5 U	3.5 U
Acenaphthene	20	98	500	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.11 J	0.22 J	1.8 U
Acenaphthylene	100	107	500	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Acetophenone	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Anthracene	100	1,000	500	mg/kg	0.017 J	0.017 J	0.22 U	0.27 U	0.086 J	1.8 U	0.17 J
Atrazine	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Benzaldehyde	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Benzo(a)anthracene	1	1	5.6	mg/kg	0.088 J	0.054 J	0.024 J	0.27 U	0.27	1.8 U	0.50 J
Benzo(a)pyrene	1	22	1	mg/kg	0.087 J	0.056 J	0.025 J	0.27 U	0.27	1.8 U	0.48 J
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.093 J	0.064 J	0.028 J	0.27 U	0.34	1.8 U	0.50 J
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.061 J	0.043 J	0.021 J	0.27 U	0.13 J	1.8 U	0.44 J
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.033 J	0.19 U	0.22 U	0.27 U	0.11 J	1.8 U	1.8 U
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.42	0.11 J	0.098 J	0.27 UB	0.20 UB	1.8 UB	1.8 UB
Butylbenzylphthalate	- -	- -	- -	mg/kg	0.15 J	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Caprolactam	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Carbazole	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.046 J	1.8 U	1.8 U
Chrysene	1	1	56	mg/kg	0.082 J	0.050 J	0.021 J	0.27 U	0.27	1.8 U	0.52 J
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	0.017 J	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Dibenzofuran	7	210	350	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.081 J	1.8 U	1.8 U
Diethylphthalate	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Dimethylphthalate	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	AMW-7 4 - 6 8 - 10 11/29/10 Shallow Sand Fill - Shallow	AMW-7 8 - 10 11/29/10 Shallow Sand Fill - Shallow	AMW-7 10 - 12 11/29/10 Shallow Sand Fill - Shallow	TP-5-1 5 9 12/02/10 Shallow Sand Fill - Shallow	TP-5-2 5.5 9.5 12/02/10 Shallow Sand Fill - Shallow	TP-5-3 6 10 12/02/10 Shallow Sand Fill - Shallow	TP-6-1 5 9 12/03/10 Shallow Sand Fill - Shallow
Area of Site					**Southwest Area**						
Semivolatile Organics (Cont.)											
Di-n-Butylphthalate	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Di-n-Octylphthalate	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Fluoranthene	100	1,000	500	mg/kg	0.17 J	0.11 J	0.041 J	0.27 U	0.66	0.20 J	1.2 J
Fluorene	30	386	500	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.13 J	0.21 J	1.8 U
Hexachlorobenzene	0.33	3.2	6	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Hexachlorobutadiene	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Hexachloroethane	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	0.049 J	0.033 J	0.22 U	0.27 U	0.12 J	1.8 U	0.31 J
Isophorone	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Nitrobenzene	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Pentachlorophenol	0.8	0.8	6.7	mg/kg	0.36 U	0.37 U	0.42 U	0.52 U	0.38 U	3.5 U	3.5 U
Phenanthrene	100	1,000	500	mg/kg	0.090 J	0.041 J	0.22 U	0.039 J	0.63	0.40 J	1.2 J
Phenol	0.33	0.33	500	mg/kg	0.18 U	0.19 U	0.22 U	0.27 U	0.20 U	1.8 U	1.8 U
Pyrene	100	1,000	500	mg/kg	0.16 J	0.088 J	0.035 J	0.27 U	0.69	0.23 J	1.1 J
Total SVOCs	- -	- -	- -	mg/kg	1.5 J	0.67 J	0.29 J	0.32 J	4.1 J	1.3 J	6.4 J
Inorganics											
Aluminum	- -	- -	- -	mg/kg	4,490 J	3,290 J	4,510 J	9,740 J	3,430 J	4,230 J	4,640
Antimony	- -	- -	- -	mg/kg	16.4 U	16.8 U	19.3 U	23.0 UJ	17.0 UJ	15.5 UJ	15.7 U
Arsenic	13	16	16	mg/kg	3.10 J	2.00 J	4.10 J	11.0 J	2.70 J	1.50 J	***28.1***
Barium	350	820	400	mg/kg	26.0	28.5	13.2	34.4	113	16.8	43.2
Beryllium	7.2	47	590	mg/kg	0.200 J	0.142 J	0.195 J	0.595 J	0.228 J	0.225 J	0.241
Cadmium	2.5	7.5	9.3	mg/kg	0.463 J	0.224 UBJ	0.258 UBJ	0.366	0.218 J	0.115 J	0.660
Calcium	- -	- -	- -	mg/kg	875	743	1,450	3,570 J	5,800 J	140 J	10,800
Chromium	- -	- -	- -	mg/kg	7.94	7.96	12.1	26.4	7.41	6.06	9.72
Cobalt	- -	- -	- -	mg/kg	2.72	2.27	3.05	6.33	2.08	3.48	2.68
Copper	50	1,720	270	mg/kg	8.40	7.20	5.60	11.3	6.10	4.50	11.9
Ferrous Iron	- -	- -	- -	mg/kg	R	R	R	1.70 J	1.30 J	4.40 J	22.1 J
Iron	- -	- -	- -	mg/kg	10,600	5,780	9,990	25,100 J	6,100 J	6,640 J	8,290
Lead	63	450	1,000	mg/kg	22.4 J	18.5 J	6.60 J	13.1	28.3	3.60	57.9
Magnesium	- -	- -	- -	mg/kg	878	766	1,950	3,850 J	1,870 J	694 J	2,270
Manganese	1,600	2,000	10,000	mg/kg	119 J	55.2 J	82.8 J	240 J	76.0 J	49.2 J	110
Mercury	0.18	0.73	2.8	mg/kg	0.0492	*0.189*	0.0219 J	0.0306 U	0.0155 J	0.0209 U	0.0732
Nickel	30	130	310	mg/kg	5.49	4.87 J	7.91	15.7	4.59 J	4.67 J	5.61
Potassium	- -	- -	- -	mg/kg	541	420	1,010	2,170	521	299	436
Selenium	3.9	4	1,500	mg/kg	0.600 J	0.600 J	0.700 J	6.10 U	4.50 U	4.10 U	4.20 U
Silver	2	8.3	1,500	mg/kg	0.548 U	0.559 U	0.644 U	0.767 U	0.568 U	0.518 U	0.524 U
Sodium	- -	- -	- -	mg/kg	70.5 J	131 J	742	171 J	107 J	60.9 J	303
Thallium	- -	- -	- -	mg/kg	6.60 U	6.70 U	7.70 U	9.20 U	6.80 U	6.20 U	6.30 U
Vanadium	- -	- -	- -	mg/kg	9.26	7.66	13.7	31.4	9.55	8.11	12.1
Zinc	109	2,480	10,000	mg/kg	*120 J*	29.0 J	23.4 J	48.6	68.6	10.5	67.6
Miscellaneous											
Sulfate	- -	- -	- -	mg/kg	350	290	150	620	65 J	370	380
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	5,020	2,900	22,300	19,100	26,100	6,310	12,800

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					TP-6-2	TP-6-3	TP-7-1	TP-7-2	TP-8-1	TP-8-2	TP-9-1
Historical Sample Depth(feet):					5.5	5.5	5	5	4.5	4	6.5
Current Estimated Sample Depth (feet)					9.5	9.5	9	9	8.5	8	10.5
Date Collected:					12/03/10	12/03/10	12/06/10	12/06/10	12/06/10	12/06/10	12/07/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Southwest Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Toluene	0.7	0.7	500	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Ethylbenzene	1	1	390	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Xylenes (total)	0.26	1.6	500	mg/kg	0.011 U	1.1 U	0.0031 J	1.1 U	0.21 U	0.011 U	0.44 U
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Isopropylbenzene	- -	- -	- -	mg/kg	0.0056 U	1.8	0.0055 U	0.35 J	0.87	0.0054 U	0.22 U
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 UJ	0.0054 U	0.22 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.33 J	0.10 U	0.0054 U	0.22 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.0056 U	0.57 UJ	0.0055 U	0.54 UJ	0.10 UJ	0.0054 U	0.22 UJ
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
2-Butanone	0.12	0.12	500	mg/kg	0.028 U	2.9 U	0.027 U	2.7 U	0.51 U	0.027 U	1.1 U
2-Hexanone	- -	- -	- -	mg/kg	0.028 U	2.9 U	0.027 U	2.7 U	0.51 U	0.027 U	1.1 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	0.028 U	2.9 U	0.027 U	2.7 U	0.51 U	0.027 U	1.1 U
Acetone	0.05	0.05	500	mg/kg	0.018 J	2.9 U	0.026 J	2.7 U	0.51 U	0.010 J	1.1 U
Bromodichloromethane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Bromoform	- -	- -	- -	mg/kg	0.0056 U	0.57 UJ	0.0055 U	0.54 UJ	0.10 UJ	0.0054 U	0.22 UJ
Bromomethane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Carbon Disulfide	- -	- -	- -	mg/kg	0.0056 U	0.57 UJ	0.0055 U	0.54 UJ	0.10 UJ	0.0054 U	0.22 UJ
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.0056 U	0.57 UJ	0.0055 U	0.54 UJ	0.10 UJ	0.0054 U	0.22 UJ
Chlorobenzene	1.1	1.1	500	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Chloroethane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Chloroform	0.37	0.37	350	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Chloromethane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Cyclohexane	- -	- -	- -	mg/kg	0.0056 U	4.0	0.0055 U	1.9	0.10 U	0.0054 U	0.22 U
Dibromochloromethane	- -	- -	- -	mg/kg	0.0056 U	0.57 UJ	0.0055 U	0.54 UJ	0.10 UJ	0.0054 U	0.22 UJ
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 UJ	0.10 UJ	0.0054 U	0.22 UJ
Methyl acetate	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Methylcyclohexane	- -	- -	- -	mg/kg	0.0056 U	25 J	0.0020 J	17	2.8 J	0.0054 U	0.17 J
Methylene Chloride	0.05	0.05	500	mg/kg	0.041 J	0.57 U	0.017	0.54 U	***0.082 J***	0.016	0.22 U
Styrene	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Tetrachloroethene	1.3	1.3	150	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Total VOCs	- -	- -	- -	mg/kg	0.059 J	31 J	0.048 J	20 J	3.8 J	0.026 J	0.17 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Trichloroethene	0.47	0.47	200	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U
Vinyl Chloride	0.02	0.02	13	mg/kg	0.0056 U	0.57 U	0.0055 U	0.54 U	0.10 U	0.0054 U	0.22 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					TP-6-2	TP-6-3	TP-7-1	TP-7-2	TP-8-1	TP-8-2	TP-9-1
Historical Sample Depth(feet):					5.5	5.5	5	5	4.5	4	6.5
Current Estimated Sample Depth (feet)					9.5	9.5	9	9	8.5	8	10.5
Date Collected:					12/03/10	12/03/10	12/06/10	12/06/10	12/06/10	12/06/10	12/07/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Southwest Area						
Semivolatile Organics											
Naphthalene	12	12	500	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
1,1'-Biphenyl	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2,4-Dichlorophenol	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2,4-Dimethylphenol	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2,4-Dinitrophenol	- -	- -	- -	mg/kg	0.36 UJ	9.4 UJ	0.36 UJ	9.1 UJ	1.8 UJ	0.36 UJ	1.9 UJ
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2-Chloronaphthalene	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2-Chlorophenol	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2-Methylnaphthalene	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.025 J	4.7 U	0.95 U	0.18 U	0.99 U
2-Methylphenol	0.33	0.33	500	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
2-Nitroaniline	- -	- -	- -	mg/kg	0.36 U	9.4 U	0.36 U	9.1 U	1.8 U	0.36 U	1.9 U
2-Nitrophenol	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
3-Nitroaniline	- -	- -	- -	mg/kg	0.36 U	9.4 U	0.36 U	9.1 U	1.8 U	0.36 U	1.9 U
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	0.36 U	9.4 U	0.36 U	9.1 U	1.8 U	0.36 U	1.9 U
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
4-Chloroaniline	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
4-Methylphenol	0.33	0.33	500	mg/kg	0.36 U	9.4 U	0.36 U	9.1 U	1.8 U	0.36 U	1.9 U
4-Nitroaniline	- -	- -	- -	mg/kg	0.36 U	9.4 U	0.36 U	9.1 U	1.8 U	0.36 U	1.9 U
4-Nitrophenol	- -	- -	- -	mg/kg	0.36 U	9.4 U	0.36 U	9.1 U	1.8 U	0.36 U	1.9 U
Acenaphthene	20	98	500	mg/kg	0.19 U	0.94 J	0.020 J	1.7 J	0.95 U	0.18 U	0.99 U
Acenaphthylene	100	107	500	mg/kg	0.19 U	4.8 U	0.021 J	4.7 U	0.95 U	0.18 U	0.99 U
Acetophenone	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Anthracene	100	1,000	500	mg/kg	0.19 U	0.82 J	0.035 J	1.5 J	0.95 U	0.18 U	0.99 U
Atrazine	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Benzaldehyde	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Benzo(a)anthracene	1	1	5.6	mg/kg	0.019 J	***2.7 J***	0.099 J	***3.7 J***	0.95 U	0.18 U	0.99 U
Benzo(a)pyrene	1	22	1	mg/kg	0.019 J	*2.7 J*	0.10 J	*3.7 J*	0.95 U	0.18 U	0.99 U
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.023 J	***2.8 J***	0.12 J	***4.1 J***	0.072 J	0.18 U	0.99 U
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.017 J	1.5 J	0.081 J	2.1 J	0.95 U	0.18 U	0.99 U
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.19 U	*1.2 J*	0.034 J	*1.1 J*	0.95 U	0.18 U	0.99 U
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.19 UB	4.8 U	0.19 UB	4.7 UB	0.95 UB	0.18 UB	0.99 UB
Butylbenzylphthalate	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Caprolactam	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Carbazole	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Chrysene	1	1	56	mg/kg	0.024 J	***2.3 J***	0.11 J	***3.5 J***	0.95 U	0.18 U	0.99 U
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Dibenzofuran	7	210	350	mg/kg	0.19 U	4.8 U	0.021 J	1.1 J	0.95 U	0.18 U	0.99 U
Diethylphthalate	- -	- -	- -	mg/kg	0.19 UB	4.8 U	0.19 UB	4.7 U	0.95 U	0.18 UB	0.99 U
Dimethylphthalate	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U

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Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	TP-6-2 5.5 9.5 12/03/10 Shallow Sand Fill - Shallow	TP-6-3 5.5 9.5 12/03/10 Shallow Sand Fill - Shallow	TP-7-1 5 9 12/06/10 Shallow Sand Fill - Shallow	TP-7-2 5 9 12/06/10 Shallow Sand Fill - Shallow	TP-8-1 4.5 8.5 12/06/10 Shallow Sand Fill - Shallow	TP-8-2 4 8 12/06/10 Shallow Sand Fill - Shallow	TP-9-1 6.5 10.5 12/07/10 Shallow Sand Fill - Shallow
Area of Site					**Southwest Area**						
Semivolatile Organics (Cont.)											
Di-n-Butylphthalate	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Di-n-Octylphthalate	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Fluoranthene	100	1,000	500	mg/kg	0.046 J	4.8	0.19	7.0	0.95 U	0.18 U	0.99 U
Fluorene	30	386	500	mg/kg	0.19 U	1.1 J	0.025 J	1.9 J	0.95 U	0.18 U	0.99 U
Hexachlorobenzene	0.33	3.2	6	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Hexachlorobutadiene	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Hexachloroethane	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	0.19 U	*1.1 J*	0.059 J	*1.8 J*	0.95 U	0.18 U	0.99 U
Isophorone	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Nitrobenzene	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	0.19 U	4.8 U	0.19 U	4.7 U	0.95 U	0.18 U	0.99 U
Pentachlorophenol	0.8	0.8	6.7	mg/kg	0.36 U	9.4 U	0.36 U	9.1 U	1.8 U	0.36 U	1.9 U
Phenanthrene	100	1,000	500	mg/kg	0.042 J	1.7 J	0.14 J	4.2 J	0.95 U	0.18 U	0.99 U
Phenol	0.33	0.33	500	mg/kg	0.19 U	4.8 U	0.035 J	4.7 U	0.95 U	0.18 U	0.99 U
Pyrene	100	1,000	500	mg/kg	0.039 J	4.8	0.19	7.7	0.11 J	0.18 U	0.077 J
Total SVOCs	- -	- -	- -	mg/kg	0.23 J	28 J	1.3 J	45 J	0.18 J	ND	0.077 J
Inorganics											
Aluminum	- -	- -	- -	mg/kg	637	3,000	3,500	2,280	728	545	4,520
Antimony	- -	- -	- -	mg/kg	16.7 U	16.4 U	16.2 U	16.1 U	17.7 U	16.5 U	17.5 U
Arsenic	13	16	16	mg/kg	0.500 J	1.90 J	6.50	3.60	2.40 U	2.20 U	2.40
Barium	350	820	400	mg/kg	6.25	14.0	22.7	21.4	3.31	2.64	19.5
Beryllium	7.2	47	590	mg/kg	0.223 U	0.157 J	0.278	0.218	0.0470 J	0.0430 J	0.283
Cadmium	2.5	7.5	9.3	mg/kg	0.223 U	0.0790 J	0.0760 J	0.258	0.235 U	0.220 U	0.234 U
Calcium	- -	- -	- -	mg/kg	490	1,040	3,010	9,740	229	150	800
Chromium	- -	- -	- -	mg/kg	1.57	6.88	4.99	5.83	1.82	1.27	13.4
Cobalt	- -	- -	- -	mg/kg	0.285 J	2.26	2.62	1.36	0.406 J	0.247 J	1.95
Copper	50	1,720	270	mg/kg	0.700 J	4.00	5.70	13.4	1.00 J	0.700 J	22.3
Ferrous Iron	- -	- -	- -	mg/kg	R	0.700 J	R	8.30 J	0.900 J	R	1.10 J
Iron	- -	- -	- -	mg/kg	917	4,740	6,380	3,860	973	628	6,920
Lead	63	450	1,000	mg/kg	0.600 J	9.70	17.8 J	35.0 J	2.80 J	0.700 J	4.70 J
Magnesium	- -	- -	- -	mg/kg	230	1,170	714	2,320	214	165	1,610
Manganese	1,600	2,000	10,000	mg/kg	8.30	36.9	91.7	49.7	9.50	6.60	61.6
Mercury	0.18	0.73	2.8	mg/kg	0.0220 U	0.0224 U	0.0256	0.104	0.0220 U	0.0216 U	0.0213 U
Nickel	30	130	310	mg/kg	0.810 J	5.40 J	3.98 J	5.85	1.08 J	0.792 J	5.55 J
Potassium	- -	- -	- -	mg/kg	259	705	436	359	196	148	1,170
Selenium	3.9	4	1,500	mg/kg	4.50 U	4.40 U	4.30 U	4.30 U	4.70 U	4.40 U	4.70 U
Silver	2	8.3	1,500	mg/kg	0.556 U	0.546 U	0.541 U	0.537 U	0.589 U	0.549 U	0.584 U
Sodium	- -	- -	- -	mg/kg	44.3 J	107 J	132 J	115 J	41.6 J	48.9 J	148 J
Thallium	- -	- -	- -	mg/kg	6.70 U	6.60 U	6.50 U	6.40 U	7.10 U	6.60 U	7.00 U
Vanadium	- -	- -	- -	mg/kg	1.75	7.97	7.37	7.57	2.72	1.40	14.4
Zinc	109	2,480	10,000	mg/kg	2.00 J	15.9	31.4	75.1	2.40	1.80 J	24.0
Miscellaneous											
Sulfate	- -	- -	- -	mg/kg	110 U	70 J	110 U	110 U	94 J	110 U	120 U
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	1,210 U	14,000	1,700	8,210	1,160 U	1,100 U	1,120 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	TP-9-2 6 10 12/07/10 Shallow Sand Fill - Shallow	TP-9-3 6.5 10.5 12/07/10 Shallow Sand Fill - Shallow	TP-10-1 6 10 12/07/10 Shallow Sand Fill - Shallow	TP-10-2 6 10 12/07/10 Shallow Sand Fill - Shallow	TP-10-3 6.5 10.5 12/07/10 Shallow Sand Fill - Shallow	AMW-11 2 - 4 6 - 8 12/01/10 Shallow Sand Fill - Shallow	AMW-11 4 - 6 8 - 10 12/01/10 Shallow Sand Fill - Shallow
Area of Site					**Southwest Area**					**Former Retention Pond**	
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Toluene	0.7	0.7	500	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Ethylbenzene	1	1	390	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Xylenes (total)	0.26	1.6	500	mg/kg	0.45 U	0.016 U	0.011 U	0.011 U	0.012 U	0.26 U	0.012 U
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Isopropylbenzene	- -	- -	- -	mg/kg	0.37	0.0079 U	0.0056 U	0.0056 U	0.0013 J	0.13 U	0.0019 J
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.23 UJ	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
2-Butanone	0.12	0.12	500	mg/kg	1.1 U	0.011 J	0.028 U	0.028 U	0.031 U	0.66 U	0.029 U
2-Hexanone	- -	- -	- -	mg/kg	1.1 U	0.040 U	0.028 U	0.028 U	0.031 U	0.66 U	0.029 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	1.1 U	0.040 U	0.028 U	0.028 U	0.031 U	0.66 U	0.029 U
Acetone	0.05	0.05	500	mg/kg	1.1 U	***0.055***	0.025 J	0.028 U	0.018 J	0.66 U	0.019 J
Bromodichloromethane	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Bromoform	- -	- -	- -	mg/kg	0.23 UJ	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Bromomethane	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Carbon Disulfide	- -	- -	- -	mg/kg	0.23 UJ	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 UJ	0.0058 U
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.23 UJ	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Chlorobenzene	1.1	1.1	500	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Chloroethane	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 UJ	0.0058 U
Chloroform	0.37	0.37	350	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Chloromethane	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Cyclohexane	- -	- -	- -	mg/kg	0.12 J	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Dibromochloromethane	- -	- -	- -	mg/kg	0.23 UJ	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.23 UJ	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Methyl acetate	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Methylcyclohexane	- -	- -	- -	mg/kg	0.60	0.0018 J	0.0056 U	0.0056 U	0.0045 J	0.13 U	0.0019 J
Methylene Chloride	0.05	0.05	500	mg/kg	0.23 U	0.020	0.017	0.018	0.015	0.13 UJ	0.0094 UB
Styrene	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Tetrachloroethene	1.3	1.3	150	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Total VOCs	- -	- -	- -	mg/kg	1.1 J	0.088 J	0.042 J	0.018	0.039 J	ND	0.023 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Trichloroethene	0.47	0.47	200	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U
Vinyl Chloride	0.02	0.02	13	mg/kg	0.23 U	0.0079 U	0.0056 U	0.0056 U	0.0062 U	0.13 U	0.0058 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					TP-9-2	TP-9-3	TP-10-1	TP-10-2	TP-10-3	AMW-11	AMW-11
Historical Sample Depth(feet):					6	6.5	6	6	6.5	2 - 4	4 - 6
Current Estimated Sample Depth (feet)					10	10.5	10	10	10.5	6 - 8	8 - 10
Date Collected:					12/07/10	12/07/10	12/07/10	12/07/10	12/07/10	12/01/10	12/01/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Southwest Area					Former Retention Pond	
Semivolatile Organics											
Naphthalene	12	12	500	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.85	0.30
1,1'-Biphenyl	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.070 J	0.033 J
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
2,4-Dichlorophenol	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
2,4-Dimethylphenol	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
2,4-Dinitrophenol	- -	- -	- -	mg/kg	1.8 UJ	0.51 UJ	1.9 UJ	1.8 UJ	0.41 U	0.44 U	0.38 U
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
2-Chloronaphthalene	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
2-Chlorophenol	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
2-Methylnaphthalene	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.034 J	0.40	0.13 J
2-Methylphenol	0.33	0.33	500	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
2-Nitroaniline	- -	- -	- -	mg/kg	1.8 U	0.51 U	1.9 U	1.8 U	0.41 U	0.44 U	0.38 U
2-Nitrophenol	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
3-Nitroaniline	- -	- -	- -	mg/kg	1.8 U	0.51 U	1.9 U	1.8 U	0.41 U	0.44 U	0.38 U
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	1.8 U	0.51 U	1.9 U	1.8 U	0.41 U	0.44 U	0.38 U
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
4-Chloroaniline	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
4-Methylphenol	0.33	0.33	500	mg/kg	1.8 U	0.51 U	1.9 U	1.8 U	0.41 U	0.44 U	0.38 U
4-Nitroaniline	- -	- -	- -	mg/kg	1.8 U	0.51 U	1.9 U	1.8 U	0.41 U	0.44 U	0.38 U
4-Nitrophenol	- -	- -	- -	mg/kg	1.8 U	0.51 U	1.9 U	1.8 U	0.41 U	0.44 U	0.38 U
Acenaphthene	20	98	500	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.31	0.90	0.36
Acenaphthylene	100	107	500	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Acetophenone	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Anthracene	100	1,000	500	mg/kg	0.94 U	0.26 U	1.0 U	0.068 J	0.11 J	0.16 J	0.081 J
Atrazine	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Benzaldehyde	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Benzo(a)anthracene	1	1	5.6	mg/kg	0.94 U	0.26 U	0.18 J	0.24 J	0.026 J	0.079 J	0.048 J
Benzo(a)pyrene	1	22	1	mg/kg	0.94 U	0.26 U	0.17 J	0.26 J	0.21 U	0.037 J	0.027 J
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.94 U	0.26 U	0.15 J	0.25 J	0.017 J	0.067 JY	0.040 J
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.94 U	0.26 U	0.13 J	0.14 J	0.21 U	0.016 J	0.024 J
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.069 JY	0.20 U
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.94 U	0.26 UB	1.0 UB	0.94 UB	0.21 UB	0.23 UB	0.29 UB
Butylbenzylphthalate	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Caprolactam	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Carbazole	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.020 J	0.32	0.075 J
Chrysene	1	1	56	mg/kg	0.94 U	0.26 U	0.13 J	0.23 J	0.024 J	0.065 J	0.041 J
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Dibenzofuran	7	210	350	mg/kg	0.88 J	0.26 U	1.0 U	0.94 U	0.19 J	0.56	0.20
Diethylphthalate	- -	- -	- -	mg/kg	0.94 U	0.26 UB	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Dimethylphthalate	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	TP-9-2 6 10 12/07/10 Shallow Sand Fill - Shallow	TP-9-3 6.5 10.5 12/07/10 Shallow Sand Fill - Shallow	TP-10-1 6 10 12/07/10 Shallow Sand Fill - Shallow	TP-10-2 6 10 12/07/10 Shallow Sand Fill - Shallow	TP-10-3 6.5 10.5 12/07/10 Shallow Sand Fill - Shallow	AMW-11 2 - 4 6 - 8 12/01/10 Shallow Sand Fill - Shallow	AMW-11 4 - 6 8 - 10 12/01/10 Shallow Sand Fill - Shallow
Area of Site					**Southwest Area**					**Former Retention Pond**	
Semivolatile Organics (Cont.)											
Di-n-Butylphthalate	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Di-n-Octylphthalate	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Fluoranthene	100	1,000	500	mg/kg	0.94 U	0.26 U	0.23 J	0.42 J	0.21 U	0.48	0.25
Fluorene	30	386	500	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.23	0.53	0.20
Hexachlorobenzene	0.33	3.2	6	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Hexachlorobutadiene	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Hexachloroethane	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	0.94 U	0.26 U	0.094 J	0.11 J	0.21 U	0.23 U	0.20 U
Isophorone	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Nitrobenzene	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Pentachlorophenol	0.8	0.8	6.7	mg/kg	1.8 U	0.51 U	1.9 U	1.8 U	0.41 U	0.44 U	0.38 U
Phenanthrene	100	1,000	500	mg/kg	1.5	0.26 U	0.11 J	0.94 U	0.21	1.3	0.58
Phenol	0.33	0.33	500	mg/kg	0.94 U	0.26 U	1.0 U	0.94 U	0.21 U	0.23 U	0.20 U
Pyrene	100	1,000	500	mg/kg	0.94 U	0.26 U	0.30 J	0.41 J	0.15 J	0.32	0.19 J
Total SVOCs	- -	- -	- -	mg/kg	2.4 J	ND	1.5 J	2.1 J	1.3 J	6.2 J	2.6 J
Inorganics											
Aluminum	- -	- -	- -	mg/kg	564	11,200	1,730	2,440	5,570	5,460 J	4,040 J
Antimony	- -	- -	- -	mg/kg	16.0 U	23.2 U	16.8 U	15.7 U	17.7 U	20.0 U	17.6 U
Arsenic	13	16	16	mg/kg	2.10 U	10.3	7.90	***20.7***	1.00 J	4.70	4.50
Barium	350	820	400	mg/kg	2.12	32.4	37.4	44.9	16.8	26.3	18.6
Beryllium	7.2	47	590	mg/kg	0.0440 J	0.822	0.155 J	0.182 J	0.369	0.264 J	0.173 J
Cadmium	2.5	7.5	9.3	mg/kg	0.213 U	0.362	0.109 J	0.222	0.0400 J	0.267 UB	0.235 UBJ
Calcium	- -	- -	- -	mg/kg	106	2,480	1,890	8,390	387	1,770	1,560 B
Chromium	- -	- -	- -	mg/kg	1.35	31.9	3.01	4.57	6.72	12.9	9.82
Cobalt	- -	- -	- -	mg/kg	0.411 J	5.96	1.38	1.61	1.70	3.47	2.76
Copper	50	1,720	270	mg/kg	0.700 J	11.4	6.00	9.40	5.00	9.70 J	11.4 J
Ferrous Iron	- -	- -	- -	mg/kg	0.400 J	2.20 J	0.700 J	2.70 J	2.10 J	R	R
Iron	- -	- -	- -	mg/kg	778	27,900	5,430	4,600	6,830	12,000 J	9,160 J
Lead	63	450	1,000	mg/kg	0.700 J	7.70 J	*200 J*	41.8 J	8.30 J	15.1 J	14.0 J
Magnesium	- -	- -	- -	mg/kg	108	4,700	570	2,420	823	2,210	1,800
Manganese	1,600	2,000	10,000	mg/kg	6.70	361	50.4	74.6	50.0	111 J	92.4 J
Mercury	0.18	0.73	2.8	mg/kg	0.0230 U	0.0313 U	0.0325	0.0675	0.0251 U	0.0285	0.0187 J
Nickel	30	130	310	mg/kg	0.964 J	18.5	2.78 J	3.98 J	5.02 J	9.80	7.78
Potassium	- -	- -	- -	mg/kg	110	2,680	243	268	365	1,210	825
Selenium	3.9	4	1,500	mg/kg	4.30 U	6.20 U	4.50 U	4.20 U	4.70 U	5.30 U	4.70 U
Silver	2	8.3	1,500	mg/kg	0.533 U	0.774 U	0.561 U	0.523 U	0.589 U	0.667 U	0.587 U
Sodium	- -	- -	- -	mg/kg	32.3 J	351	840	83.2 J	116 J	289	231
Thallium	- -	- -	- -	mg/kg	6.40 U	9.30 U	6.70 U	6.30 U	7.10 U	8.00 U	7.00 U
Vanadium	- -	- -	- -	mg/kg	1.42	38.4	4.74	6.75	9.88	17.9	12.9
Zinc	109	2,480	10,000	mg/kg	1.50 J	47.1	60.6	80.7	14.0	30.2 J	28.1 J
Miscellaneous											
Sulfate	- -	- -	- -	mg/kg	110 U	810	440	230	390	1,500	1,500
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	1,090 U	21,200	2,730	3,350	1,730	7,270	9,840

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					AMW-11	AMW-12A	MW-31-D1R	MW-31-D1R	MW-31-D1R	MW-31-D2R	MW-31-D2R
Historical Sample Depth(feet):					6 - 8	2 - 2.5	0 - 2	2 - 4	4 - 6	2 - 4	4 - 6
Current Estimated Sample Depth (feet):					10 - 12	6 - 6.5	4 - 6	6 - 8	8 - 10	6 - 8	8 - 10
Date Collected:					12/01/10	02/21/13	11/17/10	11/17/10	11/17/10	11/17/10	11/17/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Retention Pond	Former Loading Rack Area					
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.17 U	0.0027 J	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Toluene	0.7	0.7	500	mg/kg	0.17 U	0.0027 JB	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Ethylbenzene	1	1	390	mg/kg	0.17 U	0.016	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Xylenes (total)	0.26	1.6	500	mg/kg	0.33 U	0.014	0.010 U	0.0048 J	0.011 J	0.011 U	0.0046 J
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Isopropylbenzene	- -	- -	- -	mg/kg	0.17 U	0.0038 J	0.0052 U	0.0036 J	0.0057 J	0.0054 U	0.012 J
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.17 U	0.0048 J	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
2-Butanone	0.12	0.12	500	mg/kg	0.83 U	0.025 U	0.026 U	0.031 U	0.030 U	0.027 U	0.031 U
2-Hexanone	- -	- -	- -	mg/kg	0.83 U	0.025 U	0.026 U	0.031 U	0.030 U	0.027 U	0.031 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	0.83 U	0.025 U	0.026 U	0.031 U	0.030 U	0.027 U	0.031 U
Acetone	0.05	0.05	500	mg/kg	0.83 U	0.032	0.0049 J	0.013 J	0.017 J	0.027 U	0.017 J
Bromodichloromethane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Bromoform	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Bromomethane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Carbon Disulfide	- -	- -	- -	mg/kg	0.17 UJ	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Chlorobenzene	1.1	1.1	500	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Chloroethane	- -	- -	- -	mg/kg	0.17 UJ	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Chloroform	0.37	0.37	350	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Chloromethane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Cyclohexane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Dibromochloromethane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Methyl acetate	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Methylcyclohexane	- -	- -	- -	mg/kg	0.17 U	0.037	0.0052 U	0.011	0.015	0.0042 J	0.054 J
Methylene Chloride	0.05	0.05	500	mg/kg	0.17 UJ	0.0049 U	0.0080 J	0.031 UBJ	0.030 UBJ	0.025 UBJ	0.033 UBJ
Styrene	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Tetrachloroethene	1.3	1.3	150	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Total VOCs	- -	- -	- -	mg/kg	ND	0.11 J	0.013 J	0.032 J	0.049 J	0.0042 J	0.088 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Trichloroethene	0.47	0.47	200	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U
Vinyl Chloride	0.02	0.02	13	mg/kg	0.17 U	0.0049 U	0.0052 U	0.0062 U	0.0059 U	0.0054 U	0.0061 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:					AMW-11	AMW-12A	MW-31-D1R	MW-31-D1R	MW-31-D1R	MW-31-D2R	MW-31-D2R
Historical Sample Depth(feet):					6 - 8	2 - 2.5	0 - 2	2 - 4	4 - 6	2 - 4	4 - 6
Current Estimated Sample Depth (feet):					10 - 12	6 - 6.5	4 - 6	6 - 8	8 - 10	6 - 8	8 - 10
Date Collected:					12/01/10	02/21/13	11/17/10	11/17/10	11/17/10	11/17/10	11/17/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Retention Pond	Former Loading Rack Area					
Semivolatile Organics											
Naphthalene	12	12	500	mg/kg	4.7	NA	0.18 U	0.21 U	0.036 J	0.37 U	0.21 U
1,1'-Biphenyl	- -	- -	- -	mg/kg	0.50 J	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2,4-Dichlorophenol	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2,4-Dimethylphenol	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2,4-Dinitrophenol	- -	- -	- -	mg/kg	1.1 U	NA	0.34 U	0.41 U	0.40 U	0.73 U	0.41 U
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2-Chloronaphthalene	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2-Chlorophenol	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2-Methylnaphthalene	- -	- -	- -	mg/kg	2.3	NA	0.18 U	0.057 J	0.049 J	0.13 J	0.29
2-Methylphenol	0.33	0.33	500	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
2-Nitroaniline	- -	- -	- -	mg/kg	1.1 U	NA	0.34 U	0.41 U	0.40 U	0.73 U	0.41 U
2-Nitrophenol	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
3-Nitroaniline	- -	- -	- -	mg/kg	1.1 U	NA	0.34 U	0.41 U	0.40 U	0.73 U	0.41 U
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	1.1 U	NA	0.34 U	0.41 U	0.40 U	0.73 U	0.41 U
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
4-Chloroaniline	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
4-Methylphenol	0.33	0.33	500	mg/kg	1.1 U	NA	0.34 U	0.41 U	0.40 U	0.73 U	0.41 U
4-Nitroaniline	- -	- -	- -	mg/kg	1.1 U	NA	0.34 U	0.41 U	0.40 U	0.73 U	0.41 U
4-Nitrophenol	- -	- -	- -	mg/kg	1.1 U	NA	0.34 U	0.41 U	0.40 U	0.73 U	0.41 U
Acenaphthene	20	98	500	mg/kg	4.2	NA	0.18 U	0.066 J	0.085 J	0.29 J	0.41
Acenaphthylene	100	107	500	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.029 J	0.21 U
Acetophenone	- -	- -	- -	mg/kg	0.56 U	NA	0.18 UJ	0.21 UJ	0.20 UJ	0.37 U	0.21 U
Anthracene	100	1,000	500	mg/kg	1.4	NA	0.18 U	0.10 J	0.12 J	0.60	0.40
Atrazine	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Benzaldehyde	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Benzo(a)anthracene	1	1	5.6	mg/kg	0.54 J	NA	0.18 U	0.13 J	0.14 J	***3.3***	0.64
Benzo(a)pyrene	1	22	1	mg/kg	0.20 J	NA	0.18 U	0.095 J	0.094 J	*3.0*	0.61
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.28 J	NA	0.014 J	0.10 J	0.11 J	***3.9***	0.74
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.094 J	NA	0.18 U	0.040 J	0.037 J	1.2	0.22
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.086 J	NA	0.18 U	0.038 J	0.035 J	*1.2*	0.26
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.56 UB	NA	0.18 U	0.21 U	0.20 U	0.60	0.10 J
Butylbenzylphthalate	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Caprolactam	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Carbazole	- -	- -	- -	mg/kg	1.6	NA	0.18 U	0.017 J	0.045 J	0.050 J	0.044 J
Chrysene	1	1	56	mg/kg	0.46 J	NA	0.18 U	0.094 J	0.096 J	***2.5***	0.50
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.27 J	0.053 J
Dibenzofuran	7	210	350	mg/kg	3.0	NA	0.18 U	0.044 J	0.060 J	0.16 J	0.24
Diethylphthalate	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Dimethylphthalate	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					AMW-11	AMW-12A	MW-31-D1R	MW-31-D1R	MW-31-D1R	MW-31-D2R	MW-31-D2R
Historical Sample Depth(feet):					6 - 8	2 - 2.5	0 - 2	2 - 4	4 - 6	2 - 4	4 - 6
Current Estimated Sample Depth (feet)					10 - 12	6 - 6.5	4 - 6	6 - 8	8 - 10	6 - 8	8 - 10
Date Collected:					12/01/10	02/21/13	11/17/10	11/17/10	11/17/10	11/17/10	11/17/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Retention Pond	Former Loading Rack Area					
Semivolatile Organics (Cont.)											
Di-n-Butylphthalate	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Di-n-Octylphthalate	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Fluoranthene	100	1,000	500	mg/kg	4.0	NA	0.18 U	0.41	0.43	5.6	1.5
Fluorene	30	386	500	mg/kg	3.4	NA	0.18 U	0.084 J	0.11 J	0.32 J	0.43
Hexachlorobenzene	0.33	3.2	6	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Hexachlorobutadiene	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Hexachloroethane	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	0.074 J	NA	0.18 U	0.037 J	0.035 J	*0.87*	0.16 J
Isophorone	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Nitrobenzene	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Pentachlorophenol	0.8	0.8	6.7	mg/kg	1.1 U	NA	0.34 U	0.41 U	0.40 U	0.73 U	0.41 U
Phenanthrene	100	1,000	500	mg/kg	11	NA	0.18 U	0.45	0.56	1.5	1.7
Phenol	0.33	0.33	500	mg/kg	0.56 U	NA	0.18 U	0.21 U	0.20 U	0.37 U	0.21 U
Pyrene	100	1,000	500	mg/kg	2.6	NA	0.18 U	0.34	0.36	4.6	1.2
Total SVOCs	- -	- -	- -	mg/kg	40 J	NA	0.014 J	2.1 J	2.4 J	30 J	9.5 J
Inorganics											
Aluminum	- -	- -	- -	mg/kg	3,750 J	NA	4,400 J	1,180 J	901 J	4,020 J	1,340 J
Antimony	- -	- -	- -	mg/kg	25.1 U	NA	15.9 U	18.6 U	17.8 U	16.7 U	18.4 U
Arsenic	13	16	16	mg/kg	8.40	NA	1.90 J	0.700 J	0.500 J	2.20	1.00 J
Barium	350	820	400	mg/kg	32.7	NA	16.0 J	4.91 J	4.69 J	15.1 J	4.83 J
Beryllium	7.2	47	590	mg/kg	0.254 J	NA	0.179 J	0.0530 J	0.0420 J	0.158 J	0.0420 J
Cadmium	2.5	7.5	9.3	mg/kg	0.334 UBJ	NA	0.100 J	0.0550 J	0.0490 J	0.120 J	0.0750 J
Calcium	- -	- -	- -	mg/kg	1,500	NA	369 J	368 J	232 J	2,220 J	304 J
Chromium	- -	- -	- -	mg/kg	17.2	NA	4.92	2.08	2.19	5.73	2.88
Cobalt	- -	- -	- -	mg/kg	2.81	NA	2.61	0.641	0.388 J	2.33	0.667
Copper	50	1,720	270	mg/kg	35.1 J	NA	5.10	1.50	1.10 J	6.10	1.60
Ferrous Iron	- -	- -	- -	mg/kg	R	NA	R	R	R	R	R
Iron	- -	- -	- -	mg/kg	15,500 J	NA	5,520 J	1,950 J	1,370 J	5,650 J	2,130 J
Lead	63	450	1,000	mg/kg	10.2 J	NA	11.8	2.80	1.80	17.7	2.50
Magnesium	- -	- -	- -	mg/kg	1,330	NA	777 J	334 J	281 J	920 J	370 J
Manganese	1,600	2,000	10,000	mg/kg	54.2 J	NA	154 J	26.2 J	12.4 J	84.4 J	21.1 J
Mercury	0.18	0.73	2.8	mg/kg	0.0389	NA	0.0202	0.0237 U	0.0217 U	0.0377	0.0228 U
Nickel	30	130	310	mg/kg	5.83 J	NA	4.71 J	1.59 J	1.17 J	4.44 J	1.90 J
Potassium	- -	- -	- -	mg/kg	801	NA	382 J	220 J	226 J	510 J	247 J
Selenium	3.9	4	1,500	mg/kg	1.30 J	NA	4.20 U	5.00 U	4.80 U	4.50 U	4.90 U
Silver	2	8.3	1,500	mg/kg	0.835 U	NA	0.530 U	0.620 U	0.594 U	0.557 U	0.614 U
Sodium	- -	- -	- -	mg/kg	406	NA	29.6 J	31.3 J	48.2 J	128 J	53.7 J
Thallium	- -	- -	- -	mg/kg	10.0 U	NA	6.40 U	7.40 U	7.10 U	6.70 U	7.40 U
Vanadium	- -	- -	- -	mg/kg	27.1	NA	7.37	2.91	2.69	7.66	3.78
Zinc	109	2,480	10,000	mg/kg	19.7 J	NA	15.2	4.70	4.00	20.6	6.60
Miscellaneous											
Sulfate	- -	- -	- -	mg/kg	2,600	NA	84 J	98 J	100 J	110 U	130
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	4,430	NA	2,780	2,090	2,320	1,780	3,760

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	MW-31-D2R 6 - 8 10 - 12 11/17/10 Shallow Sand Fill - Shallow	MW-31-D2R 17 - 19 21 - 12/07/10 Deep Sand Layer - D1 Unit	P-18R 0 - 2 4 - 6 12/02/10 Shallow Sand Fill - Shallow	P-18R 4 - 6 8 - 10 12/02/10 Shallow Sand Fill - Shallow	P-18R 6 - 8 10 - 12 12/02/10 Shallow Sand Fill - Shallow	TP-1-1 4 8 11/29/10 Shallow Sand Fill - Shallow	TP-1-2 3 7 11/30/10 Shallow Sand Fill - Shallow
Area of Site					Former Loading Rack Area					Former Garage Building Area	
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0056 J	0.011	0.0059 U	0.0054 U
Toluene	0.7	0.7	500	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0014 J	0.0054 U
Ethylbenzene	1	1	390	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Xylenes (total)	0.26	1.6	500	mg/kg	0.0026 J	0.012 U	0.011 U	0.0022 J	0.0025 J	0.011 J	0.011 U
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Isopropylbenzene	- -	- -	- -	mg/kg	0.0045 J	0.0060 U	0.0056 U	0.0058 J	0.0072	0.0059 U	0.0054 U
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
2-Butanone	0.12	0.12	500	mg/kg	0.027 U	0.030 U	0.028 U	0.031 U	0.031 U	0.030 U	0.027 U
2-Hexanone	- -	- -	- -	mg/kg	0.027 U	0.030 U	0.028 U	0.031 U	0.031 U	0.030 U	0.027 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	0.027 U	0.030 U	0.028 U	0.031 U	0.031 U	0.030 U	0.027 U
Acetone	0.05	0.05	500	mg/kg	0.014 J	0.020 J	0.028 U	0.038	0.030 J	0.018 J	0.020 J
Bromodichloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Bromoform	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Bromomethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Carbon Disulfide	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Chlorobenzene	1.1	1.1	500	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Chloroethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 UJ	0.0054 UJ
Chloroform	0.37	0.37	350	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Chloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Cyclohexane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Dibromochloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 UJ	0.0054 UJ
Methyl acetate	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Methylcyclohexane	- -	- -	- -	mg/kg	0.014	0.0019 J	0.0056 U	0.0065	0.0071	0.0059 U	0.0054 U
Methylene Chloride	0.05	0.05	500	mg/kg	0.022 UBJ	0.021	0.0077 UB	0.013 UB	0.022	0.0085	0.0097
Styrene	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Tetrachloroethene	1.3	1.3	150	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Total VOCs	- -	- -	- -	mg/kg	0.035 J	0.043 J	ND	0.058 J	0.080 J	0.039 J	0.030 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Trichloroethene	0.47	0.47	200	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U
Vinyl Chloride	0.02	0.02	13	mg/kg	0.0055 U	0.0060 U	0.0056 U	0.0062 U	0.0062 U	0.0059 U	0.0054 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:					MW-31-D2R	MW-31-D2R	P-18R	P-18R	P-18R	TP-1-1	TP-1-2
Historical Sample Depth(feet):					6 - 8	17 - 19	0 - 2	4 - 6	6 - 8	4	3
Current Estimated Sample Depth (feet):					10 - 12	21 -	4 - 6	8 - 10	10 - 12	8	7
Date Collected:					11/17/10	12/07/10	12/02/10	12/02/10	12/02/10	11/29/10	11/30/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Loading Rack Area					Former Garage Building Area	
Semivolatile Organics											
Naphthalene	12	12	500	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
1,1'-Biphenyl	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2,4-Dichlorophenol	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2,4-Dimethylphenol	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2,4-Dinitrophenol	- -	- -	- -	mg/kg	3.7 U	0.40 U	R	0.40 U	0.41 U	0.40 U	0.36 U
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2-Chloronaphthalene	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2-Chlorophenol	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2-Methylnaphthalene	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.031 J	0.033 J	0.031 J	0.19 U
2-Methylphenol	0.33	0.33	500	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
2-Nitroaniline	- -	- -	- -	mg/kg	3.7 U	0.40 U	1.9 U	0.40 U	0.41 U	0.40 U	0.36 U
2-Nitrophenol	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
3-Nitroaniline	- -	- -	- -	mg/kg	3.7 U	0.40 U	1.9 U	0.40 U	0.41 U	0.40 U	0.36 U
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	3.7 U	0.40 U	1.9 U	0.40 U	0.41 U	0.40 U	0.36 U
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
4-Chloroaniline	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
4-Methylphenol	0.33	0.33	500	mg/kg	3.7 U	0.40 U	1.9 U	0.40 U	0.41 U	0.40 U	0.36 U
4-Nitroaniline	- -	- -	- -	mg/kg	3.7 U	0.40 U	1.9 U	0.40 U	0.41 U	0.40 U	0.36 U
4-Nitrophenol	- -	- -	- -	mg/kg	3.7 U	0.40 U	1.9 U	0.40 U	0.41 U	0.40 U	0.36 U
Acenaphthene	20	98	500	mg/kg	0.19 J	0.046 J	7.1 J	0.092 J	0.15 J	0.018 J	0.19 U
Acenaphthylene	100	107	500	mg/kg	1.9 U	0.21 U	0.20 J	0.21 U	0.21 U	0.20 U	0.19 U
Acetophenone	- -	- -	- -	mg/kg	1.9 UJ	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Anthracene	100	1,000	500	mg/kg	0.89 J	0.12 J	0.76 J	0.022 J	0.038 J	0.060 J	0.19 U
Atrazine	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Benzaldehyde	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Benzo(a)anthracene	1	1	5.6	mg/kg	***8.9***	0.25	***2.0***	0.038 J	0.063 J	0.20	0.19 U
Benzo(a)pyrene	1	22	1	mg/kg	*11*	0.19 J	0.58 J	0.027 J	0.039 J	0.19 J	0.19 U
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	***11***	0.21	0.90 J	0.034 J	0.050 J	0.22	0.19 U
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	6.3	0.13 J	0.17 J	0.022 J	0.024 J	0.15 J	0.19 U
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	***4.5***	0.061 J	0.34 J	0.21 U	0.21 U	0.085 J	0.19 U
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	1.2 J	0.38 UB	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Butylbenzylphthalate	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Caprolactam	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Carbazole	- -	- -	- -	mg/kg	1.9 U	0.072 J	0.082 J	0.21 U	0.21 U	0.032 J	0.19 U
Chrysene	1	1	56	mg/kg	***8.5***	0.19 J	***1.8***	0.040 J	0.065 J	0.19 J	0.19 U
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	*1.7 J*	0.029 J	0.96 U	0.21 U	0.21 U	0.029 J	0.19 U
Dibenzofuran	7	210	350	mg/kg	1.9 U	0.034 J	0.53 J	0.031 J	0.039 J	0.20 U	0.19 U
Diethylphthalate	- -	- -	- -	mg/kg	1.9 U	0.21 UB	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Dimethylphthalate	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					MW-31-D2R	MW-31-D2R	P-18R	P-18R	P-18R	TP-1-1	TP-1-2
Historical Sample Depth(feet):					6 - 8	17 - 19	0 - 2	4 - 6	6 - 8	4	3
Current Estimated Sample Depth (feet)					10 - 12	21 -	4 - 6	8 - 10	10 - 12	8	7
Date Collected:					11/17/10	12/07/10	12/02/10	12/02/10	12/02/10	11/29/10	11/30/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Deep Sand Layer - D1 Unit	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Loading Rack Area					Former Garage Building Area	
Semivolatile Organics (Cont.)											
Di-n-Butylphthalate	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Di-n-Octylphthalate	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Fluoranthene	100	1,000	500	mg/kg	11	0.59	16	0.14 J	0.30	0.48	0.19 U
Fluorene	30	386	500	mg/kg	0.22 J	0.066 J	1.6 J	0.081 J	0.099 J	0.026 J	0.19 U
Hexachlorobenzene	0.33	3.2	6	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Hexachlorobutadiene	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Hexachloroethane	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	*5.8*	0.091 J	0.17 J	0.21 U	0.21 U	0.12 J	0.19 U
Isophorone	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Nitrobenzene	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Pentachlorophenol	0.8	0.8	6.7	mg/kg	3.7 U	0.40 U	1.9 U	0.40 U	0.41 U	0.40 U	0.36 U
Phenanthrene	100	1,000	500	mg/kg	1.4 J	0.39	3.8 J	0.15 J	0.26	0.29	0.19 U
Phenol	0.33	0.33	500	mg/kg	1.9 U	0.21 U	0.96 U	0.21 U	0.21 U	0.20 U	0.19 U
Pyrene	100	1,000	500	mg/kg	12	0.53	13	0.13 J	0.28	0.36	0.19 U
Total SVOCs	- -	- -	- -	mg/kg	85 J	3.0 J	49 J	0.84 J	1.4 J	2.5 J	ND
Inorganics											
Aluminum	- -	- -	- -	mg/kg	2,720 J	2,330	7,410 J	505 J	1,770 J	1,830 J	2,370 J
Antimony	- -	- -	- -	mg/kg	17.0 U	17.2 U	16.9 UJ	17.9 UJ	17.6 UJ	17.5 U	16.4 U
Arsenic	13	16	16	mg/kg	1.60 J	1.80 J	3.80 J	2.40 UJ	0.900 J	1.40 J	1.50 J
Barium	350	820	400	mg/kg	14.1 J	7.98	21.7	2.37	8.06	18.4	9.88
Beryllium	7.2	47	590	mg/kg	0.130 J	0.181 J	0.299 J	0.238 UJ	0.0890 J	0.0580 J	0.104 J
Cadmium	2.5	7.5	9.3	mg/kg	0.171 J	0.229 U	0.123 J	0.238 U	0.0450 J	0.250 J	0.218 UBJ
Calcium	- -	- -	- -	mg/kg	9,650 J	237	2,080 J	91.1 J	455 J	5,090	1,440 B
Chromium	- -	- -	- -	mg/kg	5.37	6.07	8.36	0.961	3.62	4.59	6.17
Cobalt	- -	- -	- -	mg/kg	1.49	0.797	3.45	0.329 J	0.671	0.927	1.32
Copper	50	1,720	270	mg/kg	4.90	1.60	7.30	0.600 J	2.30	3.50	3.30
Ferrous Iron	- -	- -	- -	mg/kg	R	1.40 J	2.60 J	1.80 J	2.50 J	R	R
Iron	- -	- -	- -	mg/kg	4,420 J	5,180	9,100 J	805 J	3,130 J	3,540	4,430
Lead	63	450	1,000	mg/kg	15.6	1.50 J	28.5	1.30	8.90	12.0 J	3.80 J
Magnesium	- -	- -	- -	mg/kg	2,450 J	691	2,060 J	132 J	567 J	709	752
Manganese	1,600	2,000	10,000	mg/kg	55.7 J	36.9	138 J	7.50 J	27.1 J	40.4 J	26.0 J
Mercury	0.18	0.73	2.8	mg/kg	0.0119 J	0.0186 J	0.0269	0.0250 U	0.0239 U	0.0234 U	0.0218 U
Nickel	30	130	310	mg/kg	3.88 J	1.97 J	6.33	0.616 J	1.86 J	2.56 J	3.77 J
Potassium	- -	- -	- -	mg/kg	324 J	392	347	94.4	258	504	516
Selenium	3.9	4	1,500	mg/kg	4.50 U	4.60 U	4.50 U	4.80 U	4.70 U	4.70 U	4.40 U
Silver	2	8.3	1,500	mg/kg	0.565 U	0.573 U	0.563 U	0.596 U	0.586 U	0.585 U	0.546 U
Sodium	- -	- -	- -	mg/kg	52.4 J	662	49.9 J	16.8 J	35.0 J	87.6 J	58.2 J
Thallium	- -	- -	- -	mg/kg	6.80 U	6.90 U	6.80 U	7.10 U	7.00 U	7.00 U	6.60 U
Vanadium	- -	- -	- -	mg/kg	6.16	7.85	12.7	1.16	4.58	5.77	7.31
Zinc	109	2,480	10,000	mg/kg	21.0	5.20	22.1	1.60 J	8.10	32.6 J	10.5 J
Miscellaneous											
Sulfate	- -	- -	- -	mg/kg	110 U	400	87 J	67 J	140	850	480
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	5,630	1,260 U	3,800	2,420	5,560	3,800	1,320 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:					TP-1-3	TP-2-1	TP-2-2	TP-3-1	TP-3-2	TP-3-3	TP-11-1
Historical Sample Depth(feet):					3.5	5.5	5.5	5	6.8	6.5	5
Current Estimated Sample Depth (feet)					7.5	9.5	9.5	9	10.8	10.5	9
Date Collected:					11/30/10	11/30/10	11/30/10	12/01/10	12/01/10	12/01/10	12/07/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Garage Building Area						
Volatile Organics											
Benzene	0.06	0.06	44	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Toluene	0.7	0.7	500	mg/kg	0.0057 U	0.0019 J	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Ethylbenzene	1	1	390	mg/kg	0.0057 U	0.0016 J	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Xylenes (total)	0.26	1.6	500	mg/kg	0.011 U	0.0095 J	0.0014 J	0.015 U	0.014 U	0.015 U	0.020 J
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Isopropylbenzene	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.026 J
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 UJ	0.040 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 UJ	0.040 U
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 UJ	0.040 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
2-Butanone	0.12	0.12	500	mg/kg	0.029 U	0.0049 J	0.032 U	0.036 U	0.035 U	0.036 UJ	0.20 U
2-Hexanone	- -	- -	- -	mg/kg	0.029 U	0.031 U	0.032 U	0.036 U	0.035 U	0.036 UJ	0.20 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	0.029 U	0.031 U	0.032 U	0.036 U	0.035 U	0.036 UJ	0.20 U
Acetone	0.05	0.05	500	mg/kg	0.015 J	0.035	0.015 J	0.032 J	0.026 J	0.017 J	***0.058 J***
Bromodichloromethane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Bromoform	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 UJ	0.040 U
Bromomethane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Carbon Disulfide	- -	- -	- -	mg/kg	0.0057 U	0.0048 J	0.0064 U	0.0073 U	0.0057 J	0.0073 U	0.040 U
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Chlorobenzene	1.1	1.1	500	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Chloroethane	- -	- -	- -	mg/kg	0.0057 UJ	0.0062 UJ	0.0064 UJ	0.0073 U	0.0071 U	0.0073 U	0.040 U
Chloroform	0.37	0.37	350	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Chloromethane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Cyclohexane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Dibromochloromethane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.0057 UJ	0.0062 UJ	0.0064 UJ	0.0073 U	0.0071 U	0.0073 U	0.040 U
Methyl acetate	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Methylcyclohexane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.10
Methylene Chloride	0.05	0.05	500	mg/kg	0.011	0.012	0.013	0.0094	0.012	0.0082	***0.086***
Styrene	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Tetrachloroethene	1.3	1.3	150	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Total VOCs	- -	- -	- -	mg/kg	0.026 J	0.070 J	0.029 J	0.041 J	0.044 J	0.025 J	0.29 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Trichloroethene	0.47	0.47	200	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U
Vinyl Chloride	0.02	0.02	13	mg/kg	0.0057 U	0.0062 U	0.0064 U	0.0073 U	0.0071 U	0.0073 U	0.040 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	TP-1-3 3.5 7.5 11/30/10 Shallow Sand Fill - Shallow	TP-2-1 5.5 9.5 11/30/10 Shallow Sand Fill - Shallow	TP-2-2 5.5 9.5 11/30/10 Shallow Sand Fill - Shallow	TP-3-1 5 9 12/01/10 Shallow Sand Fill - Shallow	TP-3-2 6.8 10.8 12/01/10 Shallow Sand Fill - Shallow	TP-3-3 6.5 10.5 12/01/10 Shallow Sand Fill - Shallow	TP-11-1 5 9 12/07/10 Shallow Sand Fill - Shallow
Area of Site					Former Garage Building Area						
Semivolatile Organics											
Naphthalene	12	12	500	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
1,1'-Biphenyl	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.020 J
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
2,4-Dichlorophenol	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
2,4-Dimethylphenol	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
2,4-Dinitrophenol	- -	- -	- -	mg/kg	0.39 U	0.41 U	0.43 U	0.47 U	0.47 U	0.49 U	0.45 U
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
2-Chloronaphthalene	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
2-Chlorophenol	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
2-Methylnaphthalene	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.44
2-Methylphenol	0.33	0.33	500	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
2-Nitroaniline	- -	- -	- -	mg/kg	0.39 U	0.41 U	0.43 U	0.47 U	0.47 U	0.49 U	0.45 U
2-Nitrophenol	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
3-Nitroaniline	- -	- -	- -	mg/kg	0.39 U	0.41 U	0.43 U	0.47 U	0.47 U	0.49 U	0.45 U
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	0.39 U	0.41 U	0.43 U	0.47 U	0.47 U	0.49 U	0.45 U
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
4-Chloroaniline	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
4-Methylphenol	0.33	0.33	500	mg/kg	0.39 U	0.41 U	0.43 U	0.47 U	0.47 U	0.49 U	0.45 U
4-Nitroaniline	- -	- -	- -	mg/kg	0.39 U	0.41 U	0.43 U	0.47 U	0.47 U	0.49 U	0.45 U
4-Nitrophenol	- -	- -	- -	mg/kg	0.39 U	0.41 U	0.43 U	0.47 U	0.47 U	0.49 U	0.45 U
Acenaphthene	20	98	500	mg/kg	0.20 U	0.21 U	0.22 U	0.11 J	0.24 U	0.25 U	0.10 J
Acenaphthylene	100	107	500	mg/kg	0.20 U	0.21 U	0.22 U	0.022 J	0.24 U	0.25 U	0.23 U
Acetophenone	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Anthracene	100	1,000	500	mg/kg	0.20 U	0.21 U	0.22 U	0.040 J	0.24 U	0.25 U	0.099 J
Atrazine	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Benzaldehyde	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Benzo(a)anthracene	1	1	5.6	mg/kg	0.20 U	0.21 U	0.22 U	0.16 J	0.24 U	0.25 U	0.039 J
Benzo(a)pyrene	1	22	1	mg/kg	0.20 U	0.21 U	0.22 U	0.16 J	0.24 U	0.25 U	0.024 J
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.20 U	0.21 U	0.22 U	0.17 J	0.24 U	0.25 U	0.029 J
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.20 U	0.21 U	0.22 U	0.11 J	0.24 U	0.25 U	0.23 U
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.20 U	0.21 U	0.22 U	0.055 J	0.24 U	0.25 U	0.23 U
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 UB	0.24 UB	0.25 UB	0.23 UB
Butylbenzylphthalate	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Caprolactam	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Carbazole	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.033 J
Chrysene	1	1	56	mg/kg	0.20 U	0.21 U	0.22 U	0.15 J	0.24 U	0.25 U	0.030 J
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Dibenzofuran	7	210	350	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.093 J
Diethylphthalate	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 UB
Dimethylphthalate	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:					TP-1-3	TP-2-1	TP-2-2	TP-3-1	TP-3-2	TP-3-3	TP-11-1
Historical Sample Depth(feet):					3.5	5.5	5.5	5	6.8	6.5	5
Current Estimated Sample Depth (feet)					7.5	9.5	9.5	9	10.8	10.5	9
Date Collected:					11/30/10	11/30/10	11/30/10	12/01/10	12/01/10	12/01/10	12/07/10
Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow	Shallow Sand Fill - Shallow
Area of Site					Former Garage Building Area						
Semivolatile Organics (Cont.)											
Di-n-Butylphthalate	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Di-n-Octylphthalate	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Fluoranthene	100	1,000	500	mg/kg	0.20 U	0.019 J	0.22 U	0.21 J	0.24 U	0.25 U	0.13 J
Fluorene	30	386	500	mg/kg	0.20 U	0.21 U	0.22 U	0.15 J	0.24 U	0.25 U	0.15 J
Hexachlorobenzene	0.33	3.2	6	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Hexachlorobutadiene	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Hexachloroethane	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	0.20 U	0.21 U	0.22 U	0.083 J	0.24 U	0.25 U	0.23 U
Isophorone	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Nitrobenzene	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	0.20 U	0.21 U	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Pentachlorophenol	0.8	0.8	6.7	mg/kg	0.39 U	0.41 U	0.43 U	0.47 U	0.47 U	0.49 U	0.45 U
Phenanthrene	100	1,000	500	mg/kg	0.20 U	0.024 J	0.22 U	0.049 J	0.24 U	0.25 U	0.27
Phenol	0.33	0.33	500	mg/kg	0.20 U	0.11 J	0.22 U	0.24 U	0.24 U	0.25 U	0.23 U
Pyrene	100	1,000	500	mg/kg	0.20 U	0.21 U	0.22 U	0.23 J	0.24 U	0.25 U	0.11 J
Total SVOCs	- -	- -	- -	mg/kg	ND	0.15 J	ND	1.7 J	ND	ND	1.6 J
Inorganics											
Aluminum	- -	- -	- -	mg/kg	1,250 J	1,320 J	927 J	2,710 J	11,000 J	1,600 J	3,760
Antimony	- -	- -	- -	mg/kg	17.6 U	18.5 U	18.9 U	21.7 U	20.6 U	22.5 U	20.4 U
Arsenic	13	16	16	mg/kg	2.30 UJ	1.30 J	2.50 UJ	1.50 J	10.1	1.00 J	3.00
Barium	350	820	400	mg/kg	6.17	10.1	8.32	15.9	25.2	8.27	14.6
Beryllium	7.2	47	590	mg/kg	0.234 U	0.246 U	0.252 U	0.124 J	0.513	0.0510 J	0.304
Cadmium	2.5	7.5	9.3	mg/kg	0.234 UBJ	0.246 UBJ	0.252 UBJ	0.289 UBJ	0.314 J	0.300 UBJ	0.382
Calcium	- -	- -	- -	mg/kg	687	306	464	983	1,630	426	1,190
Chromium	- -	- -	- -	mg/kg	3.51	3.69	2.14	6.76	28.5	3.59	10.4
Cobalt	- -	- -	- -	mg/kg	0.491 J	0.825	0.331 J	1.54	5.86	1.14	2.72
Copper	50	1,720	270	mg/kg	1.40	5.90	0.700 J	3.60 J	12.5 J	2.60 J	8.10
Ferrous Iron	- -	- -	- -	mg/kg	R	R	R	R	R	R	1.00 J
Iron	- -	- -	- -	mg/kg	2,380	3,240	1,170	5,200 J	22,200 J	2,770 J	7,510
Lead	63	450	1,000	mg/kg	1.60 J	2.10 J	1.10 J	3.00 J	11.4 J	1.80 J	13.4 J
Magnesium	- -	- -	- -	mg/kg	422	441	269	1,040	4,380	632	1,480
Manganese	1,600	2,000	10,000	mg/kg	15.2 J	27.5 J	11.1 J	44.4 J	192 J	25.6 J	73.7
Mercury	0.18	0.73	2.8	mg/kg	0.0227 U	0.0119 J	0.0250 U	0.0270 U	0.0166 J	0.0273 U	0.0279 U
Nickel	30	130	310	mg/kg	1.63 J	2.00 J	1.20 J	4.38 J	18.0	3.04 J	6.14 J
Potassium	- -	- -	- -	mg/kg	352	355	225	751	2,290	479	910
Selenium	3.9	4	1,500	mg/kg	4.70 U	4.90 U	5.00 U	5.80 U	0.800 J	6.00 U	5.40 U
Silver	2	8.3	1,500	mg/kg	0.586 U	0.616 U	0.629 U	0.722 U	0.688 U	0.751 U	0.679 U
Sodium	- -	- -	- -	mg/kg	38.8 J	65.0 J	39.2 J	117 J	1,150	161 J	57.9 J
Thallium	- -	- -	- -	mg/kg	7.00 U	7.40 U	7.60 U	8.70 U	8.30 U	9.00 U	8.20 U
Vanadium	- -	- -	- -	mg/kg	4.28	3.92	2.15	9.50	35.7	4.39	12.5
Zinc	109	2,480	10,000	mg/kg	4.90 J	6.10 J	3.70 J	12.5 J	43.6 J	7.20 J	24.2
Miscellaneous											
Sulfate	- -	- -	- -	mg/kg	270	310	260	810	2,300	520	140 U
TOC											
Total Organic Carbon	- -	- -	- -	mg/kg	1,200 U	1,250 U	1,200 U	1,900	7,750	1,410	1,250 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	TP-4-B-1 1.5 5.5 12/02/10 Shallow Sand Fill - Shallow	TP-4-D-1 7 11 12/02/10 Shallow Sand Fill - Shallow	TP-4-F-1 4 8 12/02/10 Shallow Sand Fill - Shallow	TP-12-1 4.7 8.7 12/07/10 Shallow Sand Fill - Shallow
Area of Site					Former OWS Area			Former Turbine Pump Area
Volatile Organics								
Benzene	0.06	0.06	44	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Toluene	0.7	0.7	500	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Ethylbenzene	1	1	390	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Xylenes (total)	0.26	1.6	500	mg/kg	0.011 U	0.011 U	0.012 U	0.23 U
Methyl tert-butyl ether	0.93	0.93	500	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Isopropylbenzene	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.97
1,1,1-Trichloroethane	0.68	0.68	500	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,1,2,2-Tetrachloroethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,1,2-trichloro-1,2,2-trifluoroethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,1,2-Trichloroethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,1-Dichloroethane	0.27	0.27	240	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,1-Dichloroethene	0.33	0.33	500	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,2,4-Trichlorobenzene	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,2-Dibromo-3-chloropropane	- -	- -	- -	mg/kg	0.0055 UJ	0.0053 UJ	0.0059 UJ	0.12 UJ
1,2-Dibromoethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,2-Dichlorobenzene	1.1	1.1	500	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,2-Dichloroethane	0.02	0.02	30	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,2-Dichloropropane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,3-Dichlorobenzene	2.4	2.4	280	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
1,4-Dichlorobenzene	1.8	1.8	130	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
2-Butanone	0.12	0.12	500	mg/kg	0.028 U	0.026 U	0.029 U	0.58 U
2-Hexanone	- -	- -	- -	mg/kg	0.028 U	0.026 U	0.029 U	0.58 U
4-Methyl-2-pentanone	- -	- -	- -	mg/kg	0.028 U	0.026 U	0.029 U	0.58 U
Acetone	0.05	0.05	500	mg/kg	0.0062 J	0.0067 J	0.022 J	0.58 U
Bromodichloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Bromoform	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 UJ
Bromomethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Carbon Disulfide	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0034 J	0.12 UJ
Carbon Tetrachloride	0.76	0.76	22	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 UJ
Chlorobenzene	1.1	1.1	500	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Chloroethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Chloroform	0.37	0.37	350	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Chloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
cis-1,2-Dichloroethene	0.25	0.25	500	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
cis-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Cyclohexane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 UJ
Dibromochloromethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 UJ
Dichlorodifluoromethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 UJ
Methyl acetate	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Methylcyclohexane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0013 J	0.97 J
Methylene Chloride	0.05	0.05	500	mg/kg	0.013	0.0097	0.017	0.12 U
Styrene	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Tetrachloroethene	1.3	1.3	150	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Total VOCs	- -	- -	- -	mg/kg	0.019 J	0.016 J	0.044 J	1.9 J
trans-1,2-Dichloroethene	0.19	0.19	500	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
trans-1,3-Dichloropropene	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Trichloroethene	0.47	0.47	200	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Trichlorofluoromethane	- -	- -	- -	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U
Vinyl Chloride	0.02	0.02	13	mg/kg	0.0055 U	0.0053 U	0.0059 U	0.12 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	TP-4-B-1 1.5 5.5 12/02/10 Shallow Sand Fill - Shallow	TP-4-D-1 7 11 12/02/10 Shallow Sand Fill - Shallow	TP-4-F-1 4 8 12/02/10 Shallow Sand Fill - Shallow	TP-12-1 4.7 8.7 12/07/10 Shallow Sand Fill - Shallow
Area of Site					Former OWS Area			Former Turbine Pump Area
Semivolatile Organics								
Naphthalene	12	12	500	mg/kg	0.19 U	0.18 U	0.20 U	0.27 J
1,1'-Biphenyl	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2,2'-Oxybis(1-Chloropropane)	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2,4,5-Trichlorophenol	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2,4,6-Trichlorophenol	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2,4-Dichlorophenol	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2,4-Dimethylphenol	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2,4-Dinitrophenol	- -	- -	- -	mg/kg	0.36 U	0.34 U	0.38 U	1.5 U
2,4-Dinitrotoluene	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2,6-Dinitrotoluene	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2-Chloronaphthalene	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2-Chlorophenol	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2-Methylnaphthalene	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	13
2-Methylphenol	0.33	0.33	500	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
2-Nitroaniline	- -	- -	- -	mg/kg	0.36 U	0.34 U	0.38 U	1.5 U
2-Nitrophenol	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
3,3'-Dichlorobenzidine	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
3-Nitroaniline	- -	- -	- -	mg/kg	0.36 U	0.34 U	0.38 U	1.5 U
4,6-Dinitro-2-methylphenol	- -	- -	- -	mg/kg	0.36 U	0.34 U	0.38 U	1.5 U
4-Bromophenyl-phenylether	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
4-Chloro-3-Methylphenol	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
4-Chloroaniline	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
4-Chlorophenyl-phenylether	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
4-Methylphenol	0.33	0.33	500	mg/kg	0.36 U	0.34 U	0.38 U	1.5 U
4-Nitroaniline	- -	- -	- -	mg/kg	0.36 U	0.34 U	0.38 U	1.5 U
4-Nitrophenol	- -	- -	- -	mg/kg	0.36 U	0.34 U	0.38 U	1.5 U
Acenaphthene	20	98	500	mg/kg	0.057 J	0.18 U	0.20 U	0.69 J
Acenaphthylene	100	107	500	mg/kg	0.031 J	0.18 U	0.20 U	0.78 U
Acetophenone	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Anthracene	100	1,000	500	mg/kg	0.10 J	0.18 U	0.20 U	0.78 U
Atrazine	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Benzaldehyde	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Benzo(a)anthracene	1	1	5.6	mg/kg	0.34	0.18 U	0.20 U	0.26 J
Benzo(a)pyrene	1	22	1	mg/kg	0.41	0.18 U	0.20 U	0.23 J
Benzo(b)fluoranthene	1	1.7	5.6	mg/kg	0.50	0.18 U	0.20 U	0.39 JY
Benzo(g,h,i)perylene	100	1,000	500	mg/kg	0.24	0.18 U	0.20 U	0.19 J
Benzo(k)fluoranthene	0.8	1.7	56	mg/kg	0.17 J	0.18 U	0.20 U	0.48 JY
bis(2-Chloroethoxy)methane	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
bis(2-Chloroethyl)ether	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
bis(2-Ethylhexyl)phthalate	- -	- -	- -	mg/kg	0.21 UB	0.18 UB	0.20 UB	0.34 J
Butylbenzylphthalate	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Caprolactam	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Carbazole	- -	- -	- -	mg/kg	0.042 J	0.18 U	0.20 U	0.78 U
Chrysene	1	1	56	mg/kg	0.35	0.18 U	0.20 U	0.22 J
Dibenzo(a,h)anthracene	0.33	1,000	0.56	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Dibenzofuran	7	210	350	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Diethylphthalate	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Dimethylphthalate	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Historical Sample Depth(feet): Current Estimated Sample Depth (feet) Date Collected: Sampling Event:	Unrestricted Use SCOs	Restricted Use SCO - Protection of Groundwater	Restricted Use SCO - Commercial	Units	TP-4-B-1 1.5 5.5 12/02/10 Shallow Sand Fill - Shallow	TP-4-D-1 7 11 12/02/10 Shallow Sand Fill - Shallow	TP-4-F-1 4 8 12/02/10 Shallow Sand Fill - Shallow	TP-12-1 4.7 8.7 12/07/10 Shallow Sand Fill - Shallow
Area of Site					Former OWS Area			Former Turbine Pump Area
Semivolatile Organics (Cont.)								
Di-n-Butylphthalate	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Di-n-Octylphthalate	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Fluoranthene	100	1,000	500	mg/kg	0.71	0.18 U	0.20 U	0.58 J
Fluorene	30	386	500	mg/kg	0.031 J	0.18 U	0.20 U	1.6
Hexachlorobenzene	0.33	3.2	6	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Hexachlorobutadiene	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Hexachlorocyclopentadiene	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Hexachloroethane	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Indeno(1,2,3-cd)pyrene	0.5	8.2	5.6	mg/kg	0.21	0.18 U	0.20 U	0.16 J
Isophorone	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Nitrobenzene	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
N-Nitroso-di-n-propylamine	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
N-Nitrosodiphenylamine	- -	- -	- -	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Pentachlorophenol	0.8	0.8	6.7	mg/kg	0.36 U	0.34 U	0.38 U	1.5 U
Phenanthrene	100	1,000	500	mg/kg	0.29	0.037 J	0.019 J	3.3
Phenol	0.33	0.33	500	mg/kg	0.19 U	0.18 U	0.20 U	0.78 U
Pyrene	100	1,000	500	mg/kg	0.70	0.18 U	0.20 U	0.75 J
Total SVOCs	- -	- -	- -	mg/kg	4.2 J	0.037 J	0.019 J	22 J
Inorganics								
Aluminum	- -	- -	- -	mg/kg	3,710 J	404 J	745 J	3,550
Antimony	- -	- -	- -	mg/kg	15.9 UJ	14.7 UJ	17.2 UJ	17.6 U
Arsenic	13	16	16	mg/kg	4.10 J	0.400 J	2.30 UJ	1.70 J
Barium	350	820	400	mg/kg	17.6	1.28	2.18	13.0
Beryllium	7.2	47	590	mg/kg	0.278 J	0.195 U	0.229 UJ	0.277
Cadmium	2.5	7.5	9.3	mg/kg	0.284	0.0300 J	0.229 U	0.0870 J
Calcium	- -	- -	- -	mg/kg	4,140 J	65.8 J	165 J	4,180
Chromium	- -	- -	- -	mg/kg	7.72	0.701	1.26	9.55
Cobalt	- -	- -	- -	mg/kg	2.42	0.142 J	0.468 J	1.69
Copper	50	1,720	270	mg/kg	14.2	0.600 J	1.10	5.60
Ferrous Iron	- -	- -	- -	mg/kg	1.90 J	1.40 J	R	1.20 J
Iron	- -	- -	- -	mg/kg	6,560 J	764 J	1,070 J	6,210
Lead	63	450	1,000	mg/kg	28.7	0.600 J	1.90	7.70 J
Magnesium	- -	- -	- -	mg/kg	2,230 J	56.2 J	122 J	2,050
Manganese	1,600	2,000	10,000	mg/kg	77.9 J	3.80 J	7.60 J	46.6
Mercury	0.18	0.73	2.8	mg/kg	*0.606*	0.0198 U	0.0226 U	***1.35***
Nickel	30	130	310	mg/kg	5.97	0.531 J	1.20 J	6.08
Potassium	- -	- -	- -	mg/kg	456	59.5	115	853
Selenium	3.9	4	1,500	mg/kg	4.20 U	3.90 U	4.60 U	4.70 U
Silver	2	8.3	1,500	mg/kg	*3.32*	0.489 U	0.574 U	0.587 U
Sodium	- -	- -	- -	mg/kg	121 J	15.6 J	19.2 J	78.5 J
Thallium	- -	- -	- -	mg/kg	6.40 U	5.90 U	6.90 U	7.00 U
Vanadium	- -	- -	- -	mg/kg	11.1	0.704	1.33	11.6
Zinc	109	2,480	10,000	mg/kg	62.8	1.40 J	2.10 J	17.1
Miscellaneous								
Sulfate	- -	- -	- -	mg/kg	220	110 U	140	220
TOC								
Total Organic Carbon	- -	- -	- -	mg/kg	2,740	1,100 U	1,160 U	1,470

See Notes on Page 34.

Table 5
Summary of 2010 to 2016 Soil Analytical Data

Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Town of Hempstead, NY

Notes:

1. Unrestricted use SCO, Restricted use SCO for commercial use and protection of groundwater are from 6 NYCRR Part 375-6.8.
2. Field duplicate sample results are presented in brackets, [ ].
3. Designations:
   - Gray font = Analyte was not detected.
   - Italic font = Analyte was detected above unrestricted use SCO.
   - Black Bold Italic font = Analyte detected above restricted - protection of groundwater SCO.
   - Gray Shading = Analyte detected above restricted - commercial use SCO.
4. Abbreviations:
   - - - = 6 NYCRR SCO not available.
   - 6 NYCRR = Title 6 of the Official Compilation of Codes, Rules, and Regulations of the State of New York.
   - ft = feet.
   - LCS/LCSD = Laboratory Control Sample/Laboratory Control Sample Duplicate.
   - mg/kg = milligrams per kilogram or part per million.
   - NA = Not Analyzed.
   - SCO = Soil Cleanup Objectives.
   - VOC = Volatile Organic Compounds.
   - SVOC = Semi-Volatile Organic Compounds.
5. Qualifier Definitions:
   - B = Analyte was detected in the blank and sample.
   - E = Analyte exceeded calibration range.
   - J = Estimated value. Result is greater than the RL but less than the MDL.
   - R = Rejected results.
   - U = Analyte not detected at listed reporting detection limit.
   - * = LCS/LCSD or relative percent difference of LCS/LCSD exceeds the control limits.

Appendix D:
Historical and RI Groundwater Sampling Analytical Data Summary Tables

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	AMW-3	AMW-3	AMW-3	AMW-3	AMW-13-D1	AMW-13-D1	AMW-13-D2	AMW-13-D2	AMW-13-VD	AMW-13-VD	AMW-14-D1	AMW-14-D1	AMW-14-D2
Historical Screen Interval (feet below ground surface)			4 - 9	4 - 9	4 - 9	4 - 9	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			8 - 13	8 - 13	8 - 13	8 - 13	22 - 32	22 - 32	32 - 42	32 - 42	60 - 70	60 - 70	22 - 32	22 - 32	32 - 42
Date Collected:			01/20/11	09/11/13	01/13/16	06/21/16	06/24/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/24/16	07/26/16	06/23/16
Area of Site			Former VRU Area												
Volatile Organics															
1,1,1-Trichloroethane	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1	ug/L	8.0 U	8.0 U	**4.8 J**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.91 J**	1.0 U
1,1-Dichloroethene	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.46 J**	1.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	0.0006	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	0.6	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	3	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	3	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	50	ug/L	80 U	80 U	50 U	**3.4 J**	10 U	10 U	10 U	10 U	**3.2 J**	**5.8 J**	10 U	10 U	10 U
2-Hexanone	50	ug/L	40 U	40 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone	- -	ug/L	40 U	40 U	25 U	5.0 U	5.0 U	5.0 U	**3.3 J**	5.0 U	5.0 U	**2.4 J**	5.0 U	5.0 U	**3.2 J**
Acetone	50	ug/L	**34 J**	80 U	50 U*	**21**	**6.5 J**	**3.4 J**	**3.2 J**	**4.8 J**	**18**	**46**	**4.6 J**	**3.9 J**	**3.3 J**
Benzene	1	ug/L	**510**	**93**	**280**	1.0 U	1.0 U	**4.5**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.3**	1.0 U
Bromodichloromethane	50	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	**0.99 J**	1.0 U	**0.97 J**	1.0 U	1.0 U	1.0 U	**0.85 J**	1.0 U	**0.99 J**
Bromoform	50	ug/L	8.0 U	8.0 UJ	5.0 U	1.0 U	**3.4**	**1.1**	**4.2**	**0.62 J**	**3.1**	1.0 U	**2.5**	1.0 U	**4.6**
Bromomethane	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Disulfide	60	ug/L	8.0 U	8.0 U	5.0 U	**0.51 J**	**2.7**	**2.8**	**0.66 J**	**12**	**1.5**	**7.9**	**2.6**	**2.8**	**5.5**
Carbon Tetrachloride	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	7	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	**0.37 J**	1.0 U	**0.36 J**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.0**	1.0 U
cis-1,3-Dichloropropene	0.4	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	- -	ug/L	**130**	**17**	**57**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.9**	1.0 U
Dibromochloromethane	50	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	**2.4**	**0.82 J**	**2.6**	**0.41 J**	**2.1**	1.0 U	**2.0**	1.0 U	**2.6**
Dichlorodifluoromethane	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	5	ug/L	**140**	8.0 U	**29**	1.0 U	1.0 U	**1.8**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**3.6**	1.0 U
Isopropylbenzene	5	ug/L	**110**	**32**	**65**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	- -	ug/L	8.0 U	8.0 U	13 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl tert-butyl ether	10	ug/L	**26**	**95**	5.0 U	**0.40 J**	**10**	**63 F1**	**3.5**	**41**	**5.0**	**3.4**	**12**	**140**	**3.1**
Methylcyclohexane	- -	ug/L	**50**	**8.6**	**27**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.97 J**	1.0 U
Methylene Chloride	5	ug/L	8.0 U	8.0 U	**15**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 UF1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	**0.38 J**	1.0 U	**0.57 J**	1.0 U	**1.5**	**1.0**	1.0 U	1.0 U	1.0 U
Toluene	5	ug/L	**36**	8.0 U	**6.9**	1.0 U	1.0 U	1.0 U	**1.3**	1.0 U	**1.6**	**1.3**	1.0 U	**7.1**	**0.81 J**
trans-1,2-Dichloroethene	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**7.8**	1.0 U
trans-1,3-Dichloropropene	0.4	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 UF1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	5	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	2	ug/L	8.0 U	8.0 U	5.0 U	1.0 U	**1.3**	**9.9**	1.0 U	1.0 U	1.0 U	1.0 U	**1.4**	**2,100**	1.0 U
Xylenes (total)	5	ug/L	**100**	16 U	**20**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**11**	2.0 U

See Notes on Page 53.

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:			AMW-3	AMW-3	AMW-3	AMW-3	AMW-13-D1	AMW-13-D1	AMW-13-D2	AMW-13-D2	AMW-13-VD	AMW-13-VD	AMW-14-D1	AMW-14-D1	AMW-14-D2
Historical Screen Interval (feet below ground surface)			4 - 9	4 - 9	4 - 9	4 - 9	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):	NYSDEC TOGS 1.1.1 Water Guidance Values		8 - 13	8 - 13	8 - 13	8 - 13	22 - 32	22 - 32	32 - 42	32 - 42	60 - 70	60 - 70	22 - 32	22 - 32	32 - 42
Date Collected:		Units	01/20/11	09/11/13	01/13/16	06/21/16	06/24/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/24/16	07/26/16	06/23/16
Area of Site			Former VRU Area												
Semivolatile Organics															
1,1'-Biphenyl	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U*	NA	5.0 U	NA	5.1 U	NA	4.9 U*	NA	4.9 U
2,4,5-Trichlorophenol	1	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
2,4,6-Trichlorophenol	1	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
2,4-Dichlorophenol	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
2,4-Dimethylphenol	50	ug/L	4.7 U	**0.77 J**	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
2,4-Dinitrophenol	10	ug/L	9.4 U	9.6 U	93 U	190 U	10 U	NA	10 U	NA	10 U	NA	9.7 U	NA	9.7 U
2,4-Dinitrotoluene	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
2,6-Dinitrotoluene	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
2-Chloronaphthalene	10	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
2-Chlorophenol	1	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
2-Methylnaphthalene	- -	ug/L	**99**	4.8 U	**21 J**	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
2-Methylphenol	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U*	NA	5.0 U	NA	5.1 U	NA	4.9 U*	NA	4.9 U
2-Nitroaniline	5	ug/L	9.4 U	9.6 U	93 U	190 U	**0.45 J**	NA	10 U	NA	10 U	NA	9.7 U	NA	9.7 U
2-Nitrophenol	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
3,3'-Dichlorobenzidine	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
3-Nitroaniline	5	ug/L	9.4 U	9.6 U	93 U	190 U	10 U	NA	10 U	NA	10 U	NA	9.7 U	NA	9.7 U
4,6-Dinitro-2-methylphenol	- -	ug/L	9.4 U	9.6 U	93 U	190 U	10 U	NA	10 U	NA	10 U	NA	9.7 U	NA	9.7 U
4-Bromophenyl-phenylether	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
4-Chloro-3-Methylphenol	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
4-Chloroaniline	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
4-Chlorophenyl-phenylether	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
4-Methylphenol	- -	ug/L	**12**	9.6 U	93 U	190 U	10 U*	NA	10 U	NA	10 U	NA	9.7 U*	NA	9.7 U
4-Nitroaniline	5	ug/L	9.4 U	9.6 U	93 U	190 U	10 U	NA	10 U	NA	10 U	NA	9.7 U	NA	9.7 U
4-Nitrophenol	- -	ug/L	9.4 U	9.6 U	93 U	190 U	10 U	NA	10 U	NA	10 U	NA	9.7 U	NA	9.7 U
Acenaphthene	20	ug/L	**2.4 J**	**2.6 J**	46 U	97 U	**2.8 J**	NA	5.0 U	NA	5.1 U	NA	**0.90 J**	NA	4.9 U
Acenaphthylene	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Acetophenone	- -	ug/L	4.7 U	**5.6**	**18 J**	97 U	5.2 U*	NA	5.0 U	NA	5.1 U	NA	4.9 U*	NA	4.9 U
Anthracene	50	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Atrazine	7.5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Benzaldehyde	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U*	NA	5.0 U	NA	5.1 U	NA	4.9 U*	NA	4.9 U
Benzo(a)anthracene	0.002	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Benzo(a)pyrene	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Benzo(b)fluoranthene	0.002	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Benzo(g,h,i)perylene	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Benzo(k)fluoranthene	0.002	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
bis(2-Chloroethoxy)methane	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
bis(2-Chloroethyl)ether	1	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U*	NA	5.0 U	NA	5.1 U	NA	4.9 U*	NA	4.9 U
bis(2-Ethylhexyl)phthalate	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	**3.9 J**	NA	4.9 U	NA	**3.0 J**
Butylbenzylphthalate	50	ug/L	4.7 U	**0.62 J**	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Caprolactam	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Carbazole	- -	ug/L	**1.0 J**	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	**0.39 J**	NA	4.9 U
Chrysene	0.002	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Dibenzo(a,h)anthracene	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Dibenzofuran	- -	ug/L	9.4 U	**0.75 J**	93 U	190 U	10 U	NA	10 U	NA	10 U	NA	9.7 U	NA	9.7 U
Diethylphthalate	50	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Dimethylphthalate	50	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	AMW-3	AMW-3	AMW-3	AMW-3	AMW-13-D1	AMW-13-D1	AMW-13-D2	AMW-13-D2	AMW-13-VD	AMW-13-VD	AMW-14-D1	AMW-14-D1	AMW-14-D2
Historical Screen Interval (feet below ground surface)			4 - 9	4 - 9	4 - 9	4 - 9	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			8 - 13	8 - 13	8 - 13	8 - 13	22 - 32	22 - 32	32 - 42	32 - 42	60 - 70	60 - 70	22 - 32	22 - 32	32 - 42
Date Collected:			01/20/11	09/11/13	01/13/16	06/21/16	06/24/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/24/16	07/26/16	06/23/16
Area of Site			Former VRU Area												
Semivolatile Organics (Cont.)															
Di-n-Butylphthalate	50	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Di-n-Octylphthalate	50	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Fluoranthene	50	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Fluorene	50	ug/L	**3.0 J**	**1.5 J**	46 U	97 U	**0.42 J**	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Hexachlorobenzene	0.04	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Hexachlorobutadiene	0.5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Hexachlorocyclopentadiene	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Hexachloroethane	5	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Isophorone	50	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
naphthalene	10	ug/L	**120**	**11**	**45 J**	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Nitrobenzene	0.4	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
N-Nitroso-di-n-propylamine	- -	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U*	NA	5.0 U	NA	5.1 U	NA	4.9 U*	NA	4.9 U
N-Nitrosodiphenylamine	50	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Pentachlorophenol	- -	ug/L	9.4 U	9.6 U	93 U	190 U	10 U	NA	10 U	NA	10 U	NA	9.7 U	NA	9.7 U
Phenanthrene	50	ug/L	**2.1 J**	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	**0.98 J**	NA	4.9 U
Phenol	1	ug/L	**15**	**1.1 J**	**4.5 J**	97 U	5.2 U*	NA	5.0 U	NA	5.1 U	NA	4.9 U*	NA	4.9 U
Pyrene	50	ug/L	4.7 U	4.8 U	46 U	97 U	5.2 U	NA	5.0 U	NA	5.1 U	NA	4.9 U	NA	4.9 U
Inorganics - Total															
Aluminum	- -	mg/L	**0.370**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	0.003	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.025	mg/L	**0.0056 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	1	mg/L	**0.0270**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.003	mg/L	0.00200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	mg/L	0.00100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	mg/L	**104**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.05	mg/L	**0.025**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	- -	mg/L	**0.00690 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	0.2	mg/L	0.0100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	mg/L	**6.300**	NA	NA	**16.2**	**4.40 B**	NA	**2.70**	NA	**26.1**	NA	**1.30 B**	NA	**6.60**
Lead	0.025	mg/L	**0.00100**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35	mg/L	**13.4 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	mg/L	**0.300**	NA	NA	**1.40 B**	**0.510 B**	NA	**0.740 B**	NA	**1.10 B**	NA	**0.400 B**	NA	**0.510 B**
Mercury	0.0007	mg/L	**0.00130 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	mg/L	**0.0160**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	mg/L	**18.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.01	mg/L	0.0150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.05	mg/L	0.00300 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20	mg/L	**90.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.0005	mg/L	0.0200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	- -	mg/L	**0.00610**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2	mg/L	0.0100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	AMW-3	AMW-3	AMW-3	AMW-3	AMW-13-D1	AMW-13-D1	AMW-13-D2	AMW-13-D2	AMW-13-VD	AMW-13-VD	AMW-14-D1	AMW-14-D1	AMW-14-D2
Historical Screen Interval (feet below ground surface)			4 - 9	4 - 9	4 - 9	4 - 9	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			8 - 13	8 - 13	8 - 13	8 - 13	22 - 32	22 - 32	32 - 42	32 - 42	60 - 70	60 - 70	22 - 32	22 - 32	32 - 42
Date Collected:			01/20/11	09/11/13	01/13/16	06/21/16	06/24/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/24/16	07/26/16	06/23/16
Area of Site			Former VRU Area												
Inorganics-Dissolved															
Aluminum	- -	mg/L	0.200 UB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	0.003	mg/L	0.0200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.025	mg/L	**0.00830 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	1	mg/L	**0.0260**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.003	mg/L	0.00200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	mg/L	0.00100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	mg/L	**101**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.05	mg/L	**0.00190 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	- -	mg/L	0.00400 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	0.2	mg/L	0.0100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	mg/L	**5.900**	NA	NA	**0.000550**	**3.50**	NA	**14.0**	NA	**23.7**	NA	**0.410**	NA	**2.90**
Lead	0.025	mg/L	**0.00690**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35	mg/L	**14.90 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	mg/L	**0.290**	NA	NA	**1.40 B**	**0.510 B**	NA	**0.740 B**	NA	**1.10 B**	NA	**0.370 B**	NA	**0.480 B**
Mercury	0.0007	mg/L	0.000200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	mg/L	**0.00340 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	mg/L	**18.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.01	mg/L	0.0150 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.05	mg/L	0.00300 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20	mg/L	**964**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.0005	mg/L	0.0200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	- -	mg/L	**0.00400 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2	mg/L	0.0100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry															
Alkalinity	- -	mg/L	**425**	NA	NA	**351**	**569 B**	NA	**732 B**	NA	**732 B**	NA	**886 B**	NA	**740 B**
Alkalinity, Bicarbonate	- -	mg/L	**425**	NA	NA	**351**	**569 B**	NA	**732 B**	NA	**732 B**	NA	**886 B**	NA	**740 B**
Ammonia Nitrogen	- -	mg/L	**11**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	0.75 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	- -	mg/L	0.75 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	- -	mg/L	**12 D**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate Nitrogen	- -	mg/L	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite Nitrogen	- -	mg/L	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Orthophosphate	- -	mg/L	**0.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soluble Organic Carbon	- -	mg/L	**37.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	mg/L	5 UB	NA	NA	**970**	**170**	NA	**250**	NA	**1,860**	NA	**103**	NA	**263**
Sulfide	- -	mg/L	0.1 U	NA	NA	**5.3**	**11.9**	NA	**2.6**	NA	0.1 U	NA	**48**	NA	**22.5**
Total Dissolved Solids	- -	mg/L	**628**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 53.

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	AMW-14-D2	AMW-14-VD	AMW-14-VD	AMW-15-D1	AMW-15-D1	AMW-15-D2	AMW-15-D2	AMW-15-D3	AMW-15-D3	AMW-15-VD
Historical Screen Interval (feet below ground surface)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			32 - 42	64 - 74	64 - 74	23.5 - 33.5	23.5 - 33.5	30 - 40	30 - 40	40 - 50	40 - 50	60 - 70
Date Collected:			07/26/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16
Area of Site			Former VRU Area									
Volatile Organics												
1,1,1-Trichloroethane	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,1,2-Trichloroethane	1	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,1-Dichloroethane	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,1-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,2,4-Trichlorobenzene	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,2-Dibromoethane	0.0006	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,2-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,2-Dichloroethane	0.6	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,2-Dichloropropane	1	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,3-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
1,4-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
2-Butanone	50	ug/L	10 U	**3.9 J**	10 U [10 U]	10 U	50 U	**1.3 J** [10 U]	10 U	10 U [10 U]	10 U	10 U
2-Hexanone	50	ug/L	5.0 U	5.0 U	5.0 U [5.0 U]	5.0 U	25 U	5.0 U [5.0 U]	5.0 U	5.0 U [5.0 U]	5.0 U	5.0 U
4-Methyl-2-pentanone	- -	ug/L	5.0 U	**2.1 J**	5.0 U [5.0 U]	**2.1 J**	25 U	5.0 U [5.0 U]	5.0 U	5.0 U [5.0 U]	5.0 U	5.0 U
Acetone	50	ug/L	**3.1 J**	**22**	**8.9 J [9.6 J]**	**4.2 J**	50 U	**11 [9.3 J]**	**3.8 J**	**7.3 J [6.9 J]**	**3.6 J**	**3.2 J**
Benzene	1	ug/L	**0.88 J**	1.0 U	1.0 U [1.0 U]	**0.48 J**	**3.9 J**	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Bromodichloromethane	50	ug/L	1.0 U	**0.87 J**	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Bromoform	50	ug/L	**1.3**	**3.0**	1.0 U [1.0 U]	**2.2**	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Bromomethane	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Carbon Disulfide	60	ug/L	**12**	**0.63 J**	**9.9 [8.4]**	**0.46 J**	5.0 U	**1.6 [1.8]**	**0.42 J**	**4.6 [4.4]**	**1.4**	1.0 U
Carbon Tetrachloride	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Chlorobenzene	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Chloroethane	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Chloroform	7	ug/L	1.0 U	1.0 U	**0.37 J** [1.0 U]	**0.51 J**	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Chloromethane	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
cis-1,2-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	**20**	**220**	**3.0 [3.3]**	**1.7**	1.0 U [1.0 U]	1.0 U	1.0 U
cis-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Cyclohexane	- -	ug/L	1.0 U	**0.32 J**	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Dibromochloromethane	50	ug/L	**0.79 J**	**2.0**	1.0 U [1.0 U]	**1.1**	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Dichlorodifluoromethane	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Ethylbenzene	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Isopropylbenzene	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Methyl acetate	- -	ug/L	2.5 U	2.5 U	2.5 U [2.5 U]	2.5 U	13 U	2.5 U [2.5 U]	2.5 U	2.5 U [2.5 U]	2.5 U	2.5 U
Methyl tert-butyl ether	10	ug/L	**24**	**0.91 J**	**0.59 J [0.58 J]**	**29**	**51**	**66 [68]**	**43**	**2.6 [2.4]**	**23**	**1.1**
Methylcyclohexane	- -	ug/L	1.0 U	**0.36 J**	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Methylene Chloride	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	**9.9**	**140**	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Styrene	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Tetrachloroethene	5	ug/L	1.0 U	**0.59 J**	**0.41 J [0.38 J]**	**0.43 J**	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Toluene	5	ug/L	**0.64 J**	**10**	**8.2 [7.7]**	**3.0**	**7.5**	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	**0.52 J**
trans-1,2-Dichloroethene	5	ug/L	**0.90 J**	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
trans-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Trichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	**5.5**	**73**	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Trichlorofluoromethane	5	ug/L	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	5.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
Vinyl Chloride	2	ug/L	**3.6**	1.0 U	1.0 U [1.0 U]	**70**	**410**	**1.7 [1.8]**	**3.5**	1.0 U [1.0 U]	1.0 U	1.0 U
Xylenes (total)	5	ug/L	2.0 U	**0.79 J**	2.0 U [2.0 U]	2.0 U	**6.5 J**	2.0 U [2.0 U]	2.0 U	2.0 U [2.0 U]	2.0 U	2.0 U

See Notes on Page 53.

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	AMW-14-D2	AMW-14-VD	AMW-14-VD	AMW-15-D1	AMW-15-D1	AMW-15-D2	AMW-15-D2	AMW-15-D3	AMW-15-D3	AMW-15-VD
Historical Screen Interval (feet below ground surface)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			32 - 42	64 - 74	64 - 74	23.5 - 33.5	23.5 - 33.5	30 - 40	30 - 40	40 - 50	40 - 50	60 - 70
Date Collected:			07/26/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16
Area of Site			Former VRU Area									
Semivolatile Organics												
1,1'-Biphenyl	5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2,4,5-Trichlorophenol	1	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2,4,6-Trichlorophenol	1	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2,4-Dichlorophenol	5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2,4-Dimethylphenol	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2,4-Dinitrophenol	10	ug/L	NA	9.7 U	NA	9.4 U	NA	9.3 U [9.9 U]	NA	9.3 U [9.3 U]	NA	9.2 U
2,4-Dinitrotoluene	5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2,6-Dinitrotoluene	5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2-Chloronaphthalene	10	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2-Chlorophenol	1	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2-Methylnaphthalene	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2-Methylphenol	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
2-Nitroaniline	5	ug/L	NA	9.7 U	NA	9.4 U	NA	9.3 U [9.9 U]	NA	9.3 U [9.3 U]	NA	9.2 U
2-Nitrophenol	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
3,3'-Dichlorobenzidine	5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
3-Nitroaniline	5	ug/L	NA	9.7 U	NA	9.4 U	NA	9.3 U [9.9 U]	NA	9.3 U [9.3 U]	NA	9.2 U
4,6-Dinitro-2-methylphenol	- -	ug/L	NA	9.7 U	NA	9.4 U	NA	9.3 U [9.9 U]	NA	9.3 U [9.3 U]	NA	9.2 U
4-Bromophenyl-phenylether	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
4-Chloro-3-Methylphenol	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
4-Chloroaniline	5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
4-Chlorophenyl-phenylether	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
4-Methylphenol	- -	ug/L	NA	9.7 U	NA	9.4 U	NA	9.3 U [9.9 U]	NA	9.3 U [9.3 U]	NA	9.2 U
4-Nitroaniline	5	ug/L	NA	9.7 U	NA	9.4 U	NA	9.3 U [9.9 U]	NA	9.3 U [9.3 U]	NA	9.2 U
4-Nitrophenol	- -	ug/L	NA	9.7 U	NA	9.4 U	NA	9.3 U [9.9 U]	NA	9.3 U [9.3 U]	NA	9.2 U
Acenaphthene	20	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Acenaphthylene	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Acetophenone	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Anthracene	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Atrazine	7.5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Benzaldehyde	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Benzo(a)anthracene	0.002	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Benzo(a)pyrene	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Benzo(b)fluoranthene	0.002	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Benzo(g,h,i)perylene	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Benzo(k)fluoranthene	0.002	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
bis(2-Chloroethoxy)methane	5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
bis(2-Chloroethyl)ether	1	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	**4.0 J**	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Butylbenzylphthalate	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Caprolactam	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Carbazole	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Chrysene	0.002	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Dibenzo(a,h)anthracene	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Dibenzofuran	- -	ug/L	NA	9.7 U	NA	9.4 U	NA	9.3 U [9.9 U]	NA	9.3 U [9.3 U]	NA	9.2 U
Diethylphthalate	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Dimethylphthalate	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	AMW-14-D2	AMW-14-VD	AMW-14-VD	AMW-15-D1	AMW-15-D1	AMW-15-D2	AMW-15-D2	AMW-15-D3	AMW-15-D3	AMW-15-VD
Historical Screen Interval (feet below ground surface)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			32 - 42	64 - 74	64 - 74	23.5 - 33.5	23.5 - 33.5	30 - 40	30 - 40	40 - 50	40 - 50	60 - 70
Date Collected:			07/26/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16
Area of Site			Former VRU Area									
Semivolatile Organics (Cont.)												
Di-n-Butylphthalate	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Di-n-Octylphthalate	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Fluoranthene	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Fluorene	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Hexachlorobenzene	0.04	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Hexachlorobutadiene	0.5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Hexachlorocyclopentadiene	5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Hexachloroethane	5	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Isophorone	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
naphthalene	10	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Nitrobenzene	0.4	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
N-Nitroso-di-n-propylamine	- -	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
N-Nitrosodiphenylamine	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Pentachlorophenol	- -	ug/L	NA	9.7 U	NA	9.4 U	NA	9.3 U [9.9 U]	NA	9.3 U [9.3 U]	NA	9.2 U
Phenanthrene	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Phenol	1	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Pyrene	50	ug/L	NA	4.8 U	NA	4.7 U	NA	4.6 U [4.9 U]	NA	4.6 U [4.6 U]	NA	4.6 U
Inorganics - Total												
Aluminum	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	0.003	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.025	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.003	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.05	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	0.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	mg/L	NA	**37.8**	NA	**2.20**	NA	**0.120 [0.110]**	NA	**0.120 [0.0980]**	NA	**4.20**
Lead	0.025	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	mg/L	NA	**0.720 B**	NA	**0.500 B**	NA	**0.00630 B [0.00580 B]**	NA	**0.240 B [0.250 B]**	NA	**0.200 B**
Mercury	0.0007	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.05	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.0005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	AMW-14-D2	AMW-14-VD	AMW-14-VD	AMW-15-D1	AMW-15-D1	AMW-15-D2	AMW-15-D2	AMW-15-D3	AMW-15-D3	AMW-15-VD
Historical Screen Interval (feet below ground surface)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			32 - 42	64 - 74	64 - 74	23.5 - 33.5	23.5 - 33.5	30 - 40	30 - 40	40 - 50	40 - 50	60 - 70
Date Collected:			07/26/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16	07/27/16	06/23/16
Area of Site			Former VRU Area									
Inorganics-Dissolved												
Aluminum	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	0.003	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.025	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.003	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.05	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	0.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	mg/L	NA	**35.3**	NA	**1.60**	NA	0.0500 U **[0.0230 J]**	NA	0.0500 U [0.0500 U]	NA	**4.10**
Lead	0.025	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	35	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	mg/L	NA	**0.720 B**	NA	**0.480 B**	NA	**0.00770 B [0.000740 JB]**	NA	**0.100 B [0.130 B]**	NA	**0.210 B**
Mercury	0.0007	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.05	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	0.0005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry												
Alkalinity	- -	mg/L	NA	**427**	NA	**602**	NA	**185 [181 B]**	NA	**12.2 B [617 B]**	NA	**303**
Alkalinity, Bicarbonate	- -	mg/L	NA	**427**	NA	**602**	NA	**185 [181 B]**	NA	**12.2 B [617 B]**	NA	**303**
Ammonia Nitrogen	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate Nitrogen	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite Nitrogen	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Orthophosphate	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soluble Organic Carbon	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	mg/L	NA	**1,780**	NA	**166**	NA	**165 [166]**	NA	**784 [1,790]**	NA	**1,810**
Sulfide	- -	mg/L	NA	0.1 U	NA	**20.5**	NA	**1.9 F1 [1.8]**	NA	0.1 U [0.1 U]	NA	0.1 U
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 6
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Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	AMW-15-VD	ASB-2	ASB-3	ASB-4	ASB-5	ASB-7	IW-1	IW-2-D1	IW-2-D1	IW-2-D1	MW-23-D1R	MW-23-D1R	MW-23-D1R	MW-23-D1R
Historical Screen Interval (feet below ground surface)			NA	NA	NA	NA	NA	NA	19 - 24	19 - 29	19 - 29	19 - 29	16.5 - 26.5	16.5 - 26.5	16.5 - 26.5	16.5 - 26.5
Current Screen Interval (Feet below current ground surface):			60 - 70	20 - 25	27 - 32	27 - 32	20 - 25	20 - 25	23 - 28	23 - 33	23 - 33	23 - 33	20.5 - 30.5	20.5 - 30.5	20.5 - 30.5	20.5 - 30.5
Date Collected:			07/27/16	06/06/16	06/08/16	06/07/16	06/02/16	06/02/16	08/21/13	02/20/13	09/12/13	01/13/16	01/19/11	09/10/13	01/12/16	06/20/16
Area of Site			Former VRU Area													
Volatile Organics																
1,1,1-Trichloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,1,2-Trichloroethane	1	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,1-Dichloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	**1.6**	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,1-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	**4.2 J**	1.0 U	2.0 U	**2.8**	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2,4-Trichlorobenzene	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 UJ	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	**2.8**	4.0 U	1.0 UJ	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2-Dibromoethane	0.0006	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2-Dichloroethane	0.6	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2-Dichloropropane	1	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,3-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
1,4-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
2-Butanone	50	ug/L	10 U	10 U	10 U	50 U	**1.4 J**	20 U	10 U	40 U	10 U	100 U	10 U	50 U	50 U	10 U
2-Hexanone	50	ug/L	5.0 U	5.0 U	5.0 U	25 U	5.0 U	10 U	5.0 U	20 U	5.0 U	50 U	5.0 U	25 U	25 U	5.0 U
4-Methyl-2-pentanone	- -	ug/L	5.0 U	**6.0**	5.0 U	25 U	**5.0**	**5.3 J**	5.0 U	20 U	5.0 U	50 U	5.0 U	25 U	25 U	5.0 U
Acetone	50	ug/L	**8.3 J**	**20**	**5.5 J**	50 U	**12**	20 U	**7.4 J**	**19 J**	10 U	100 U*	10 U	50 U	50 U*	**6.4 J**
Benzene	1	ug/L	1.0 U	**1.8**	1.0 U	**3.0 J**	1.0 U	2.0 U	**8.5**	**3.0 J**	1.0 U	**9.0 J**	**21**	5.0 U	5.0 U	1.0 U
Bromodichloromethane	50	ug/L	1.0 U	**1.9**	**0.75 J**	5.0 U	**1.5**	**3.3**	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Bromoform	50	ug/L	**2.4**	1.0 U	**2.4**	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 UJ	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Bromomethane	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Carbon Disulfide	60	ug/L	1.0 U	**1.1**	**0.27 J**	**0.95 J**	**0.53 J**	**1.1 J**	11 UB	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Carbon Tetrachloride	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Chlorobenzene	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Chloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Chloroform	7	ug/L	**0.74 J**	**14**	**0.92 J**	5.0 U	**19**	**21**	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Chloromethane	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 UJ	10 U	1.0 U	5.0 U	5.0 U	1.0 U
cis-1,2-Dichloroethene	5	ug/L	1.0 U	**5.6**	**2.8**	**1,900**	**2.2**	**67**	**1,900 D**	**34**	1.0 U	**140**	1.0 U	5.0 U	5.0 U	1.0 U
cis-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Cyclohexane	- -	ug/L	1.0 U	1.0 U	1.0 U	**5.0**	1.0 U	2.0 U	**2.1**	4.0 U	1.0 U	10 U	**1.8**	5.0 U	5.0 U	1.0 U
Dibromochloromethane	50	ug/L	**1.0**	**0.35 J**	**1.5**	5.0 U	1.0 U	**0.65 J**	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Dichlorodifluoromethane	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 UJ	4.0 UJ	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Ethylbenzene	5	ug/L	1.0 U	1.0 U	1.0 U	**6.7**	1.0 U	2.0 U	**5.2**	4.0 U	1.0 U	10 U	**2.4**	5.0 U	5.0 U	1.0 U
Isopropylbenzene	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	**18**	5.0 U	5.0 U	1.0 U
Methyl acetate	- -	ug/L	2.5 U	2.5 U	2.5 U	13 U	2.5 U	5.0 U	1.0 U	**24**	1.0 U	25 U	1.0 U	5.0 U	13 U	2.5 U
Methyl tert-butyl ether	10	ug/L	1.0 U	**55**	**8.5**	**13**	**4.6**	**5.5**	**360 D**	**190**	**27**	**540**	**100 D**	**9.5**	**210**	**30**
Methylcyclohexane	- -	ug/L	1.0 U	1.0 U	1.0 U	**4.5 J**	1.0 U	2.0 U	**2.1**	4.0 U	1.0 U	10 U	**2.3**	5.0 U	5.0 U	1.0 U
Methylene Chloride	5	ug/L	1.0 U	1.0 U	**0.60 J**	**330**	1.0 U	2.0 U	**1.6**	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Styrene	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Tetrachloroethene	5	ug/L	1.0 U	**1.4**	**1.3**	**6.7**	**1.2**	**1.2 J**	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Toluene	5	ug/L	**15**	**0.87 J**	1.0 U	**9.0**	1.0 U	2.0 U	**14**	**3.1 J**	1.0 U	**6.4 J**	1.0 U	5.0 U	5.0 U	1.0 U
trans-1,2-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	**13**	1.0 U	2.0 U	**32**	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
trans-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 UJ	10 U	1.0 U	5.0 U	5.0 UF1	1.0 U
Trichloroethene	5	ug/L	1.0 U	**4.4**	**1.2**	**2,100**	**4.8**	**1.7 J**	**6.1**	4.0 U	1.0 U	10 U	**2.6**	5.0 U	5.0 U	1.0 U
Trichlorofluoromethane	5	ug/L	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	2.0 U	1.0 U	4.0 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	1.0 U
Vinyl Chloride	2	ug/L	1.0 U	**6.0**	**81**	**400**	**11**	**31**	**2,100 D**	4.0 U	1.0 U	**35**	1.0 U	5.0 U	5.0 U	1.0 U
Xylenes (total)	5	ug/L	2.0 U	2.0 U	2.0 U	**36**	**0.89 J**	4.0 U	**18**	**5.7 J**	2.0 U	**21**	**1.3 J**	10 U	10 U	2.0 U

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Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	AMW-15-VD	ASB-2	ASB-3	ASB-4	ASB-5	ASB-7	IW-1	IW-2-D1	IW-2-D1	IW-2-D1	MW-23-D1R	MW-23-D1R	MW-23-D1R	MW-23-D1R
Historical Screen Interval (feet below ground surface)			NA	NA	NA	NA	NA	NA	19 - 24	19 - 29	19 - 29	19 - 29	16.5 - 26.5	16.5 - 26.5	16.5 - 26.5	16.5 - 26.5
Current Screen Interval (Feet below current ground surface):			60 - 70	20 - 25	27 - 32	27 - 32	20 - 25	20 - 25	23 - 28	23 - 33	23 - 33	23 - 33	20.5 - 30.5	20.5 - 30.5	20.5 - 30.5	20.5 - 30.5
Date Collected:			07/27/16	06/06/16	06/08/16	06/07/16	06/02/16	06/02/16	08/21/13	02/20/13	09/12/13	01/13/16	01/19/11	09/10/13	01/12/16	06/20/16
Area of Site			Former VRU Area													
Semivolatile Organics																
1,1'-Biphenyl	5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	**2.6 J**	5.2 U	4.9 U	46 U	100 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
2,4,5-Trichlorophenol	1	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
2,4,6-Trichlorophenol	1	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
2,4-Dichlorophenol	5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
2,4-Dimethylphenol	50	ug/L	NA	NA	NA	NA	NA	NA	**3.7 J**	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
2,4-Dinitrophenol	10	ug/L	NA	NA	NA	NA	NA	NA	47 U	NA	11 U	9.9 U	10 U	9.7 U	92 UF1	200 U
2,4-Dinitrotoluene	5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
2,6-Dinitrotoluene	5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
2-Chloronaphthalene	10	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
2-Chlorophenol	1	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
2-Methylnaphthalene	- -	ug/L	NA	NA	NA	NA	NA	NA	**9.9 J**	NA	**4.3 J**	**1.6 J**	**0.94 J**	4.9 U	46 U	100 U
2-Methylphenol	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
2-Nitroaniline	5	ug/L	NA	NA	NA	NA	NA	NA	47 U	NA	11 U	9.9 U	10 U	9.7 U	92 U	200 U
2-Nitrophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
3,3'-Dichlorobenzidine	5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 UF1	100 U
3-Nitroaniline	5	ug/L	NA	NA	NA	NA	NA	NA	47 UJ	NA	11 U	9.9 U	10 U	9.7 U	92 U	200 U
4,6-Dinitro-2-methylphenol	- -	ug/L	NA	NA	NA	NA	NA	NA	47 U	NA	11 U	9.9 U	10 U	9.7 U	92 UF1	200 U
4-Bromophenyl-phenylether	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
4-Chloro-3-Methylphenol	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
4-Chloroaniline	5	ug/L	NA	NA	NA	NA	NA	NA	24 UJ	NA	5.3 UJ	4.9 U	5.2 U	4.9 U	46 U	100 U
4-Chlorophenyl-phenylether	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
4-Methylphenol	- -	ug/L	NA	NA	NA	NA	NA	NA	47 U	NA	11 U	9.9 U	10 U	9.7 U	92 U	200 U
4-Nitroaniline	5	ug/L	NA	NA	NA	NA	NA	NA	47 U	NA	11 U	9.9 U	10 U	9.7 U	92 U	200 U
4-Nitrophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	47 U	NA	11 U	9.9 U	10 U	9.7 U	92 U	200 U
Acenaphthene	20	ug/L	NA	NA	NA	NA	NA	NA	**22 J**	NA	**4.9 J**	**47**	**1.3 J**	**1.6 J**	46 U	100 U
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	**1.5 J**	4.9 U	5.2 U	4.9 U	46 U	100 U
Acetophenone	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Anthracene	50	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	**0.31 J**	5.2 U	4.9 U	46 U	100 U
Atrazine	7.5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Benzaldehyde	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Benzo(a)anthracene	0.002	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Benzo(a)pyrene	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 UJ	46 UF1	100 U
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
bis(2-Chloroethoxy)methane	5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
bis(2-Chloroethyl)ether	1	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Butylbenzylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	**0.47 JB**	5.2 U	4.9 U	46 U	100 U
Caprolactam	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 UF1	100 U
Carbazole	- -	ug/L	NA	NA	NA	NA	NA	NA	**21 J**	NA	**2.7 J**	**17**	5.2 U	4.9 U	46 U	100 U
Chrysene	0.002	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 UF1	100 U
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 UF1	100 U
Dibenzofuran	- -	ug/L	NA	NA	NA	NA	NA	NA	**8.9 J**	NA	**1.7 J**	**15**	10 U	9.7 U	92 U	200 U
Diethylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Dimethylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U

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Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	AMW-15-VD	ASB-2	ASB-3	ASB-4	ASB-5	ASB-7	IW-1	IW-2-D1	IW-2-D1	IW-2-D1	MW-23-D1R	MW-23-D1R	MW-23-D1R	MW-23-D1R
Historical Screen Interval (feet below ground surface)			NA	NA	NA	NA	NA	NA	19 - 24	19 - 29	19 - 29	19 - 29	16.5 - 26.5	16.5 - 26.5	16.5 - 26.5	16.5 - 26.5
Current Screen Interval (Feet below current ground surface):			60 - 70	20 - 25	27 - 32	27 - 32	20 - 25	20 - 25	23 - 28	23 - 33	23 - 33	23 - 33	20.5 - 30.5	20.5 - 30.5	20.5 - 30.5	20.5 - 30.5
Date Collected:			07/27/16	06/06/16	06/08/16	06/07/16	06/02/16	06/02/16	08/21/13	02/20/13	09/12/13	01/13/16	01/19/11	09/10/13	01/12/16	06/20/16
Area of Site			Former VRU Area													
Semivolatile Organics (Cont.)																
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	**0.38 J**	4.9 U	5.2 U	4.9 U	46 U	100 U
Di-n-Octylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Fluoranthene	50	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Fluorene	50	ug/L	NA	NA	NA	NA	NA	NA	**3.3 J**	NA	**1.1 J**	**8.1**	5.2 U	4.9 U	46 U	100 U
Hexachlorobenzene	0.04	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Hexachlorobutadiene	0.5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 UF1	100 U
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 UF1	100 U
Isophorone	50	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
naphthalene	10	ug/L	NA	NA	NA	NA	NA	NA	**5.1 J**	NA	**12**	**46**	**1.3 J**	4.9 U	46 U	100 U
Nitrobenzene	0.4	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
N-Nitroso-di-n-propylamine	- -	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
N-Nitrosodiphenylamine	50	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	**0.71 J**	5.2 U	4.9 U	46 U	100 U
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	47 U	NA	11 U	9.9 U	10 U	9.7 U	92 U	200 U
Phenanthrene	50	ug/L	NA	NA	NA	NA	NA	NA	24 UB	NA	5.3 UB	**5.0**	5.2 U	4.9 U	46 U	100 U
Phenol	1	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Pyrene	50	ug/L	NA	NA	NA	NA	NA	NA	24 U	NA	5.3 U	4.9 U	5.2 U	4.9 U	46 U	100 U
Inorganics - Total																
Aluminum	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.510**	NA	NA	**0.380**	NA	NA	NA
Antimony	0.003	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0200 U	NA	NA	0.020 U	NA	NA	NA
Arsenic	0.025	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.00560 J**			0.0100 U	NA	NA	NA
Barium	1	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.0450**	NA	NA	**0.0790**	NA	NA	NA
Beryllium	0.003	mg/L	NA	NA	NA	NA	NA	NA	NA	0.00200 U	NA	NA	0.00200 U	NA	NA	NA
Cadmium	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.000520 J**	NA	NA	**0.00410 J**	NA	NA	NA
Calcium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**77.8**	NA	NA	**145**	NA	NA	NA
Chromium	0.05	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.00900**	NA	NA	0.00400 U	NA	NA	NA
Cobalt	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	0.00400 U	NA	NA	**0.00640 J**	NA	NA	NA
Copper	0.2	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.00570 J**	NA	NA	**0.00220 J**	NA	NA	NA
Iron	0.3	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.780**	NA	NA	**4.000**	NA	NA	**0.660**
Lead	0.025	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.00340 J**	NA	NA	0.00500 U	NA	NA	NA
Magnesium	35	mg/L	NA	NA	NA	NA	NA	NA	NA	**96.0**	NA	NA	**49.3**	NA	NA	NA
Manganese	0.3	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.110**	NA	NA	**3.300**	NA	NA	**0.690 B**
Mercury	0.0007	mg/L	NA	NA	NA	NA	NA	NA	NA	0.000200 U	NA	NA	0.000200 U	NA	NA	NA
Nickel	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.00450 J**	NA	NA	**0.00270 J**	NA	NA	NA
Potassium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**58.2**	NA	NA	**23.6**	NA	NA	NA
Selenium	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0150 U	NA	NA	0.0150 U	NA	NA	NA
Silver	0.05	mg/L	NA	NA	NA	NA	NA	NA	NA	0.00300 U	NA	NA	0.00300 U	NA	NA	NA
Sodium	20	mg/L	NA	NA	NA	NA	NA	NA	NA	**896**	NA	NA	**349**	NA	NA	NA
Thallium	0.0005	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA	NA
Vanadium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.00820**	NA	NA	**0.011**	NA	NA	NA
Zinc	2	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.00710 J**	NA	NA	**0.00420 J**	NA	NA	NA

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Historical Screen Interval (feet below ground surface)			NA	NA	NA	NA	NA	NA	19 - 24	19 - 29	19 - 29	19 - 29	16.5 - 26.5	16.5 - 26.5	16.5 - 26.5	16.5 - 26.5
Current Screen Interval (Feet below current ground surface):			60 - 70	20 - 25	27 - 32	27 - 32	20 - 25	20 - 25	23 - 28	23 - 33	23 - 33	23 - 33	20.5 - 30.5	20.5 - 30.5	20.5 - 30.5	20.5 - 30.5
Date Collected:			07/27/16	06/06/16	06/08/16	06/07/16	06/02/16	06/02/16	08/21/13	02/20/13	09/12/13	01/13/16	01/19/11	09/10/13	01/12/16	06/20/16
Area of Site			Former VRU Area													
Inorganics-Dissolved																
Aluminum	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.150 J**	NA	NA	0.200 U	NA	NA	NA
Antimony	0.003	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA	NA
Arsenic	0.025	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0100 U	NA	NA	0.0100 U	NA	NA	NA
Barium	1	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.0450**	NA	NA	**0.0660**	NA	NA	NA
Beryllium	0.003	mg/L	NA	NA	NA	NA	NA	NA	NA	0.00200 U	NA	NA	0.00200 U	NA	NA	NA
Cadmium	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.000530 J**	NA	NA	**0.000440 J**	NA	NA	NA
Calcium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**80.3**	NA	NA	**145**	NA	NA	NA
Chromium	0.05	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.00610**	NA	NA	0.00400 U	NA	NA	NA
Cobalt	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	0.00400 U	NA	NA	0.00400 U	NA	NA	NA
Copper	0.2	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0100 UB	NA	NA	0.0100 U	NA	NA	NA
Iron	0.3	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.270**	NA	NA	**3.00**	NA	NA	**0.230**
Lead	0.025	mg/L	NA	NA	NA	NA	NA	NA	NA	0.00500 U	NA	NA	0.00500 U	NA	NA	NA
Magnesium	35	mg/L	NA	NA	NA	NA	NA	NA	NA	**94.5**	NA	NA	**44.70**	NA	NA	NA
Manganese	0.3	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.100**	NA	NA	**2.50**	NA	NA	**0.690 B**
Mercury	0.0007	mg/L	NA	NA	NA	NA	NA	NA	NA	0.000200 U	NA	NA	0.000200 U	NA	NA	NA
Nickel	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.00270 J**	NA	NA	**0.00200 J**	NA	NA	NA
Potassium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**59.4**	NA	NA	**23.70**	NA	NA	NA
Selenium	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0150 U	NA	NA	0.0150 U	NA	NA	NA
Silver	0.05	mg/L	NA	NA	NA	NA	NA	NA	NA	0.00300 U	NA	NA	0.00300 U	NA	NA	NA
Sodium	20	mg/L	NA	NA	NA	NA	NA	NA	NA	**872**	NA	NA	**286**	NA	NA	NA
Thallium	0.0005	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA	NA
Vanadium	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.00700**	NA	NA	**0.00780**	NA	NA	NA
Zinc	2	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0100 U	NA	NA	**0.00200 J**	NA	NA	NA
General Chemistry																
Alkalinity	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**308**	NA	NA	**485**
Alkalinity, Bicarbonate	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**308**	NA	NA	**485**
Ammonia Nitrogen	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.7**	NA	NA	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0015 U	NA	NA	NA
Ethene	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0015 U	NA	NA	NA
Methane	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.8 DJ**	NA	NA	NA
Nitrate Nitrogen	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA
Nitrite Nitrogen	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA
Orthophosphate	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.17**	NA	NA	NA
Soluble Organic Carbon	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**14.7**	NA	NA	NA
Sulfate	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**260**	NA	NA	**180**
Sulfide	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.22**	NA	NA	**16.9 F1**
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**2,950**	NA	NA	**1,740**	NA	NA	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-23-D2R	MW-23-D2R	MW-23-D2R	MW-23-D2R	MW-24-D1	MW-24-D1	MW-24-D1	MW-24-D1	MW-24-D2	MW-24-D2	MW-24-D2
Historical Screen Interval (feet below ground surface)			31 - 41	31 - 41	31 - 41	31 - 41	17 - 27	17 - 27	17 - 27	17 - 27	32 - 42	32 - 42	32 - 42
Current Screen Interval (Feet below current ground surface):			35 - 45	35 - 45	35 - 45	35 - 45	21 - 31	21 - 31	21 - 31	21 - 31	36 - 46	36 - 46	36 - 46
Date Collected:			01/20/11	09/11/13	01/12/16	06/20/16	01/19/11	09/12/13	01/13/16	06/21/16	01/19/11	09/11/13	01/13/16
Area of Site			Former VRU Area										
Volatile Organics													
1,1,1-Trichloroethane	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,1,2-Trichloroethane	1	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,1-Dichloroethane	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,1-Dichloroethene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	**23**	25 U [25 U]	5.0 U	4.0 U	**3.8**	20 U	5.0 U [5.0 U]
1,2,4-Trichlorobenzene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 UJ [25 UJ]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 UJ [25 UJ]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,2-Dibromoethane	0.0006	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,2-Dichlorobenzene	3	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,2-Dichloroethane	0.6	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,2-Dichloropropane	1	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,3-Dichlorobenzene	3	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
1,4-Dichlorobenzene	3	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
2-Butanone	50	ug/L	10 U [10 U]	40 U	50 U	10 U	10 U	250 U [250 U]	50 U	40 U	10 U	200 U	50 U [50 U]
2-Hexanone	50	ug/L	5.0 U [5.0 U]	20 U	25 U	5.0 U	5.0 U	130 U [130 U]	25 U	20 U	5.0 U	100 U	25 U [25 U]
4-Methyl-2-pentanone	- -	ug/L	5.0 U [5.0 U]	20 U	25 U	5.0 U	5.0 U	130 U [130 U]	25 U	20 U	5.0 U	100 U	25 U [25 U]
Acetone	50	ug/L	10 U [10 U]	40 U	50 U*	**23**	10 U	250 U [250 U]	50 U*	40 U	10 U	200 U	50 U* [50 U*]
Benzene	1	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	**22**	25 U [25 U]	5.0 U	**5.4**	**3.5**	20 U	**3.1 J [3.3 J]**
Bromodichloromethane	50	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Bromoform	50	ug/L	1.0 U [1.0 U]	4.0 UJ	5.0 U	1.0 U	1.0 UJ	25 UJ [25 UJ]	5.0 U	4.0 U	1.0 UJ	20 UJ	5.0 U [5.0 U]
Bromomethane	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 UF2	1.0 U	20 U	5.0 U [5.0 U]
Carbon Disulfide	60	ug/L	**1.3 [1.2]**	**1.2 J**	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	**1.6 J**	1.0 U	20 U	5.0 U [5.0 U]
Carbon Tetrachloride	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 UJ	25 U [25 U]	5.0 U	4.0 U	1.0 UJ	20 U	5.0 U [5.0 U]
Chlorobenzene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Chloroethane	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Chloroform	7	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Chloromethane	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 UJ [25 UJ]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
cis-1,2-Dichloroethene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	**7,400 D**	**2,200 [2,200]**	**10**	**4.9**	**1,200 D**	20 U	5.0 U [5.0 U]
cis-1,3-Dichloropropene	0.4	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 UJ	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Cyclohexane	- -	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	**1.9 J**	1.0 U	20 U	5.0 U [5.0 U]
Dibromochloromethane	50	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Dichlorodifluoromethane	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Ethylbenzene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	**11**	25 U [25 U]	5.0 U	**3.1 J**	**1.9**	20 U	5.0 U [5.0 U]
Isopropylbenzene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	**1.1**	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Methyl acetate	- -	ug/L	1.0 U [1.0 U]	4.0 U	13 U	2.5 U	1.0 U	25 U [25 U]	13 U	10 U	1.0 U	20 U	13 U [13 U]
Methyl tert-butyl ether	10	ug/L	**200 D [190 D]**	**200**	**130**	**26**	**1,100 D**	**430 [430]**	**220**	**160**	**280 D**	**130**	**250 [260]**
Methylcyclohexane	- -	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	**1.3 J**	1.0 U	20 U	5.0 U [5.0 U]
Methylene Chloride	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	**0.76 J**	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Styrene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Tetrachloroethene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Toluene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	**19**	**13 J [13 J]**	5.0 U	4.0 U	**3.0**	20 U	5.0 U [5.0 U]
trans-1,2-Dichloroethene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	**44**	**34 [34]**	5.0 U	**11**	**6.7**	20 U	5.0 U [5.0 U]
trans-1,3-Dichloropropene	0.4	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 UJ [25 UJ]	5.0 U	4.0 U	1.0 UJ	20 U	5.0 U [5.0 U]
Trichloroethene	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	**65**	25 U [25 U]	5.0 U	4.0 U	**2.5**	20 U	5.0 U [5.0 U]
Trichlorofluoromethane	5	ug/L	1.0 U [1.0 U]	4.0 U	5.0 U	1.0 U	1.0 U	25 U [25 U]	5.0 U	4.0 U	1.0 U	20 U	5.0 U [5.0 U]
Vinyl Chloride	2	ug/L	**7.8 [6.5]**	4.0 U	5.0 U	1.0 U	**1,800 D**	**1,600 [1,600]**	**99**	**35**	**300 D**	20 U	**170 [180]**
Xylenes (total)	5	ug/L	2.0 U [2.0 U]	8.0 U	10 U	2.0 U	**31**	50 U [50 U]	10 U	**9.3**	**4.8**	40 U	10 U [10 U]

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Table 6
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Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-23-D2R	MW-23-D2R	MW-23-D2R	MW-23-D2R	MW-24-D1	MW-24-D1	MW-24-D1	MW-24-D1	MW-24-D2	MW-24-D2	MW-24-D2
Historical Screen Interval (feet below ground surface)			31 - 41	31 - 41	31 - 41	31 - 41	17 - 27	17 - 27	17 - 27	17 - 27	32 - 42	32 - 42	32 - 42
Current Screen Interval (Feet below current ground surface):			35 - 45	35 - 45	35 - 45	35 - 45	21 - 31	21 - 31	21 - 31	21 - 31	36 - 46	36 - 46	36 - 46
Date Collected:			01/20/11	09/11/13	01/12/16	06/20/16	01/19/11	09/12/13	01/13/16	06/21/16	01/19/11	09/11/13	01/13/16
Area of Site			Former VRU Area										
Semivolatile Organics													
1,1'-Biphenyl	5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	**2.5 J**	**1.3 J [1.3 J]**	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2,2'-Oxybis(1-Chloropropane)	5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2,4,5-Trichlorophenol	1	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2,4,6-Trichlorophenol	1	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2,4-Dichlorophenol	5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2,4-Dimethylphenol	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	**0.49 J** [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2,4-Dinitrophenol	10	ug/L	9.7 U [9.8 U]	9.6 U	110 U	190 U	10 U	9.7 U [9.6 U]	9.8 U	490 U	9.9 U	9.7 U	9.9 U [9.7 U]
2,4-Dinitrotoluene	5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2,6-Dinitrotoluene	5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2-Chloronaphthalene	10	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2-Chlorophenol	1	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2-Methylnaphthalene	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	**25 [24]**	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2-Methylphenol	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
2-Nitroaniline	5	ug/L	9.7 U [9.8 U]	9.6 U	110 U	190 U	10 U	9.7 U [9.6 U]	9.8 U	490 U	9.9 U	9.7 U	9.9 U [9.7 U]
2-Nitrophenol	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
3,3'-Dichlorobenzidine	5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
3-Nitroaniline	5	ug/L	9.7 U [9.8 U]	9.6 U	110 U	190 U	10 U	9.7 U [9.6 U]	9.8 U	490 U	9.9 U	9.7 U	9.9 U [9.7 U]
4,6-Dinitro-2-methylphenol	- -	ug/L	9.7 U [9.8 U]	9.6 U	110 U	190 U	10 U	9.7 U [9.6 U]	9.8 U	490 U	9.9 U	9.7 U	9.9 U [9.7 U]
4-Bromophenyl-phenylether	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
4-Chloro-3-Methylphenol	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
4-Chloroaniline	5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 UJ [4.8 UJ]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
4-Chlorophenyl-phenylether	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
4-Methylphenol	- -	ug/L	9.7 U [9.8 U]	9.6 U	110 U	190 U	10 U	**0.81 J [0.79 J]**	9.8 U	490 U	9.9 U	9.7 U	9.9 U [9.7 U]
4-Nitroaniline	5	ug/L	9.7 U [9.8 U]	9.6 U	110 U	190 U	10 U	9.7 U [9.6 U]	9.8 U	490 U	9.9 U	9.7 U	9.9 U [9.7 U]
4-Nitrophenol	- -	ug/L	9.7 U [9.8 U]	9.6 U	110 U	190 U	10 U	9.7 U [9.6 U]	9.8 U	490 U	9.9 U	9.7 U	9.9 U [9.7 U]
Acenaphthene	20	ug/L	**1.3 J [1.2 J]**	4.8 U	53 U	96 U	**53**	**53 [55]**	**11**	250 U	**7.8**	**0.54 J**	**10 [11]**
Acenaphthylene	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U **[16]**	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Acetophenone	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Anthracene	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	**0.50 J**	**0.55 J [0.65 J]**	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Atrazine	7.5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Benzaldehyde	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Benzo(a)anthracene	0.002	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Benzo(a)pyrene	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Benzo(b)fluoranthene	0.002	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Benzo(g,h,i)perylene	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Benzo(k)fluoranthene	0.002	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
bis(2-Chloroethoxy)methane	5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
bis(2-Chloroethyl)ether	1	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
bis(2-Ethylhexyl)phthalate	5	ug/L	4.9 UB [4.9 UB]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Butylbenzylphthalate	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	**0.73 JB**	250 U	5.0 U	4.8 U	**0.50 JB [0.45 JB]**
Caprolactam	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Carbazole	- -	ug/L	**0.50 J [0.52 J]**	4.8 U	53 U	96 U	**22**	**23 [23]**	**3.7 J**	250 U	**3.2 J**	4.8 U	**2.4 J [2.7 J]**
Chrysene	0.002	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Dibenzo(a,h)anthracene	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Dibenzofuran	- -	ug/L	**0.53 J [0.54 J]**	9.6 U	110 U	190 U	**19**	**18 [18]**	**2.1 J**	490 U	**0.56 J**	9.7 U	**0.68 J [0.75 J]**
Diethylphthalate	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Dimethylphthalate	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-23-D2R	MW-23-D2R	MW-23-D2R	MW-23-D2R	MW-24-D1	MW-24-D1	MW-24-D1	MW-24-D1	MW-24-D2	MW-24-D2	MW-24-D2
Historical Screen Interval (feet below ground surface)			31 - 41	31 - 41	31 - 41	31 - 41	17 - 27	17 - 27	17 - 27	17 - 27	32 - 42	32 - 42	32 - 42
Current Screen Interval (Feet below current ground surface):			35 - 45	35 - 45	35 - 45	35 - 45	21 - 31	21 - 31	21 - 31	21 - 31	36 - 46	36 - 46	36 - 46
Date Collected:			01/20/11	09/11/13	01/12/16	06/20/16	01/19/11	09/12/13	01/13/16	06/21/16	01/19/11	09/11/13	01/13/16
Area of Site			Former VRU Area										
Semivolatile Organics (Cont.)													
Di-n-Butylphthalate	50	ug/L	**0.41 J [0.53 J]**	**0.53 J**	53 U	96 U	**0.51 J**	**0.31 J [0.35 J]**	4.9 U	250 U	**0.33 J**	**0.43 J**	5.0 U [4.9 U]
Di-n-Octylphthalate	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Fluoranthene	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Fluorene	50	ug/L	**0.54 J [0.58 J]**	4.8 U	53 U	96 U	**6.9**	**6.4 [6.4]**	**0.43 J**	250 U	5.0 U	4.8 U	**0.74 J [0.84 J]**
Hexachlorobenzene	0.04	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Hexachlorobutadiene	0.5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Hexachlorocyclopentadiene	5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Hexachloroethane	5	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Indeno(1,2,3-cd)pyrene	0.002	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Isophorone	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
naphthalene	10	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	**21**	**13 [12]**	**3.8 J**	250 U	**2.9 J**	4.8 U	**2.8 J [3.2 J]**
Nitrobenzene	0.4	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
N-Nitroso-di-n-propylamine	- -	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
N-Nitrosodiphenylamine	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Pentachlorophenol	- -	ug/L	9.7 U [9.8 U]	9.6 U	110 U	190 U	10 U	9.7 U [9.6 U]	9.8 U	490 U	9.9 U	9.7 U	9.9 U [9.7 U]
Phenanthrene	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	**6.7**	**6.2 [6.4]**	**1.3 J**	250 U	**0.87 J**	4.8 U	5.0 U [4.9 U]
Phenol	1	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Pyrene	50	ug/L	4.9 U [4.9 U]	4.8 U	53 U	96 U	5.0 U	4.9 U [4.8 U]	4.9 U	250 U	5.0 U	4.8 U	5.0 U [4.9 U]
Inorganics - Total													
Aluminum	- -	mg/L	0.200 U [0.200 U]	NA	NA	NA	0.200 U	NA	NA	NA	0.200 U	NA	NA
Antimony	0.003	mg/L	0.020 U [0.020 U]	NA	NA	NA	0.020 U	NA	NA	NA	0.020 U	NA	NA
Arsenic	0.025	mg/L	0.010 U [0.010 U]	NA	NA	NA	0.010 U	NA	NA	NA	0.010 U	NA	NA
Barium	1	mg/L	**0.110 [0.110]**	NA	NA	NA	**0.0200**	NA	NA	NA	**0.0200**	NA	NA
Beryllium	0.003	mg/L	0.00200 U [0.00200 U]	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA	NA
Cadmium	0.005	mg/L	**0.00580 J [0.00640 J]**	NA	NA	NA	**0.00860 J**	NA	NA	NA	**0.00860 J**	NA	NA
Calcium	- -	mg/L	**166 J [163 J]**	NA	NA	NA	**109**	NA	NA	NA	**106**	NA	NA
Chromium	0.05	mg/L	**0.00200 J [0.00190 J]**	NA	NA	NA	**0.00240 J**	NA	NA	NA	**0.00250 J**	NA	NA
Cobalt	- -	mg/L	0.00400 U [0.00400 U]	NA	NA	NA	**0.00760 J**	NA	NA	NA	0.00400 U	NA	NA
Copper	0.2	mg/L	0.0100 U [0.0100 U]	NA	NA	NA	**0.00200 J**	NA	NA	NA	**0.00170 J**	NA	NA
Iron	0.3	mg/L	**0.0650 [0.0600]**	NA	NA	**0.0400 J**	0.0500 U	NA	NA	**0.0320 J**	**0.0650**	NA	NA
Lead	0.025	mg/L	0.00500 U [0.00500 U]	NA	NA	NA	0.00500 U	NA	NA	NA	0.00500 U	NA	NA
Magnesium	35	mg/L	**286 J [284 J]**	NA	NA	NA	**365**	NA	NA	NA	**297**	NA	NA
Manganese	0.3	mg/L	**0.890 [0.850]**	NA	NA	**0.110 B**	**0.043**	NA	NA	**0.0600 B**	**0.0630**	NA	NA
Mercury	0.0007	mg/L	0.00200 U [0.00200 U]	NA	NA	NA	0.000200 U	NA	NA	NA	0.000200 U	NA	NA
Nickel	0.1	mg/L	0.0100 U [0.0100 U]	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 U	NA	NA
Potassium	- -	mg/L	**95.1 J [95.4 J]**	NA	NA	NA	**101**	NA	NA	NA	**98.7**	NA	NA
Selenium	0.01	mg/L	0.0150 U [0.0150 U]	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA	NA
Silver	0.05	mg/L	0.00300 U [0.00300 U]	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA	NA
Sodium	20	mg/L	**2,570 J [2,550 J]**	NA	NA	NA	**2,530**	NA	NA	NA	**2,330**	NA	NA
Thallium	0.0005	mg/L	0.0200 U [0.0200 U]	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA
Vanadium	- -	mg/L	**0.0110 [0.0100]**	NA	NA	NA	**0.00590**	NA	NA	NA	**0.00710**	NA	NA
Zinc	2	mg/L	0.0100 U [0.0100 U]	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00170 J**	NA	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-23-D2R	MW-23-D2R	MW-23-D2R	MW-23-D2R	MW-24-D1	MW-24-D1	MW-24-D1	MW-24-D1	MW-24-D2	MW-24-D2	MW-24-D2
Historical Screen Interval (feet below ground surface)			31 - 41	31 - 41	31 - 41	31 - 41	17 - 27	17 - 27	17 - 27	17 - 27	32 - 42	32 - 42	32 - 42
Current Screen Interval (Feet below current ground surface):			35 - 45	35 - 45	35 - 45	35 - 45	21 - 31	21 - 31	21 - 31	21 - 31	36 - 46	36 - 46	36 - 46
Date Collected:			01/20/11	09/11/13	01/12/16	06/20/16	01/19/11	09/12/13	01/13/16	06/21/16	01/19/11	09/11/13	01/13/16
Area of Site			Former VRU Area										
Inorganics-Dissolved													
Aluminum	- -	mg/L	0.200 UB [0.200 UB]	NA	NA	NA	0.200 U	NA	NA	NA	0.200 U	NA	NA
Antimony	0.003	mg/L	0.0200 U [0.0200 U]	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA
Arsenic	0.025	mg/L	**0.00950 J [0.00720 J]**	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 U	NA	NA
Barium	1	mg/L	**0.120 [0.120]**	NA	NA	NA	**0.0200**	NA	NA	NA	**0.0200**	NA	NA
Beryllium	0.003	mg/L	0.00200 U [0.00200 U]	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA	NA
Cadmium	0.005	mg/L	**0.000620 J [0.000650 J]**	NA	NA	NA	**0.000800 J**	NA	NA	NA	**0.000640 J**	NA	NA
Calcium	- -	mg/L	**185 J [186 J]**	NA	NA	NA	**108**	NA	NA	NA	**102**	NA	NA
Chromium	0.05	mg/L	**0.00380 J [0.00400]**	NA	NA	NA	**0.00240 J**	NA	NA	NA	**0.000210 J**	NA	NA
Cobalt	- -	mg/L	**0.00110 J [0.000770 J]**	NA	NA	NA	0.00400 U	NA	NA	NA	0.00400 U	NA	NA
Copper	0.2	mg/L	0.0100 U [0.0100 U]	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 U	NA	NA
Iron	0.3	mg/L	**0.0750 [0.0870]**	NA	NA	0.0500 U	0.0500 U	NA	NA	0.0500 U	0.0500 U	NA	NA
Lead	0.025	mg/L	0.00500 U [0.00500 U]	NA	NA	NA	0.00500 U	NA	NA	NA	0.00500 U	NA	NA
Magnesium	35	mg/L	**319.00 J [326.00 J]**	NA	NA	NA	**365.00**	NA	NA	NA	**289.00**	NA	NA
Manganese	0.3	mg/L	**0.880 [0.910]**	NA	NA	**0.120 B**	**0.0430**	NA	NA	**0.0590 B**	**0.0620**	NA	NA
Mercury	0.0007	mg/L	0.000200 U [0.000200 U]	NA	NA	NA	0.000200 U	NA	NA	NA	0.000200 U	NA	NA
Nickel	0.1	mg/L	0.0100 U [0.0100 U]	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 U	NA	NA
Potassium	- -	mg/L	**107.0 J [108. J]**	NA	NA	NA	**101.0**	NA	NA	NA	**97.0**	NA	NA
Selenium	0.01	mg/L	0.0150 U [0.0150 U]	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA	NA
Silver	0.05	mg/L	0.00300 U [0.00300 U]	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA	NA
Sodium	20	mg/L	**2,990 J [3,030J]**	NA	NA	NA	**2,460**	NA	NA	NA	**2,150**	NA	NA
Thallium	0.0005	mg/L	0.0200 U [0.0200 U]	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA
Vanadium	- -	mg/L	**0.00680 [0.00670]**	NA	NA	NA	**0.00550**	NA	NA	NA	**0.00560**	NA	NA
Zinc	2	mg/L	0.0100 U [0.0100 U]	NA	NA	NA	0.0100 U	NA	NA	NA	NA	NA	NA
General Chemistry													
Alkalinity	- -	mg/L	**717 [725]**	NA	NA	**543**	**1,400**	NA	NA	**642 B**	**931**	NA	NA
Alkalinity, Bicarbonate	- -	mg/L	**717 [725]**	NA	NA	**543**	**1,400**	NA	NA	**642 B**	**931**	NA	NA
Ammonia Nitrogen	- -	mg/L	**3.3 [3.7]**	NA	NA	NA	**5.5**	NA	NA	NA	**4.9**	NA	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	0.3 U [0.3 U]	NA	NA	NA	**0.021**	NA	NA	NA	**0.0041**	NA	NA
Ethene	- -	mg/L	0.3 U [0.3 U]	NA	NA	NA	**0.11 D**	NA	NA	NA	**0.023**	NA	NA
Methane	- -	mg/L	**0.42 J [1.4 J]**	NA	NA	NA	**1.9 DJ**	NA	NA	NA	**1.1 DJ**	NA	NA
Nitrate Nitrogen	- -	mg/L	0.05 U [0.05 U]	NA	NA	NA	0.05 U	NA	NA	NA	**0.12**	NA	NA
Nitrite Nitrogen	- -	mg/L	0.05 U [0.05 U]	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA
Orthophosphate	- -	mg/L	**0.52 [0.43]**	NA	NA	NA	**0.89**	NA	NA	NA	**0.58**	NA	NA
Soluble Organic Carbon	- -	mg/L	**11.2 [11]**	NA	NA	NA	**18.1**	NA	NA	NA	**12.5**	NA	NA
Sulfate	250	mg/L	**436 [438]**	NA	NA	**317**	**128**	NA	NA	**189**	**359**	NA	NA
Sulfide	- -	mg/L	**18.8 [19.2]**	NA	NA	**0.7**	**0.078 J**	NA	NA	**79.3**	**0.3**	NA	NA
Total Dissolved Solids	- -	mg/L	**9,010 [8,600]**	NA	NA	NA	**8,300**	NA	NA	NA	**8,080**	NA	NA

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Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-24-D2	MW-24-VD	MW-24-VD	MW-25-D1	MW-25-D1	MW-25-D2	MW-25-D2	MW-25-D2	MW-25-D3	MW-25-D3	MW-25-VD	MW-25-VD
Historical Screen Interval (feet below ground surface)			32 - 42	63 - 73	63 - 73	16 - 26	16 - 26	31 - 41	31 - 41	31 - 41	40 - 50	40 - 50	63 - 73	63 - 73
Current Screen Interval (Feet below current ground surface):			36 - 46	67 - 77	67 - 77	20 - 30	20 - 30	35 - 45	35 - 45	35 - 45	44 - 54	44 - 54	67 - 77	67 - 77
Date Collected:			06/21/16	01/19/11	08/21/13	01/19/11	08/21/13	01/19/11	06/26/13	08/21/13	01/21/11	08/21/13	01/19/11	08/21/13
Area of Site			Former VRU Area											
Volatile Organics														
1,1,1-Trichloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	**0.57 J**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	**2.3**	100 U **[3.2 J]**	**2.0**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	**23**	100 U **[19]**	**5.7**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 U	1.0 U	1.0 UJ	1.0 U	100 UJ [5.0 UJ]	1.0 U	8,000 U	8,000 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ
1,2-Dibromoethane	0.0006	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	0.6	ug/L	1.0 U	**0.61 J**	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	50	ug/L	10 U	10 U	10 U	10 U	1,000 U [50 U]	10 U	80,000 U	80,000 U	10 U	**12**	10 U	10 U
2-Hexanone	50	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	500 U [25 U]	5.0 U	40,000 U	40,000 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone	- -	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	500 U [25 U]	5.0 U	40,000 U	40,000 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	50	ug/L	10 U	10 U	**6.5 J**	10 U	1,000 U [50 U]	10 U	80,000 U	80,000 U	**5.3 J**	**49**	10 U	10 U
Benzene	1	ug/L	**0.97 J**	1.0 U	1.0 U	**25**	100 U **[25]**	**9.5**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	50	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	50	ug/L	1.0 U	1.0 U	1.0 U	1.0 UJ	100 U [5.0 U]	1.0 UJ	8,000 U	8,000 U	1.0 U	1.0 U	1.0 UJ	1.0 U
Bromomethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Disulfide	60	ug/L	**0.31 J**	1.0 U	84 UB	**12**	100 UB [26 UB]	**1.2**	8,000 U	8,000 U	**2.0**	**62 D**	**13**	3.3 UB
Carbon Tetrachloride	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 UJ	100 U [5.0 U]	1.0 UJ	8,000 U	8,000 U	1.0 U	1.0 U	1.0 UJ	1.0 U
Chlorobenzene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	7	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	5	ug/L	**1.6**	1.0 U	**1.7**	**5,100 D**	**6,500 [7,600 D]**	**3,500 D**	**120,000**	**83,000**	**1.3**	**2.5**	**11**	1.0 U
cis-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 UJ	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	- -	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U **[6.8]**	**1.8**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	50	ug/L	1.0 U	1.0 U	1.0 UJ	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 UJ [5.0 UJ]	1.0 U	8,000 U	8,000 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ
Ethylbenzene	5	ug/L	**0.84 J**	1.0 U	1.0 U	**12**	100 U **[14]**	**3.9**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropylbenzene	5	ug/L	1.0 U	1.0 U	1.0 U	**1.5**	100 U [5.0 U]	**0.86 J**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl acetate	- -	ug/L	2.5 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 UJ	8,000 U	**1.3**	1.0 U	1.0 U	1.0 U
Methyl tert-butyl ether	10	ug/L	**130**	1.0 U	**1.9**	**960 D**	**820 [890 D]**	**130 E**	**2,500 J**	**2,300 J**	1.0 U	**1.9**	1.0 U	**0.16 J**
Methylcyclohexane	- -	ug/L	1.0 U	1.0 U	1.0 UJ	**5.0**	100 U **[6.0]**	**0.94 J**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Methylene Chloride	5	ug/L	1.0 U	1.0 U	1.0 U	**340 D**	**540 [450]**	**3,700 D**	**110,000**	**100,000**	**43**	**53**	**3.4**	1.0 U
Styrene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	**4.5**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	5	ug/L	1.0 U	1.0 U	1.0 U	**31**	100 U **[34]**	**24**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	5	ug/L	**0.98 J**	1.0 U	1.0 U	**58**	100 UJ **[62]**	1.0 U	8,000 U	8,000 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U
trans-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	1.0 U	1.0 UJ	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 UJ	1.0 U
Trichloroethene	5	ug/L	1.0 U	1.0 U	**1.4**	**110 D**	**96 J [96]**	**17,000 D**	**450,000**	**340,000**	**4.5**	**8.7**	**180 D**	1.0 U
Trichlorofluoromethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	100 U [5.0 U]	1.0 U	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	2	ug/L	**38**	1.0 U	1.0 U	**5,900 D**	**6,300 [6,100 D]**	**140 EJ**	8,000 U	8,000 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	5	ug/L	2.0 U	2.0 U	2.0 U	**40**	200 U **[49]**	**16**	16,000 U	16,000 U	2.0 U	2.0 U	2.0 U	2.0 U

See Notes on Page 53.

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-24-D2	MW-24-VD	MW-24-VD	MW-25-D1	MW-25-D1	MW-25-D2	MW-25-D2	MW-25-D2	MW-25-D3	MW-25-D3	MW-25-VD	MW-25-VD
Historical Screen Interval (feet below ground surface)			32 - 42	63 - 73	63 - 73	16 - 26	16 - 26	31 - 41	31 - 41	31 - 41	40 - 50	40 - 50	63 - 73	63 - 73
Current Screen Interval (Feet below current ground surface):			36 - 46	67 - 77	67 - 77	20 - 30	20 - 30	35 - 45	35 - 45	35 - 45	44 - 54	44 - 54	67 - 77	67 - 77
Date Collected:			06/21/16	01/19/11	08/21/13	01/19/11	08/21/13	01/19/11	06/26/13	08/21/13	01/21/11	08/21/13	01/19/11	08/21/13
Area of Site			Former VRU Area											
Semivolatile Organics														
1,1'-Biphenyl	5	ug/L	250 U	4.8 U	4.6 U	**3.4 J**	**13 [13 J]**	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2,4,5-Trichlorophenol	1	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2,4,6-Trichlorophenol	1	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2,4-Dichlorophenol	5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2,4-Dimethylphenol	50	ug/L	250 U	4.8 U	4.6 U	**1.1 J**	**10 [7.4 J]**	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2,4-Dinitrophenol	10	ug/L	500 U	9.6 U	9.2 U	9.5 U	9.5 U [93 U]	48 U	NA	9.3 U	10 U	9.2 U	9.5 U	9.1 U
2,4-Dinitrotoluene	5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2,6-Dinitrotoluene	5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2-Chloronaphthalene	10	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2-Chlorophenol	1	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2-Methylnaphthalene	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	**3.7 J** [46 U]	24 U	NA	**0.82 J**	5.0 U	4.6 U	4.7 U	4.5 U
2-Methylphenol	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	**6.4 [7.3 J]**	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
2-Nitroaniline	5	ug/L	500 U	9.6 U	9.2 U	9.5 U	9.5 U [93 U]	48 U	NA	9.3 U	10 U	9.2 U	9.5 U	9.1 U
2-Nitrophenol	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
3,3'-Dichlorobenzidine	5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
3-Nitroaniline	5	ug/L	500 U	9.6 U	9.2 UJ	9.5 U	9.5 UJ [93 UJ]	48 U	NA	9.3 UJ	10 U	9.2 UJ	9.5 U	9.1 UJ
4,6-Dinitro-2-methylphenol	- -	ug/L	500 U	9.6 U	9.2 U	9.5 U	9.5 U [93 U]	48 U	NA	9.3 U	10 U	9.2 U	9.5 U	9.1 U
4-Bromophenyl-phenylether	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
4-Chloro-3-Methylphenol	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
4-Chloroaniline	5	ug/L	250 U	4.8 U	4.6 UJ	4.7 U	4.7 UJ [46 UJ]	24 U	NA	4.7 UJ	5.0 U	4.6 UJ	4.7 U	4.5 UJ
4-Chlorophenyl-phenylether	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
4-Methylphenol	- -	ug/L	500 U	9.6 U	9.2 U	9.5 U	9.5 U [93 U]	48 U	NA	9.3 U	**0.53 J**	9.2 U	9.5 U	9.1 U
4-Nitroaniline	5	ug/L	500 U	9.6 U	9.2 U	9.5 U	9.5 U [93 U]	48 U	NA	9.3 U	10 U	9.2 U	9.5 U	9.1 U
4-Nitrophenol	- -	ug/L	500 U	9.6 U	9.2 U	9.5 U	9.5 U [93 U]	48 U	NA	9.3 U	10 U	9.2 U	9.5 U	9.1 U
Acenaphthene	20	ug/L	250 U	4.8 U	4.6 U	**76**	**100 D [76]**	**7.7 J**	NA	**1.1 J**	5.0 U	4.6 U	4.7 U	4.5 U
Acenaphthylene	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	**0.49 J** [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Acetophenone	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	**0.59 J**	4.7 U	4.5 U
Anthracene	50	ug/L	250 U	4.8 U	4.6 U	**1.6 J**	**1.2 J [19 J]**	24 U	NA	**0.39 J**	5.0 U	4.6 U	4.7 U	4.5 U
Atrazine	7.5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Benzaldehyde	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	**1.0 J** [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Benzo(a)anthracene	0.002	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Benzo(a)pyrene	- -	ug/L	250 U	4.8 U	4.6 UJ	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Benzo(b)fluoranthene	0.002	ug/L	250 U	4.8 U	4.6 UJ	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Benzo(g,h,i)perylene	- -	ug/L	250 U	4.8 U	4.6 UJ	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Benzo(k)fluoranthene	0.002	ug/L	250 U	4.8 U	4.6 UJ	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
bis(2-Chloroethoxy)methane	5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
bis(2-Chloroethyl)ether	1	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
bis(2-Ethylhexyl)phthalate	5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 UJ	4.6 U	4.7 U	4.5 U
Butylbenzylphthalate	50	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Caprolactam	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Carbazole	- -	ug/L	250 U	4.8 U	4.6 U	**42**	**57 D [46]**	24 U	NA	**0.35 J**	5.0 U	**0.57 J**	4.7 U	4.5 U
Chrysene	0.002	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Dibenzo(a,h)anthracene	- -	ug/L	250 U	4.8 U	4.6 UJ	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Dibenzofuran	- -	ug/L	500 U	9.6 U	9.2 U	**40**	**46 DJ [33 J]**	48 U	NA	**0.70 J**	10 U	9.2 U	9.5 U	9.1 U
Diethylphthalate	50	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Dimethylphthalate	50	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U

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Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-24-D2	MW-24-VD	MW-24-VD	MW-25-D1	MW-25-D1	MW-25-D2	MW-25-D2	MW-25-D2	MW-25-D3	MW-25-D3	MW-25-VD	MW-25-VD
Historical Screen Interval (feet below ground surface)			32 - 42	63 - 73	63 - 73	16 - 26	16 - 26	31 - 41	31 - 41	31 - 41	40 - 50	40 - 50	63 - 73	63 - 73
Current Screen Interval (Feet below current ground surface):			36 - 46	67 - 77	67 - 77	20 - 30	20 - 30	35 - 45	35 - 45	35 - 45	44 - 54	44 - 54	67 - 77	67 - 77
Date Collected:			06/21/16	01/19/11	08/21/13	01/19/11	08/21/13	01/19/11	06/26/13	08/21/13	01/21/11	08/21/13	01/19/11	08/21/13
Area of Site			Former VRU Area											
Semivolatile Organics (Cont.)														
Di-n-Butylphthalate	50	ug/L	250 U	4.8 U	**0.34 J**	**0.50 J**	**0.62 J** [46 U]	24 U	NA	**0.41 J**	**0.36 J**	**0.58 J**	4.7 U	**0.51 J**
Di-n-Octylphthalate	50	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Fluoranthene	50	ug/L	250 U	4.8 U	4.6 U	**0.52 J**	4.7 U [46 U]	24 U	NA	**1.1 J**	5.0 U	4.6 U	4.7 U	4.5 U
Fluorene	50	ug/L	250 U	4.8 U	4.6 U	**20**	**33 [20 J]**	24 U	NA	**0.73 J**	5.0 U	4.6 U	4.7 U	4.5 U
Hexachlorobenzene	0.04	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Hexachlorobutadiene	0.5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Hexachlorocyclopentadiene	5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Hexachloroethane	5	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	250 U	4.8 U	4.6 UJ	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Isophorone	50	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
naphthalene	10	ug/L	250 U	4.8 U	4.6 U	**23**	**240 D [180]**	24 U	NA	**3.3 J**	5.0 U	4.6 U	4.7 U	4.5 U
Nitrobenzene	0.4	ug/L	250 U	4.8 U	4.6 U	4.7 U	**3.2 J** [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
N-Nitroso-di-n-propylamine	- -	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
N-Nitrosodiphenylamine	50	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	5.0 U	4.6 U	4.7 U	4.5 U
Pentachlorophenol	- -	ug/L	500 U	9.6 U	9.2 U	9.5 U	9.5 U [93 U]	48 U	NA	9.3 U	10 U	9.2 U	9.5 U	9.1 U
Phenanthrene	50	ug/L	250 U	4.8 U	4.6 U	**26**	**27** [46 UB]	24 U	NA	4.7 UB	5.0 U	4.6 UB	4.7 U	4.5 UB
Phenol	1	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	4.7 U	**6.5**	4.6 U	4.7 U	4.5 U
Pyrene	50	ug/L	250 U	4.8 U	4.6 U	4.7 U	4.7 U [46 U]	24 U	NA	**0.40 J**	5.0 U	4.6 U	4.7 U	4.5 U
Inorganics - Total														
Aluminum	- -	mg/L	NA	0.200 U	NA	0.200 U	NA	**0.076 J**	NA	NA	0.200 U	NA	**0.055 J**	NA
Antimony	0.003	mg/L	NA	0.020 U	NA	0.020 U	NA	0.020 U	NA	NA	0.020 U	NA	0.020 U	NA
Arsenic	0.025	mg/L	NA	0.010 U	NA	**0.006 J**	NA	0.010 U	NA	NA	0.010 U	NA	**0.006 J**	NA
Barium	1	mg/L	NA	**0.0670**	NA	**0.0180**	NA	**0.0230**	NA	NA	**0.140**	NA	**0.110**	NA
Beryllium	0.003	mg/L	NA	0.00200 U	NA	0.00200 U	NA	0.00200 U	NA	NA	0.00200 U	NA	0.00200 U	NA
Cadmium	0.005	mg/L	NA	**0.00990 J**	NA	**0.00770 J**	NA	**0.00850 J**	NA	NA	**0.00800 J**	NA	**0.00840 J**	NA
Calcium	- -	mg/L	NA	**342**	NA	**102**	NA	**137**	NA	NA	**334**	NA	**359**	NA
Chromium	0.05	mg/L	NA	0.00400 U	NA	**0.00290 J**	NA	**0.00250 J**	NA	NA	**0.00840**	NA	0.00400 U	NA
Cobalt	- -	mg/L	NA	0.00400 U	NA	0.00400 U	NA	**0.00770 J**	NA	NA	**0.00150 J**	NA	0.00400 U	NA
Copper	0.2	mg/L	NA	0.0100 U	NA	0.0100 U	NA	0.0100 U	NA	NA	0.0100 U	NA	0.0100 U	NA
Iron	0.3	mg/L	**0.0400 J**	**29.300**	NA	0.0500 U	NA	**0.140**	NA	NA	**0.880**	NA	**14.500**	NA
Lead	0.025	mg/L	NA	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA	NA	0.00500 U	NA	0.00500 U	NA
Magnesium	35	mg/L	NA	**1,210**	NA	**362.0**	NA	**331.0**	NA	NA	**797.0 J**	NA	**1,090.0**	NA
Manganese	0.3	mg/L	**0.0550 B**	**0.670**	NA	**0.0580**	NA	**0.120**	NA	NA	**0.740**	NA	**0.810**	NA
Mercury	0.0007	mg/L	NA	0.000200 U	NA	0.000200 U	NA	0.000200 U	NA	NA	0.000200 U	NA	0.000200 U	NA
Nickel	0.1	mg/L	NA	**0.00150 J**	NA	0.0100 U	NA	0.0100 U	NA	NA	**0.00380 J**	NA	**0.00210 J**	NA
Potassium	- -	mg/L	NA	**306**	NA	**105**	NA	**112**	NA	NA	**270**	NA	**283**	NA
Selenium	0.01	mg/L	NA	0.0150 U	NA	0.0150 U	NA	0.0150 U	NA	NA	0.0150 U	NA	0.0150 U	NA
Silver	0.05	mg/L	NA	NA	NA	0.00300 U	NA	0.00300 U	NA	NA	0.00300 U	NA	0.00300 U	NA
Sodium	20	mg/L	NA	**8,710**	NA	**2,530**	NA	**2,670**	NA	NA	**6,280 J**	NA	**7,760**	NA
Thallium	0.0005	mg/L	NA	0.0200 U	NA	0.0200 U	NA	0.0200 U	NA	NA	0.0200 U	NA	0.0200 U	NA
Vanadium	- -	mg/L	NA	**0.00670**	NA	**0.00620**	NA	**0.00800**	NA	NA	**0.00580**	NA	**0.00520**	NA
Zinc	2	mg/L	NA	0.0100 U	NA	0.0100 U	NA	**0.00300 J**	NA	NA	0.0100 U	NA	0.0100 U	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-24-D2	MW-24-VD	MW-24-VD	MW-25-D1	MW-25-D1	MW-25-D2	MW-25-D2	MW-25-D2	MW-25-D3	MW-25-D3	MW-25-VD	MW-25-VD
Historical Screen Interval (feet below ground surface)			32 - 42	63 - 73	63 - 73	16 - 26	16 - 26	31 - 41	31 - 41	31 - 41	40 - 50	40 - 50	63 - 73	63 - 73
Current Screen Interval (Feet below current ground surface):			36 - 46	67 - 77	67 - 77	20 - 30	20 - 30	35 - 45	35 - 45	35 - 45	44 - 54	44 - 54	67 - 77	67 - 77
Date Collected:			06/21/16	01/19/11	08/21/13	01/19/11	08/21/13	01/19/11	06/26/13	08/21/13	01/21/11	08/21/13	01/19/11	08/21/13
Area of Site			Former VRU Area											
Inorganics-Dissolved														
Aluminum	- -	mg/L	NA	0.200 U	NA	0.200 U	NA	0.200 U	NA	NA	0.200 U	NA	0.200 U	NA
Antimony	0.003	mg/L	NA	0.0200 U	NA	0.0200 U	NA	0.0200 U	NA	NA	0.0200 U	NA	0.0200 U	NA
Arsenic	0.025	mg/L	NA	0.0100 U	NA	0.0100 U	NA	0.0100 U	NA	NA	0.0100 U	NA	0.0100 U	NA
Barium	1	mg/L	NA	**0.0650**	NA	**0.0180**	NA	**0.0240**	NA	NA	**0.140**	NA	**0.0960**	NA
Beryllium	0.003	mg/L	NA	0.00200 U	NA	0.00200 U	NA	0.00200 U	NA	NA	0.00200 U	NA	0.00200 U	NA
Cadmium	0.005	mg/L	NA	**0.000770 J**	NA	**0.000790 J**	NA	**0.000700 J**	NA	NA	**0.000820 J**	NA	**0.000890 J**	NA
Calcium	- -	mg/L	NA	**333**	NA	**102**	NA	**139**	NA	NA	**317**	NA	**324**	NA
Chromium	0.05	mg/L	NA	0.00400 U	NA	**0.00300 J**	NA	**0.00220 J**	NA	NA	**0.00410**	NA	0.00400 U	NA
Cobalt	- -	mg/L	NA	**0.009930 J**	NA	0.00400 U	NA	0.00400 U	NA	NA	**0.00100 J**	NA	0.00400 U	NA
Copper	0.2	mg/L	NA	0.0100 U	NA	0.0100 U	NA	0.0100 U	NA	NA	0.0100 UB	NA	0.0100 U	NA
Iron	0.3	mg/L	**0.0760**	**27.40**	NA	0.0500 U	NA	0.0500 U	NA	NA	**0.640**	NA	**1.70**	NA
Lead	0.025	mg/L	NA	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA	NA	0.00500 U	NA	0.00500 U	NA
Magnesium	35	mg/L	NA	**1,180**	NA	**370.00**	NA	**339.00**	NA	NA	**859.00**	NA	**865.00**	NA
Manganese	0.3	mg/L	**0.0550 B**	**0.600**	NA	**0.0590**	NA	**0.120**	NA	NA	**0.720**	NA	**0.880**	NA
Mercury	0.0007	mg/L	NA	0.000200 U	NA	0.000200 U	NA	0.000200 U	NA	NA	0.000200 U	NA	NA	NA
Nickel	0.1	mg/L	NA	**0.00220 J**	NA	0.0100 U	NA	0.0100 U	NA	NA	**0.00250 J**	NA	0.0100 U	NA
Potassium	- -	mg/L	NA	**317.0**	NA	**109**	NA	**117**	NA	NA	**244**	NA	**234**	NA
Selenium	0.01	mg/L	NA	0.0150 U	NA	0.0150 U	NA	0.0150 U	NA	NA	0.0150 U	NA	0.0150 U	NA
Silver	0.05	mg/L	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	NA	0.00300 U	NA	0.00300 U	NA
Sodium	20	mg/L	NA	**8,550**	NA	**2,720**	NA	**2,780**	NA	NA	**6,940**	NA	**6,250**	NA
Thallium	0.0005	mg/L	NA	0.0200 U	NA	0.0200 U	NA	0.0200 U	NA	NA	0.0200 U	NA	0.0200 U	NA
Vanadium	- -	mg/L	NA	**0.00510**	NA	**0.00580**	NA	**0.00730**	NA	NA	**0.00800**	NA	**0.00460 J**	NA
Zinc	2	mg/L	NA	0.0100 U	NA	0.0100 U	NA	0.0100 U	NA	NA	0.0100 U	NA	**0.00170 J**	NA
General Chemistry														
Alkalinity	- -	mg/L	**741 B**	**408**	NA	**1,160**	NA	**866**	NA	NA	**1,100**	NA	**564**	NA
Alkalinity, Bicarbonate	- -	mg/L	**741 B**	**408**	NA	**1,160**	NA	**866**	NA	NA	**1,100**	NA	**564**	NA
Ammonia Nitrogen	- -	mg/L	NA	**3.7**	NA	**6.1**	NA	**6.4**	NA	NA	**1.2**	NA	**3.9**	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	NA	**0.0046**	NA	**0.029**	NA	**0.0064**	NA	NA	0.3 U	NA	0.0015 U	NA
Ethene	- -	mg/L	NA	0.0015 U	NA	**0.097**	NA	**0.021**	NA	NA	0.3 U	NA	0.0015 U	NA
Methane	- -	mg/L	NA	**0.17 DJ**	NA	**4.2 DJ**	NA	**2.7 DJ**	NA	NA	**0.27**	NA	**0.33 DJ**	NA
Nitrate Nitrogen	- -	mg/L	NA	0.05 U	NA	0.05 U	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U	NA
Nitrite Nitrogen	- -	mg/L	NA	0.05 U	NA	0.05 U	NA	0.05 U	NA	NA	0.05 U	NA	0.05 U	NA
Orthophosphate	- -	mg/L	NA	**0.11**	NA	**0.44**	NA	**0.59**	NA	NA	**0.27**	NA	**0.39**	NA
Soluble Organic Carbon	- -	mg/L	NA	**5**	NA	**15.6**	NA	**12.7**	NA	NA	**29.2 J**	NA	**4.9**	NA
Sulfate	250	mg/L	**270**	**1,800**	NA	**434**	NA	**404**	NA	NA	**1,850**	NA	**1,310**	NA
Sulfide	- -	mg/L	**92.2**	0.1 U	NA	**0.053 J**	NA	**0.3**	NA	NA	**7.1**	NA	**0.21**	NA
Total Dissolved Solids	- -	mg/L	NA	**30,100**	NA	**8,670**	NA	**9,670**	NA	NA	**23,300**	NA	**25,200**	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-VD	MW-26-VD	MW-26-VD	MW-26-VD	MW-27-D1
Historical Screen Interval (feet below ground surface)			15 - 25	15 - 25	15 - 25	15 - 25	30 - 40	30 - 40	30 - 40	30 - 40	58 - 68	58 - 68	58 - 68	58 - 68	18 - 28
Current Screen Interval (Feet below current ground surface):			19 - 29	19 - 29	19 - 29	19 - 29	34 - 44	34 - 44	34 - 44	34 - 44	62 - 72	62 - 72	62 - 72	62 - 72	22 - 32
Date Collected:			01/25/11	09/10/13	01/12/16	06/22/16	01/25/11	09/10/13	01/12/16	06/22/16	01/18/11	09/10/13	01/13/16	06/22/16	01/18/11
Area of Site			Former VRU Area												
Volatile Organics															
1,1,1-Trichloroethane	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	**0.51 J**	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	0.0006	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	0.6	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	3	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	3	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
2-Butanone	50	ug/L	**31 J**	50 U [50 U]	50 U	40 U	10 U	50 U	50 U	10 U	**53**	100 U	10 U	10 U	10 U
2-Hexanone	50	ug/L	25 U	25 U [25 U]	25 U	20 U	5.0 U	25 U	25 U	5.0 U	5.0 U	50 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone	- -	ug/L	25 U	25 U [25 U]	25 U	20 U	5.0 U	25 U	25 U	5.0 U	5.0 U	50 U	5.0 U	5.0 U	5.0 U
Acetone	50	ug/L	**74 J**	50 U [50 U]	50 U*	40 U	10 U	50 U	50 U*	10 U	**84**	100 U	10 U*	**170**	10 U
Benzene	1	ug/L	5.0 U	**7.7 [7.3]**	**9.1**	**9.3**	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	50	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Bromoform	50	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Bromomethane	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Carbon Disulfide	60	ug/L	**37**	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	**1.4**	**59**	10 U	1.0 U	**0.19 J**	1.0 U
Carbon Tetrachloride	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Chloroethane	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 UJ	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Chloroform	7	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Chloromethane	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	**0.86 J**	1.0 U	10 U	1.0 U	1.0 U	**29**
cis-1,3-Dichloropropene	0.4	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Cyclohexane	- -	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	50	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Isopropylbenzene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Methyl acetate	- -	ug/L	5.0 U	5.0 U [5.0 U]	13 U	10 U	1.0 U	5.0 U	13 U	2.5 U	**5.5**	10 U	2.5 U	2.5 U	1.0 U
Methyl tert-butyl ether	10	ug/L	5.0 U	**420 [410]**	**380**	**340**	1.0 U	**47**	5.0 U	**59**	**1.5**	10 U	1.0 U	**0.96 J**	**26**
Methylcyclohexane	- -	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Styrene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Toluene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	**0.93 J**	10 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	0.4	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	5	ug/L	5.0 U	5.0 U [5.0 U]	5.0 U	4.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	2	ug/L	5.0 U	**13 [11]**	**16**	**20**	1.0 U	5.0 U	5.0 U	**1.2**	1.0 U	10 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	5	ug/L	10 U	10 U [10 U]	10 U	8.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	20 U	2.0 U	2.0 U	2.0 U

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-VD	MW-26-VD	MW-26-VD	MW-26-VD	MW-27-D1
Historical Screen Interval (feet below ground surface)			15 - 25	15 - 25	15 - 25	15 - 25	30 - 40	30 - 40	30 - 40	30 - 40	58 - 68	58 - 68	58 - 68	58 - 68	18 - 28
Current Screen Interval (Feet below current ground surface):			19 - 29	19 - 29	19 - 29	19 - 29	34 - 44	34 - 44	34 - 44	34 - 44	62 - 72	62 - 72	62 - 72	62 - 72	22 - 32
Date Collected:			01/25/11	09/10/13	01/12/16	06/22/16	01/25/11	09/10/13	01/12/16	06/22/16	01/18/11	09/10/13	01/13/16	06/22/16	01/18/11
Area of Site			Former VRU Area												
Semivolatile Organics															
1,1'-Biphenyl	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2,4,5-Trichlorophenol	1	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2,4,6-Trichlorophenol	1	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2,4-Dichlorophenol	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2,4-Dimethylphenol	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2,4-Dinitrophenol	10	ug/L	10 U	9.6 U [10 U]	9.5 U	9.3 U	9.8 U	9.6 UJ	97 U	9.3 U	9.5 U	9.7 U	120 U	9.7 U	11 U
2,4-Dinitrotoluene	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2,6-Dinitrotoluene	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2-Chloronaphthalene	10	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2-Chlorophenol	1	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2-Methylnaphthalene	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2-Methylphenol	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
2-Nitroaniline	5	ug/L	10 U	9.6 U [10 U]	9.5 U	9.3 U	9.8 U	9.6 U	97 U	9.3 U	9.5 U	9.7 U	120 U	9.7 U	11 U
2-Nitrophenol	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
3,3'-Dichlorobenzidine	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 UF1	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
3-Nitroaniline	5	ug/L	10 U	9.6 U [10 U]	9.5 U	9.3 U	9.8 U	9.6 U	97 U	9.3 U	9.5 U	9.7 U	120 U	9.7 U	11 U
4,6-Dinitro-2-methylphenol	- -	ug/L	10 U	9.6 U [10 U]	9.5 U	9.3 U	9.8 U	9.6 U	97 U	9.3 U	9.5 U	9.7 U	120 U	9.7 U	11 U
4-Bromophenyl-phenylether	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
4-Chloro-3-Methylphenol	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
4-Chloroaniline	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
4-Chlorophenyl-phenylether	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
4-Methylphenol	- -	ug/L	**45**	9.6 U [10 U]	9.5 U	9.3 U	9.8 U	9.6 U	97 U	9.3 U	**47**	9.7 U	120 U	9.7 U	11 U
4-Nitroaniline	5	ug/L	10 U	9.6 U [10 U]	9.5 U	9.3 U	9.8 U	9.6 U	97 U	9.3 U	9.5 U	9.7 U	120 U	9.7 U	11 U
4-Nitrophenol	- -	ug/L	10 U	9.6 U [10 U]	9.5 U	9.3 U	9.8 U	9.6 U	97 U	9.3 U	9.5 U	9.7 U	120 U	9.7 U	11 U
Acenaphthene	20	ug/L	5.0 U	**3.0 J [3.4 J]**	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Acenaphthylene	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Acetophenone	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	**1.1 J**	4.8 U	59 U	4.8 U	5.3 U
Anthracene	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Atrazine	7.5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Benzaldehyde	- -	ug/L	5.0 U	4.8 U [5.0 U]	**0.30 J**	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Benzo(a)anthracene	0.002	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Benzo(a)pyrene	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Benzo(b)fluoranthene	0.002	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Benzo(g,h,i)perylene	- -	ug/L	5.0 U	4.8 UJ [5.0 U]	4.8 U	4.6 UF1	4.9 U	4.8 UJ	49 U	4.7 U	4.8 U	4.8 UJ	59 U	4.8 U	5.3 U
Benzo(k)fluoranthene	0.002	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
bis(2-Chloroethoxy)methane	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
bis(2-Chloroethyl)ether	1	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
bis(2-Ethylhexyl)phthalate	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	**11 BF1**	4.9 U	4.8 UJ	49 U	**4.4 JB**	4.8 U	4.8 U	59 U	**7.0 B**	5.3 U
Butylbenzylphthalate	50	ug/L	5.0 U	4.8 U [5.0 U]	**0.43 JB**	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	**96 B**	4.8 U	5.3 U
Caprolactam	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	**14**
Carbazole	- -	ug/L	5.0 U	**3.0 J [3.3 J]**	4.8 U	**0.87 J**	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Chrysene	0.002	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Dibenzo(a,h)anthracene	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 UF1	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Dibenzofuran	- -	ug/L	10 U	9.6 U [10 U]	9.5 U	9.3 U	9.8 U	9.6 U	97 U	9.3 U	9.5 U	9.7 U	120 U	9.7 U	11 U
Diethylphthalate	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Dimethylphthalate	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U

See Notes on Page 53.

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-VD	MW-26-VD	MW-26-VD	MW-26-VD	MW-27-D1
Historical Screen Interval (feet below ground surface)			15 - 25	15 - 25	15 - 25	15 - 25	30 - 40	30 - 40	30 - 40	30 - 40	58 - 68	58 - 68	58 - 68	58 - 68	18 - 28
Current Screen Interval (Feet below current ground surface):			19 - 29	19 - 29	19 - 29	19 - 29	34 - 44	34 - 44	34 - 44	34 - 44	62 - 72	62 - 72	62 - 72	62 - 72	22 - 32
Date Collected:			01/25/11	09/10/13	01/12/16	06/22/16	01/25/11	09/10/13	01/12/16	06/22/16	01/18/11	09/10/13	01/13/16	06/22/16	01/18/11
Area of Site			Former VRU Area												
Semivolatile Organics (Cont.)															
Di-n-Butylphthalate	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	**0.43 J**	49 U	4.7 U	**0.48 J**	**0.40 J**	59 U	4.8 U	**0.44 J**
Di-n-Octylphthalate	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Fluoranthene	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Fluorene	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Hexachlorobenzene	0.04	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Hexachlorobutadiene	0.5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Hexachlorocyclopentadiene	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 UF1	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Hexachloroethane	5	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 UF1	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Isophorone	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
naphthalene	10	ug/L	**0.80 J**	**1.0 J [1.1 J]**	4.8 U	**0.96 J**	4.9 U	4.8 U	49 U	4.7 U	**1.7 J**	4.8 U	59 U	4.8 U	5.3 U
Nitrobenzene	0.4	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
N-Nitroso-di-n-propylamine	- -	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
N-Nitrosodiphenylamine	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Pentachlorophenol	- -	ug/L	10 U	9.6 U [10 U]	9.5 U	9.3 UF1	9.8 U	9.6 U	97 U	9.3 U	9.5 U	9.7 U	120 U	9.7 U	11 U
Phenanthrene	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Phenol	1	ug/L	**14**	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 U	49 U	4.7 U	**8.4**	4.8 U	59 U	4.8 U	5.3 U
Pyrene	50	ug/L	5.0 U	4.8 U [5.0 U]	4.8 U	4.6 U	4.9 U	4.8 UJ	49 U	4.7 U	4.8 U	4.8 U	59 U	4.8 U	5.3 U
Inorganics - Total															
Aluminum	- -	mg/L	**4.00**	NA	NA	NA	**1.10**	NA	NA	NA	0.20 U	NA	NA	NA	**0.097 J**
Antimony	0.003	mg/L	0.020 U	NA	NA	NA	0.020 U	NA	NA	NA	0.020 UJ	NA	NA	NA	0.020 UJ
Arsenic	0.025	mg/L	**0.0092 J**	NA	NA	NA	0.010 U	NA	NA	NA	0.010 U	NA	NA	NA	0.010 U
Barium	1	mg/L	**0.270**	NA	NA	NA	**0.0480**	NA	NA	NA	**0.390**	NA	NA	NA	**0.0340**
Beryllium	0.003	mg/L	0.00200 U	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U
Cadmium	0.005	mg/L	**0.00940 J**	NA	NA	NA	**0.00160**	NA	NA	NA	0.00100 UB	NA	NA	NA	**0.00450 J**
Calcium	- -	mg/L	**662**	NA	NA	NA	**299**	NA	NA	NA	**996**	NA	NA	NA	**97.8**
Chromium	0.05	mg/L	**0.00910**	NA	NA	NA	**0.00830**	NA	NA	NA	**0.00480**	NA	NA	NA	**0.00450**
Cobalt	- -	mg/L	**0.00300 J**	NA	NA	NA	**0.00150 J**	NA	NA	NA	**0.00470**	NA	NA	NA	**0.00650 J**
Copper	0.2	mg/L	**0.00440 J**	NA	NA	NA	**0.0130**	NA	NA	NA	**0.00700 J**	NA	NA	NA	**0.00380 J**
Iron	0.3	mg/L	**2.400**	NA	NA	**0.0350 J**	**1.300**	NA	NA	**0.510**	**0.0900**	NA	NA	**81.5**	**0.110**
Lead	0.025	mg/L	**0.00590**	NA	NA	NA	0.00500 U	NA	NA	NA	0.00500 U	NA	NA	NA	0.00500 U
Magnesium	35	mg/L	**234.0**	NA	NA	NA	**681.000**	NA	NA	NA	**13.300**	NA	NA	NA	**294.000**
Manganese	0.3	mg/L	**0.390**	NA	NA	**0.0350 B**	**0.140**	NA	NA	**0.690 B**	0.00390 UB	NA	NA	**3.00 B**	**0.0770**
Mercury	0.0007	mg/L	0.000200 U	NA	NA	NA	0.000200 U	NA	NA	NA	0.000200 U	NA	NA	NA	0.000200 U
Nickel	0.1	mg/L	**0.0200**	NA	NA	NA	**0.00150 J**	NA	NA	NA	**0.0430**	NA	NA	NA	0.0100 U
Potassium	- -	mg/L	**184**	NA	NA	NA	**235**	NA	NA	NA	**216**	NA	NA	NA	**103**
Selenium	0.01	mg/L	0.0150 U	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U
Silver	0.05	mg/L	0.00300 U	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U
Sodium	20	mg/L	**3,700**	NA	NA	NA	**5,620**	NA	NA	NA	**4,670**	NA	NA	NA	**2,230**
Thallium	0.0005	mg/L	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U
Vanadium	- -	mg/L	**0.00620**	NA	NA	NA	**0.00970**	NA	NA	NA	0.005 U	NA	NA	NA	**0.00470 J**
Zinc	2	mg/L	**0.0150**	NA	NA	NA	**0.0330**	NA	NA	NA	**0.00440 J**	NA	NA	NA	**0.00220 J**

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D1	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-D2	MW-26-VD	MW-26-VD	MW-26-VD	MW-26-VD	MW-27-D1
Historical Screen Interval (feet below ground surface)			15 - 25	15 - 25	15 - 25	15 - 25	30 - 40	30 - 40	30 - 40	30 - 40	58 - 68	58 - 68	58 - 68	58 - 68	18 - 28
Current Screen Interval (Feet below current ground surface):			19 - 29	19 - 29	19 - 29	19 - 29	34 - 44	34 - 44	34 - 44	34 - 44	62 - 72	62 - 72	62 - 72	62 - 72	22 - 32
Date Collected:			01/25/11	09/10/13	01/12/16	06/22/16	01/25/11	09/10/13	01/12/16	06/22/16	01/18/11	09/10/13	01/13/16	06/22/16	01/18/11
Area of Site			Former VRU Area												
Inorganics-Dissolved															
Aluminum	- -	mg/L	0.200 UB	NA	NA	NA	0.200 UB	NA	NA	NA	0.200 U	NA	NA	NA	0.200 U
Antimony	0.003	mg/L	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U
Arsenic	0.025	mg/L	0.0100 U	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 U
Barium	1	mg/L	**0.250**	NA	NA	NA	**0.0480**	NA	NA	NA	**0.370**	NA	NA	NA	**0.0330**
Beryllium	0.003	mg/L	0.00200 U	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U
Cadmium	0.005	mg/L	**0.000880 J**	NA	NA	NA	**0.00110**	NA	NA	NA	0.000100 U	NA	NA	NA	**0.000530 J**
Calcium	- -	mg/L	**614**	NA	NA	NA	**286**	NA	NA	NA	**987**	NA	NA	NA	**102**
Chromium	0.05	mg/L	**0.00360 J**	NA	NA	NA	**0.00490**	NA	NA	NA	**0.00240 J**	NA	NA	NA	**0.00380 J**
Cobalt	- -	mg/L	**0.00150 J**	NA	NA	NA	**0.00140 J**	NA	NA	NA	**0.00420**	NA	NA	NA	**0.000680 J**
Copper	0.2	mg/L	0.0100 U	NA	NA	NA	**0.00210 J**	NA	NA	NA	**0.00290 J**	NA	NA	NA	0.0100 U
Iron	0.3	mg/L	0.0500 U	NA	NA	0.0500 U	**0.250**	NA	NA	**0.490 B**	0.0500 U	NA	NA	**74.0 B**	0.0500 U
Lead	0.025	mg/L	0.00500 U	NA	NA	NA	0.00500 U	NA	NA	NA	0.00500 U	NA	NA	NA	0.00500 U
Magnesium	35	mg/L	**252.00**	NA	NA	NA	**729.00**	NA	NA	NA	**12.40**	NA	NA	NA	**291**
Manganese	0.3	mg/L	**0.400**	NA	NA	**0.0350 B**	**0.130**	NA	NA	**0.700 B**	0.00300 U	NA	NA	**2.60 B**	**0.0720**
Mercury	0.0007	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000200 U
Nickel	0.1	mg/L	**0.0120**	NA	NA	NA	0.0100 U	NA	NA	NA	**0.0410**	NA	NA	NA	0.0100 U
Potassium	- -	mg/L	**185**	NA	NA	NA	**235**	NA	NA	NA	**210**	NA	NA	NA	**105**
Selenium	0.01	mg/L	0.0150 U	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U
Silver	0.05	mg/L	0.00300 U	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U
Sodium	20	mg/L	**3,530**	NA	NA	NA	**5,920**	NA	NA	NA	**4,710**	NA	NA	NA	**2,220**
Thallium	0.0005	mg/L	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U
Vanadium	- -	mg/L	0.005 U	NA	NA	NA	**0.00660**	NA	NA	NA	0.005 U	NA	NA	NA	**0.00450 J**
Zinc	2	mg/L	**0.110**	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 U
General Chemistry															
Alkalinity	- -	mg/L	**455**	NA	NA	**569 B**	**487**	NA	NA	**344**	**219**	NA	NA	**176 B**	**897**
Alkalinity, Bicarbonate	- -	mg/L	**455**	NA	NA	**569 B**	**487**	NA	NA	**344**	**219**	NA	NA	**176 B**	**897**
Ammonia Nitrogen	- -	mg/L	**1.3**	NA	NA	NA	**3.5**	NA	NA	NA	**4.7**	NA	NA	NA	**6.7**
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	0.0015 U	NA	NA	NA	0.15 U	NA	NA	NA	0.0015 U	NA	NA	NA	0.0015 U
Ethene	- -	mg/L	0.0015 U	NA	NA	NA	0.15 U	NA	NA	NA	**0.013**	NA	NA	NA	0.0015 U
Methane	- -	mg/L	**0.0016 J**	NA	NA	NA	**0.27 J**	NA	NA	NA	**0.26 D**	NA	NA	NA	**9.3 D**
Nitrate Nitrogen	- -	mg/L	0.05 U	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
Nitrite Nitrogen	- -	mg/L	0.05 U	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U
Orthophosphate	- -	mg/L	**0.23**	NA	NA	NA	**0.44**	NA	NA	NA	**0.059**	NA	NA	NA	**0.44**
Soluble Organic Carbon	- -	mg/L	**46.7**	NA	NA	NA	**6.7**	NA	NA	NA	**193**	NA	NA	NA	**13.8**
Sulfate	250	mg/L	**466**	NA	NA	**139**	**1,420**	NA	NA	**1,200**	**708**	NA	NA	**497**	**311**
Sulfide	- -	mg/L	**0.85**	NA	NA	**70.6 F1**	**1.3**	NA	NA	**1.7**	**8**	NA	NA	**6**	**0.25 J**
Total Dissolved Solids	- -	mg/L	**12,500**	NA	NA	NA	**19,000**	NA	NA	NA	**17,700**	NA	NA	NA	**6,870**

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-27-D1	MW-27-D1	MW-27-D1	MW-27-D2	MW-27-D2	MW-27-D2	MW-27-D2	OW-1-D1	OW-1-D1	OW-1-D1	OW-2-D1	OW-2-D1	OW-2-D1
Historical Screen Interval (feet below ground surface)			18 - 28	18 - 28	18 - 28	33 - 43	33 - 43	33 - 43	33 - 43	19 - 24	19 - 24	19 - 24	25 - 29	25 - 29	25 - 29
Current Screen Interval (Feet below current ground surface):			22 - 32	22 - 32	22 - 32	37 - 47	37 - 47	37 - 47	37 - 47	23 - 28	23 - 28	23 - 28	29 - 33	29 - 33	29 - 33
Date Collected:			09/11/13	01/13/16	06/21/16	01/18/11	09/11/13	01/13/16	06/21/16	02/20/13	09/12/13	01/13/16	02/21/13	09/11/13	01/12/16
Area of Site			Former VRU Area												
Volatile Organics															
1,1,1-Trichloroethane	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,1,2-Trichloroethane	1	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,1-Dichloroethane	5	ug/L	5.0 U	5.0 U	1.0 U	**0.44 J**	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,1-Dichloroethene	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,2,4-Trichlorobenzene	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 UJ	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 UJ	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,2-Dibromoethane	0.0006	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,2-Dichlorobenzene	3	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,2-Dichloroethane	0.6	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,2-Dichloropropane	1	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,3-Dichlorobenzene	3	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
1,4-Dichlorobenzene	3	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
2-Butanone	50	ug/L	50 U	50 U	**1.7 J**	10 U	50 U	50 U	**8.2 J**	100 U	**19 J**	200 U	50 U [50 U]	50 U	50 U
2-Hexanone	50	ug/L	25 U	25 U	5.0 U	5.0 U	25 U	25 U	20 U	50 U	10 U	100 U	25 U [25 U]	25 U	25 U
4-Methyl-2-pentanone	- -	ug/L	25 U	25 U	5.0 U	5.0 U	25 U	25 U	20 U	50 U	10 U	100 U	25 U [25 U]	25 U	25 U
Acetone	50	ug/L	50 U	**53**	**5.0 J**	10 U	50 U	50 U*	**38 J**	100 U	**37**	200 U*	**29 J [34 J]**	50 U	50 U*
Benzene	1	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	**160**	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	**5.7**
Bromodichloromethane	50	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Bromoform	50	ug/L	5.0 UJ	5.0 U	1.0 U	1.0 U	5.0 UJ	5.0 U	4.0 U	10 U	2.0 UJ	20 U	5.0 U [5.0 U]	5.0 UJ	5.0 U
Bromomethane	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Carbon Disulfide	60	ug/L	**1.0 J**	5.0 U	**0.66 J**	1.0 U	**1.0 J**	5.0 U	4.0 U	**6.8 J**	**8.8**	20 U	**1.2 J [1.2 J]**	**66**	5.0 U
Carbon Tetrachloride	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Chlorobenzene	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Chloroethane	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Chloroform	7	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Chloromethane	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 UJ	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
cis-1,2-Dichloroethene	5	ug/L	5.0 U	5.0 U	**1.0**	1.0 U	5.0 U	5.0 U	4.0 U	**55**	**27**	**100**	**5.2 [4.8 J]**	5.0 U	**50**
cis-1,3-Dichloropropene	0.4	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Cyclohexane	- -	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	**22**	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Dibromochloromethane	50	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Dichlorodifluoromethane	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 UJ	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Ethylbenzene	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	**92**	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Isopropylbenzene	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	**38**	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Methyl acetate	- -	ug/L	5.0 U	13 U	2.5 U	1.0 U	5.0 U	13 U	10 U	**17**	2.0 U	50 U	5.0 U [5.0 U]	5.0 U	13 U
Methyl tert-butyl ether	10	ug/L	**18**	5.0 U	**10**	1.0 U	**4.8 J**	5.0 U	**8.1**	**860**	**130**	**640**	**160 [160]**	**34**	**240**
Methylcyclohexane	- -	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	**26**	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Methylene Chloride	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	**5.7**	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Styrene	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Tetrachloroethene	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Toluene	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	**17**	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
trans-1,2-Dichloroethene	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
trans-1,3-Dichloropropene	0.4	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 UJ	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Trichloroethene	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	**10**
Trichlorofluoromethane	5	ug/L	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	4.0 U	10 U	2.0 U	20 U	5.0 U [5.0 U]	5.0 U	5.0 U
Vinyl Chloride	2	ug/L	5.0 U	5.0 U	**0.97 J**	1.0 U	5.0 U	5.0 U	4.0 U	10 U	**1.8 J**	**500**	5.0 U [5.0 U]	5.0 U	**32**
Xylenes (total)	5	ug/L	10 U	10 U	2.0 U	2.0 U	10 U	10 U	**68**	20 U	4.0 U	40 U	10 U [10 U]	10 U	**4.1 J**

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-27-D1	MW-27-D1	MW-27-D1	MW-27-D2	MW-27-D2	MW-27-D2	MW-27-D2	OW-1-D1	OW-1-D1	OW-1-D1	OW-2-D1	OW-2-D1	OW-2-D1
Historical Screen Interval (feet below ground surface)			18 - 28	18 - 28	18 - 28	33 - 43	33 - 43	33 - 43	33 - 43	19 - 24	19 - 24	19 - 24	25 - 29	25 - 29	25 - 29
Current Screen Interval (Feet below current ground surface):			22 - 32	22 - 32	22 - 32	37 - 47	37 - 47	37 - 47	37 - 47	23 - 28	23 - 28	23 - 28	29 - 33	29 - 33	29 - 33
Date Collected:			09/11/13	01/13/16	06/21/16	01/18/11	09/11/13	01/13/16	06/21/16	02/20/13	09/12/13	01/13/16	02/21/13	09/11/13	01/12/16
Area of Site			Former VRU Area												
Semivolatile Organics															
1,1'-Biphenyl	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
2,4,5-Trichlorophenol	1	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
2,4,6-Trichlorophenol	1	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
2,4-Dichlorophenol	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
2,4-Dimethylphenol	50	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	**6.2 J**
2,4-Dinitrophenol	10	ug/L	9.8 U	99 U	470 U	10 U	9.4 U	9.5 U	46 U	NA	9.9 U	9.7 U	NA	9.9 U	100 U
2,4-Dinitrotoluene	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
2,6-Dinitrotoluene	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
2-Chloronaphthalene	10	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
2-Chlorophenol	1	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
2-Methylnaphthalene	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	**76**	NA	**3.2 J**	4.8 U	NA	5.0 U	52 U
2-Methylphenol	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
2-Nitroaniline	5	ug/L	9.8 U	99 U	470 U	10 U	9.4 U	9.5 U	46 U	NA	9.9 U	9.7 U	NA	9.9 U	100 U
2-Nitrophenol	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
3,3'-Dichlorobenzidine	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
3-Nitroaniline	5	ug/L	9.8 U	99 U	470 U	10 U	9.4 U	9.5 U	46 U	NA	9.9 U	9.7 U	NA	9.9 U	100 U
4,6-Dinitro-2-methylphenol	- -	ug/L	9.8 U	99 U	470 U	10 U	9.4 U	9.5 U	46 U	NA	9.9 U	9.7 U	NA	9.9 U	100 U
4-Bromophenyl-phenylether	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
4-Chloro-3-Methylphenol	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
4-Chloroaniline	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 UJ	4.8 U	NA	5.0 U	52 U
4-Chlorophenyl-phenylether	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
4-Methylphenol	- -	ug/L	9.8 U	99 U	470 U	10 U	9.4 U	9.5 U	**9.9 J**	NA	**0.36 J**	9.7 U	NA	9.9 U	100 U
4-Nitroaniline	5	ug/L	9.8 U	99 U	470 U	10 U	9.4 U	9.5 U	46 U	NA	9.9 U	9.7 U	NA	9.9 U	100 U
4-Nitrophenol	- -	ug/L	9.8 U	99 U	470 U	10 U	9.4 U	9.5 U	46 U	NA	9.9 U	9.7 U	NA	9.9 U	100 U
Acenaphthene	20	ug/L	**1.4 J**	50 U	240 U	5.2 U	4.7 U	4.7 U	**1.9 J**	NA	**11**	**22**	NA	**2.5 J**	**14 J**
Acenaphthylene	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	**3.2 J**	4.8 U	NA	5.0 U	52 U
Acetophenone	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Anthracene	50	ug/L	**0.42 J**	50 U	240 U	5.2 U	**0.32 J**	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Atrazine	7.5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Benzaldehyde	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Benzo(a)anthracene	0.002	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Benzo(a)pyrene	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Benzo(b)fluoranthene	0.002	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Benzo(g,h,i)perylene	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Benzo(k)fluoranthene	0.002	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
bis(2-Chloroethoxy)methane	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
bis(2-Chloroethyl)ether	1	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
bis(2-Ethylhexyl)phthalate	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Butylbenzylphthalate	50	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	**0.48 JB**	23 U	NA	5.0 U	**0.51 JB**	NA	5.0 U	52 U
Caprolactam	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Carbazole	- -	ug/L	**0.86 J**	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	**5.2**	**6.5**	NA	**0.84 J**	**4.1 J**
Chrysene	0.002	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Dibenzo(a,h)anthracene	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Dibenzofuran	- -	ug/L	9.8 U	99 U	470 U	10 U	9.4 U	9.5 U	46 U	NA	**2.9 J**	**4.6 J**	NA	9.9 U	100 U
Diethylphthalate	50	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Dimethylphthalate	50	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-27-D1	MW-27-D1	MW-27-D1	MW-27-D2	MW-27-D2	MW-27-D2	MW-27-D2	OW-1-D1	OW-1-D1	OW-1-D1	OW-2-D1	OW-2-D1	OW-2-D1
Historical Screen Interval (feet below ground surface)			18 - 28	18 - 28	18 - 28	33 - 43	33 - 43	33 - 43	33 - 43	19 - 24	19 - 24	19 - 24	25 - 29	25 - 29	25 - 29
Current Screen Interval (Feet below current ground surface):			22 - 32	22 - 32	22 - 32	37 - 47	37 - 47	37 - 47	37 - 47	23 - 28	23 - 28	23 - 28	29 - 33	29 - 33	29 - 33
Date Collected:			09/11/13	01/13/16	06/21/16	01/18/11	09/11/13	01/13/16	06/21/16	02/20/13	09/12/13	01/13/16	02/21/13	09/11/13	01/12/16
Area of Site			Former VRU Area												
Semivolatile Organics (Cont.)															
Di-n-Butylphthalate	50	ug/L	**0.33 J**	50 U	240 U	5.2 U	**0.37 J**	4.7 U	23 U	NA	**0.31 J**	4.8 U	NA	**0.43 J**	52 U
Di-n-Octylphthalate	50	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Fluoranthene	50	ug/L	4.9 U	50 U	240 U	5.2 U	**0.43 J**	4.7 U	23 U	NA	5.0 U	4.8 U	NA	**7.8**	52 U
Fluorene	50	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	**2.6 J**	NA	**1.6 J**	**2.0 J**	NA	5.0 U	52 U
Hexachlorobenzene	0.04	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Hexachlorobutadiene	0.5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Hexachlorocyclopentadiene	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Hexachloroethane	5	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Isophorone	50	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
naphthalene	10	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	**88**	NA	**4.2 J**	**3.5 J**	NA	**3.3 J**	**24 J**
Nitrobenzene	0.4	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
N-Nitroso-di-n-propylamine	- -	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
N-Nitrosodiphenylamine	50	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Pentachlorophenol	- -	ug/L	9.8 U	99 U	470 U	10 U	9.4 U	9.5 U	46 U	NA	9.9 U	9.7 U	NA	9.9 U	100 U
Phenanthrene	50	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	**2.8 J**	NA	5.0 U	**0.45 J**	NA	5.0 U	52 U
Phenol	1	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	**56**	NA	5.0 U	4.8 U	NA	5.0 U	52 U
Pyrene	50	ug/L	4.9 U	50 U	240 U	5.2 U	4.7 U	4.7 U	23 U	NA	5.0 U	4.8 U	NA	**3.7 J**	52 U
Inorganics - Total															
Aluminum	- -	mg/L	NA	NA	NA	**0.120 J**	NA	NA	NA	**0.290**	NA	NA	**0.140 J [0.110 J]**	NA	NA
Antimony	0.003	mg/L	NA	NA	NA	0.020 UJ	NA	NA	NA	0.0200 U	NA	NA	0.0200 U [0.0200 U]	NA	NA
Arsenic	0.025	mg/L	NA	NA	NA	0.010 U	NA	NA	NA	**0.0110**	NA	NA	0.0100 U **[0.00670 J]**	NA	NA
Barium	1	mg/L	NA	NA	NA	**0.0490**	NA	NA	NA	**0.0900**	NA	NA	**0.0630 [0.0600]**	NA	NA
Beryllium	0.003	mg/L	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA	NA	0.00200 U [0.00200 U]	NA	NA
Cadmium	0.005	mg/L	NA	NA	NA	**0.00790 J**	NA	NA	NA	**0.000850 J**	NA	NA	0.00100 U **[0.000660 J]**	NA	NA
Calcium	- -	mg/L	NA	NA	NA	**293**	NA	NA	NA	**171**	NA	NA	**116 [109]**	NA	NA
Chromium	0.05	mg/L	NA	NA	NA	**0.00540**	NA	NA	NA	**0.00690**	NA	NA	**0.00780 [0.00750]**	NA	NA
Cobalt	- -	mg/L	NA	NA	NA	**0.00110 J**	NA	NA	NA	0.00400 U	NA	NA	0.00400 U [0.00400 U]	NA	NA
Copper	0.2	mg/L	NA	NA	NA	**0.00210 J**	NA	NA	NA	**0.00320 J**	NA	NA	**0.00650 JB [0.00580 JB]**	NA	NA
Iron	0.3	mg/L	NA	NA	**0.430**	**0.170**	NA	NA	**1.30**	**0.610**	NA	NA	**0.580 [0.530]**	NA	NA
Lead	0.025	mg/L	NA	NA	NA	0.00500 U	NA	NA	NA	**0.00300 J**	NA	NA	**0.00360 J [0.00460 J]**	NA	NA
Magnesium	35	mg/L	NA	NA	NA	**731.000**	NA	NA	NA	**371**	NA	NA	**186 [178]**	NA	NA
Manganese	0.3	mg/L	NA	NA	**0.200 B**	**0.600**	NA	NA	**0.0380 B**	**0.130**	NA	NA	**0.220 [0.200]**	NA	NA
Mercury	0.0007	mg/L	NA	NA	NA	0.000200 U	NA	NA	NA	0.000200 U	NA	NA	0.000200 U [0.000200 U]	NA	NA
Nickel	0.1	mg/L	NA	NA	NA	**0.00200 J**	NA	NA	NA	0.0100 U	NA	NA	**0.00130 J** [0.0100 U]	NA	NA
Potassium	- -	mg/L	NA	NA	NA	**226**	NA	NA	NA	**110**	NA	NA	**75.7 [73.5]**	NA	NA
Selenium	0.01	mg/L	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA	NA	0.0150 U [0.0150 U]	NA	NA
Silver	0.05	mg/L	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA	NA	0.00300 U [0.00300 U]	NA	NA
Sodium	20	mg/L	NA	NA	NA	**5,750**	NA	NA	NA	**2,840**	NA	NA	**1.67 [1.52]**	NA	NA
Thallium	0.0005	mg/L	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	0.0200 U [0.0200 U]	NA	NA
Vanadium	- -	mg/L	NA	NA	NA	**0.00710**	NA	NA	NA	**0.0100**	NA	NA	**0.0100 [0.0100]**	NA	NA
Zinc	2	mg/L	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00670 J**	NA	NA	0.0100 U [0.0100 U]	NA	NA

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Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-27-D1	MW-27-D1	MW-27-D1	MW-27-D2	MW-27-D2	MW-27-D2	MW-27-D2	OW-1-D1	OW-1-D1	OW-1-D1	OW-2-D1	OW-2-D1	OW-2-D1
Historical Screen Interval (feet below ground surface)			18 - 28	18 - 28	18 - 28	33 - 43	33 - 43	33 - 43	33 - 43	19 - 24	19 - 24	19 - 24	25 - 29	25 - 29	25 - 29
Current Screen Interval (Feet below current ground surface):			22 - 32	22 - 32	22 - 32	37 - 47	37 - 47	37 - 47	37 - 47	23 - 28	23 - 28	23 - 28	29 - 33	29 - 33	29 - 33
Date Collected:			09/11/13	01/13/16	06/21/16	01/18/11	09/11/13	01/13/16	06/21/16	02/20/13	09/12/13	01/13/16	02/21/13	09/11/13	01/12/16
Area of Site			Former VRU Area												
Inorganics-Dissolved															
Aluminum	- -	mg/L	NA	NA	NA	0.200 U	NA	NA	NA	0.200 U	NA	NA	0.200 U	NA	NA
Antimony	0.003	mg/L	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA
Arsenic	0.025	mg/L	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00820 J**	NA	NA	0.0100 U	NA	NA
Barium	1	mg/L	NA	NA	NA	**0.0470**	NA	NA	NA	**0.0970**	NA	NA	**0.0500**	NA	NA
Beryllium	0.003	mg/L	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA	NA	0.00200 U	NA	NA
Cadmium	0.005	mg/L	NA	NA	NA	**0.000420 J**	NA	NA	NA	**0.000820 J**	NA	NA	**0.000610 J**	NA	NA
Calcium	- -	mg/L	NA	NA	NA	**290**	NA	NA	NA	**172**	NA	NA	**101**	NA	NA
Chromium	0.05	mg/L	NA	NA	NA	**0.00460**	NA	NA	NA	**0.00550**	NA	NA	**0.00590**	NA	NA
Cobalt	- -	mg/L	NA	NA	NA	**0.00130 J**	NA	NA	NA	0.00400 U	NA	NA	0.00400 U	NA	NA
Copper	0.2	mg/L	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 UB	NA	NA	**0.00480 JB**	NA	NA
Iron	0.3	mg/L	NA	NA	0.0500 U	0.0500 U	NA	NA	**0.490**	0.0500 U	NA	NA	**0.310**	NA	NA
Lead	0.025	mg/L	NA	NA	NA	0.00500 U	NA	NA	NA	**0.00330 J**	NA	NA	0.00500 U	NA	NA
Magnesium	35	mg/L	NA	NA	NA	**693**	NA	NA	NA	**353**	NA	NA	**182**	NA	NA
Manganese	0.3	mg/L	NA	NA	**0.200 B**	**0.570**	NA	NA	**0.0410 B**	**0.130**	NA	NA	**0.160**	NA	NA
Mercury	0.0007	mg/L	NA	NA	NA	0.000200 U	NA	NA	NA	0.000200 U	NA	NA	0.000200 U	NA	NA
Nickel	0.1	mg/L	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00340 J**	NA	NA	**0.00140 J**	NA	NA
Potassium	- -	mg/L	NA	NA	NA	**221**	NA	NA	NA	**117**	NA	NA	**75.7 B**	NA	NA
Selenium	0.01	mg/L	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA	NA	0.0150 U	NA	NA
Silver	0.05	mg/L	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA	NA	0.00300 U	NA	NA
Sodium	20	mg/L	NA	NA	NA	**5,620**	NA	NA	NA	**2,890**	NA	NA	**1,540**	NA	NA
Thallium	0.0005	mg/L	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA
Vanadium	- -	mg/L	NA	NA	NA	**0.00580**	NA	NA	NA	**0.0100**	NA	NA	**0.00850**	NA	NA
Zinc	2	mg/L	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 U	NA	NA	0.0100 U	NA	NA
General Chemistry															
Alkalinity	- -	mg/L	NA	NA	**795 B**	**451**	NA	NA	**279 B**	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate	- -	mg/L	NA	NA	**795 B**	**451**	NA	NA	**279 B**	NA	NA	NA	NA	NA	NA
Ammonia Nitrogen	- -	mg/L	NA	NA	NA	**2.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	NA	NA	NA	0.0015 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	- -	mg/L	NA	NA	NA	0.0015 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	- -	mg/L	NA	NA	NA	**0.21 D**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate Nitrogen	- -	mg/L	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite Nitrogen	- -	mg/L	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Orthophosphate	- -	mg/L	NA	NA	NA	**0.33**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soluble Organic Carbon	- -	mg/L	NA	NA	NA	**6.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	mg/L	NA	NA	**290**	**1,350**	NA	NA	**49.2**	NA	NA	NA	NA	NA	NA
Sulfide	- -	mg/L	NA	NA	**97.3**	**0.14**	NA	NA	**0.16**	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	**19,000**	NA	NA	NA	**9,720**	NA	NA	**5,600 [5,530]**	NA	NA

See Notes on Page 53.

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	OW-3-D1	OW-3-D1	OW-3-D1	MW-28-D1	MW-28-D1	MW-28-D1	MW-28-D2	MW-28-D2R	MW-28-D2R	MW-29-D1	MW-29-D1	MW-29-D1	MW-29-D1
Historical Screen Interval (feet below ground surface)			19 - 29	19 - 29	19 - 29	17.5 - 27.5	17.5 - 27.5	17.5 - 27.5	32.5 - 42.5	32.5 - 42.5	32.5 - 42.5	17 - 27	17 - 27	17 - 27	17 - 27
Current Screen Interval (Feet below current ground surface):			23 - 33	23 - 33	23 - 33	21.5 - 31.5	21.5 - 31.5	21.5 - 31.5	36.5 - 46.5	36.5 - 46.5	36.5 - 46.5	21 - 31	21 - 31	21 - 31	21 - 31
Date Collected:			02/21/13	09/13/13	01/13/16	01/25/11	06/24/16	07/28/16	01/25/11	06/24/16	07/28/16	01/25/11	09/10/13	01/14/16	06/21/16
Area of Site			Former VRU Area			Along Hampton Road									
Volatile Organics															
1,1,1-Trichloroethane	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,1,2-Trichloroethane	1	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,1-Dichloroethane	5	ug/L	5.0 U	5.0 U	5.0 U	**1.1**	**0.76 J**	10 U	**0.87 J**	**0.48 J**	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,1-Dichloroethene	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2,4-Trichlorobenzene	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2-Dibromoethane	0.0006	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2-Dichlorobenzene	3	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2-Dichloroethane	0.6	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	**0.21 J**	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,2-Dichloropropane	1	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,3-Dichlorobenzene	3	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
1,4-Dichlorobenzene	3	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
2-Butanone	50	ug/L	50 U	**36 J**	50 U	10 U	**2.3 J**	100 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U
2-Hexanone	50	ug/L	25 U	25 U	25 U	5.0 U	5.0 U	50 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	25 U	5.0 U
4-Methyl-2-pentanone	- -	ug/L	25 U	25 U	25 U	5.0 U	5.0 U	50 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	25 U	5.0 U
Acetone	50	ug/L	50 U	**220**	50 U*	**4.2 J**	**45**	**280**	**4.2 J**	**3.3 J**	**4.4 J**	**8.9 J**	50 U	**25 J**	**9.5 J**
Benzene	1	ug/L	5.0 U	5.0 U	5.0 U	**12**	**2.1**	10 U	1.0 U	1.0 U	1.0 U	**130 D**	**87**	**81**	**6.3**
Bromodichloromethane	50	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	**1.2**	1.0 U	5.0 U	5.0 U	1.0 U
Bromoform	50	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	**5.6**	1.0 U	5.0 U	5.0 U	1.0 U
Bromomethane	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Carbon Disulfide	60	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	**1.0**	10 U	1.0 U	1.0 U	**0.52 J**	1.0 U	5.0 U	5.0 U	1.0 U
Carbon Tetrachloride	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Chlorobenzene	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Chloroethane	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 UJ	1.0 U	10 U	1.0 UJ	1.0 U	1.0 U	1.0 UJ	5.0 U	5.0 U	1.0 U
Chloroform	7	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	**0.51 J**	1.0 U	5.0 U	5.0 U	1.0 U
Chloromethane	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
cis-1,2-Dichloroethene	5	ug/L	5.0 U	5.0 U	5.0 U	**1.1**	1.0 U	10 U	**6.6**	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
cis-1,3-Dichloropropene	0.4	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Cyclohexane	- -	ug/L	5.0 U	R	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	**26**	**22**	**13**	**8.0**
Dibromochloromethane	50	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	**3.2**	1.0 U	5.0 U	5.0 U	1.0 U
Dichlorodifluoromethane	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Ethylbenzene	5	ug/L	5.0 U	5.0 U	5.0 U	**4.2**	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Isopropylbenzene	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	**16**	**18**	**24**	**5.4**
Methyl acetate	- -	ug/L	5.0 U	5.0 U	13 U	1.0 U	2.5 U	25 U	1.0 U	2.5 U	2.5 U	**27 J**	5.0 U	13 U	2.5 U
Methyl tert-butyl ether	10	ug/L	**150**	**65**	**250**	**38**	**6.2**	**4.7 J**	**2.7**	1.0 U	**0.25 J**	**550 D**	**85**	**34**	**23**
Methylcyclohexane	- -	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	**13**	**16**	**5.5**	**3.8**
Methylene Chloride	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Styrene	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Tetrachloroethene	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Toluene	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	**3.7**	**3.8 J**	5.0 U	**1.0**
trans-1,2-Dichloroethene	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
trans-1,3-Dichloropropene	0.4	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Trichloroethene	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	**0.51 J**	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Trichlorofluoromethane	5	ug/L	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Vinyl Chloride	2	ug/L	5.0 U	5.0 U	5.0 U	**1.4**	1.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Xylenes (total)	5	ug/L	10 U	10 U	10 U	**0.91 J**	2.0 U	20 U	2.0 U	2.0 U	2.0 U	**16**	**11**	10 U	**2.0**

See Notes on Page 53.

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Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	OW-3-D1	OW-3-D1	OW-3-D1	MW-28-D1	MW-28-D1	MW-28-D1	MW-28-D2	MW-28-D2R	MW-28-D2R	MW-29-D1	MW-29-D1	MW-29-D1	MW-29-D1
Historical Screen Interval (feet below ground surface)			19 - 29	19 - 29	19 - 29	17.5 - 27.5	17.5 - 27.5	17.5 - 27.5	32.5 - 42.5	32.5 - 42.5	32.5 - 42.5	17 - 27	17 - 27	17 - 27	17 - 27
Current Screen Interval (Feet below current ground surface):			23 - 33	23 - 33	23 - 33	21.5 - 31.5	21.5 - 31.5	21.5 - 31.5	36.5 - 46.5	36.5 - 46.5	36.5 - 46.5	21 - 31	21 - 31	21 - 31	21 - 31
Date Collected:			02/21/13	09/13/13	01/13/16	01/25/11	06/24/16	07/28/16	01/25/11	06/24/16	07/28/16	01/25/11	09/10/13	01/14/16	06/21/16
Area of Site			Former VRU Area			Along Hampton Road									
Semivolatile Organics															
1,1'-Biphenyl	5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U*	NA	5.0 U	4.7 U*	NA	4.9 U	4.7 U	49 U	5.1 U
2,4,5-Trichlorophenol	1	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
2,4,6-Trichlorophenol	1	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
2,4-Dichlorophenol	5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
2,4-Dimethylphenol	50	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
2,4-Dinitrophenol	10	ug/L	NA	9.9 UJ	9.3 U	10 U	48 U	NA	9.9 U	9.4 U	NA	9.8 U	9.4 U	97 U	10 U
2,4-Dinitrotoluene	5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
2,6-Dinitrotoluene	5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
2-Chloronaphthalene	10	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
2-Chlorophenol	1	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
2-Methylnaphthalene	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	**1.9 J**	**4.7**	49 U	**2.9 J**
2-Methylphenol	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U*	NA	5.0 U	4.7 U*	NA	4.9 U	4.7 U	49 U	5.1 U
2-Nitroaniline	5	ug/L	NA	9.9 U	9.3 U	10 U	48 U	NA	9.9 U	9.4 U	NA	9.8 U	9.4 U	97 U	10 U
2-Nitrophenol	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
3,3'-Dichlorobenzidine	5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
3-Nitroaniline	5	ug/L	NA	9.9 U	9.3 U	10 U	48 U	NA	9.9 U	9.4 U	NA	9.8 U	9.4 U	97 U	10 U
4,6-Dinitro-2-methylphenol	- -	ug/L	NA	9.9 U	9.3 U	10 U	48 U	NA	9.9 U	9.4 U	NA	9.8 U	9.4 U	97 U	10 U
4-Bromophenyl-phenylether	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
4-Chloro-3-Methylphenol	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
4-Chloroaniline	5	ug/L	NA	R	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
4-Chlorophenyl-phenylether	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
4-Methylphenol	- -	ug/L	NA	**0.65 J**	9.3 U	10 U	48 U*	NA	9.9 U	9.4 U*	NA	9.8 U	9.4 U	97 U	10 U
4-Nitroaniline	5	ug/L	NA	9.9 U	9.3 U	10 U	48 U	NA	9.9 U	9.4 U	NA	9.8 U	9.4 U	97 U	10 U
4-Nitrophenol	- -	ug/L	NA	9.9 U	9.3 U	10 U	48 U	NA	9.9 U	9.4 U	NA	9.8 U	9.4 U	97 U	10 U
Acenaphthene	20	ug/L	NA	4.9 U	4.6 U	**13**	**4.1 J**	NA	5.0 U	4.7 U	NA	**0.89 J**	**2.2 J**	49 U	**1.7 J**
Acenaphthylene	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Acetophenone	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U*	NA	5.0 U	4.7 U*	NA	4.9 U	**1.2 J**	49 U	5.1 U
Anthracene	50	ug/L	NA	4.9 U	4.6 U	**1.4 J**	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Atrazine	7.5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Benzaldehyde	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U*	NA	5.0 U	4.7 U*	NA	4.9 U	4.7 U	49 U	5.1 U
Benzo(a)anthracene	0.002	ug/L	NA	4.9 UJ	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Benzo(a)pyrene	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Benzo(b)fluoranthene	0.002	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Benzo(g,h,i)perylene	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Benzo(k)fluoranthene	0.002	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
bis(2-Chloroethoxy)methane	5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
bis(2-Chloroethyl)ether	1	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U*	NA	5.0 U	4.7 U*	NA	4.9 U	4.7 U	49 U	5.1 U
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	4.9 UJ	4.6 U	5.0 U	24 U	NA	5.0 U	**2.1 J**	NA	4.9 U	4.7 U	49 U	5.1 U
Butylbenzylphthalate	50	ug/L	NA	4.9 UJ	**0.58 JB**	5.0 U	24 U	NA	5.0 U	**0.98 J**	NA	4.9 U	4.7 U	49 U	5.1 U
Caprolactam	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Carbazole	- -	ug/L	NA	4.9 U	4.6 U	**4.4 J**	24 U	NA	5.0 U	4.7 U	NA	4.9 U	**0.59 J**	49 U	**0.39 J**
Chrysene	0.002	ug/L	NA	4.9 UJ	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Dibenzo(a,h)anthracene	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Dibenzofuran	- -	ug/L	NA	9.9 U	9.3 U	**0.85 J**	48 U	NA	9.9 U	9.4 U	NA	9.8 U	9.4 U	97 U	10 U
Diethylphthalate	50	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	**1.0 J**	49 U	5.1 U
Dimethylphthalate	50	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	OW-3-D1	OW-3-D1	OW-3-D1	MW-28-D1	MW-28-D1	MW-28-D1	MW-28-D2	MW-28-D2R	MW-28-D2R	MW-29-D1	MW-29-D1	MW-29-D1	MW-29-D1
Historical Screen Interval (feet below ground surface)			19 - 29	19 - 29	19 - 29	17.5 - 27.5	17.5 - 27.5	17.5 - 27.5	32.5 - 42.5	32.5 - 42.5	32.5 - 42.5	17 - 27	17 - 27	17 - 27	17 - 27
Current Screen Interval (Feet below current ground surface):			23 - 33	23 - 33	23 - 33	21.5 - 31.5	21.5 - 31.5	21.5 - 31.5	36.5 - 46.5	36.5 - 46.5	36.5 - 46.5	21 - 31	21 - 31	21 - 31	21 - 31
Date Collected:			02/21/13	09/13/13	01/13/16	01/25/11	06/24/16	07/28/16	01/25/11	06/24/16	07/28/16	01/25/11	09/10/13	01/14/16	06/21/16
Area of Site			Former VRU Area			Along Hampton Road									
Semivolatile Organics (Cont.)															
Di-n-Butylphthalate	50	ug/L	NA	4.9 UB	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	**0.34 J**	49 U	5.1 U
Di-n-Octylphthalate	50	ug/L	NA	4.9 UJ	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Fluoranthene	50	ug/L	NA	4.9 U	4.6 U	**3.6 J**	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Fluorene	50	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Hexachlorobenzene	0.04	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Hexachlorobutadiene	0.5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Hexachlorocyclopentadiene	5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Hexachloroethane	5	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Isophorone	50	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
naphthalene	10	ug/L	NA	4.9 U	4.6 U	**2.0 J**	24 U	NA	5.0 U	4.7 U	NA	4.9 U	**0.83 J**	49 U	5.1 U
Nitrobenzene	0.4	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
N-Nitroso-di-n-propylamine	- -	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U*	NA	5.0 U	4.7 U*	NA	4.9 U	4.7 U	49 U	5.1 U
N-Nitrosodiphenylamine	50	ug/L	NA	4.9 U	4.6 U	5.0 U	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Pentachlorophenol	- -	ug/L	NA	9.9 U	9.3 U	10 U	48 U	NA	9.9 U	9.4 U	NA	9.8 U	9.4 U	97 U	10 U
Phenanthrene	50	ug/L	NA	4.9 U	4.6 U	**9.6**	24 U	NA	5.0 U	**0.58 J**	NA	4.9 U	4.7 U	49 U	5.1 U
Phenol	1	ug/L	NA	4.9 U	4.6 U	5.0 U	**14 J***	NA	5.0 U	4.7 U*	NA	4.9 U	**1.9 J**	49 U	5.1 U
Pyrene	50	ug/L	NA	4.9 UJ	4.6 U	**1.8 J**	24 U	NA	5.0 U	4.7 U	NA	4.9 U	4.7 U	49 U	5.1 U
Inorganics - Total															
Aluminum	- -	mg/L	**0.220**	NA	NA	0.280 UB	NA	NA	**0.370**	NA	NA	0.20 UB	NA	NA	NA
Antimony	0.003	mg/L	0.0200 U	NA	NA	0.020 U	NA	NA	0.020 U	NA	NA	0.020 U	NA	NA	NA
Arsenic	0.025	mg/L	**0.00590 J**	NA	NA	0.010 U	NA	NA	0.010 U	NA	NA	0.010 U	NA	NA	NA
Barium	1	mg/L	**0.0290**	NA	NA	**0.0370**	NA	NA	**0.0460**	NA	NA	**0.0150**	NA	NA	NA
Beryllium	0.003	mg/L	0.00200 U	NA	NA	0.00200 U	NA	NA	0.00200 U	NA	NA	0.00200 U	NA	NA	NA
Cadmium	0.005	mg/L	**0.000670 J**	NA	NA	**0.00700 J**	NA	NA	**0.00780 J**	NA	NA	**0.00530 J**	NA	NA	NA
Calcium	- -	mg/L	**90.2**	NA	NA	**96.8**	NA	NA	**276**	NA	NA	**52.5**	NA	NA	NA
Chromium	0.05	mg/L	**0.00520**	NA	NA	**0.00380 J**	NA	NA	**0.00520**	NA	NA	**0.00330 J**	NA	NA	NA
Cobalt	- -	mg/L	0.00400 U	NA	NA	**0.00940 J**	NA	NA	**0.00120 J**	NA	NA	0.00400 U	NA	NA	NA
Copper	0.2	mg/L	**0.00440 JB**	NA	NA	**0.00270 J**	NA	NA	**0.00220 J**	NA	NA	**0.00220 J**	NA	NA	NA
Iron	0.3	mg/L	**0.480**	NA	NA	**0.220**	**0.350 B**	NA	**0.530**	**50.4 B**	NA	**0.290**	NA	NA	**0.520**
Lead	0.025	mg/L	0.00500 U	NA	NA	0.00500 U	NA	NA	0.00500 U	NA	NA	0.00500 U	NA	NA	NA
Magnesium	35	mg/L	**185**	NA	NA	**275.000**	NA	NA	**609.000**	NA	NA	**112.000**	NA	NA	NA
Manganese	0.3	mg/L	**0.0940**	NA	NA	**0.110**	**0.0680 B**	NA	**0.190**	**1.10 B**	NA	**0.220**	NA	NA	**0.270 B**
Mercury	0.0007	mg/L	0.000200 U	NA	NA	0.000200 U	NA	NA	0.000200 U	NA	NA	0.000200 U	NA	NA	NA
Nickel	0.1	mg/L	0.0100 U	NA	NA	0.0100 U	NA	NA	0.0100 U	NA	NA	0.0100 U	NA	NA	NA
Potassium	- -	mg/L	**76.6**	NA	NA	**108**	NA	NA	**215**	NA	NA	**58.8**	NA	NA	NA
Selenium	0.01	mg/L	0.0150 U	NA	NA	0.0150 U	NA	NA	0.0150 U	NA	NA	0.0150 U	NA	NA	NA
Silver	0.05	mg/L	0.00300 U	NA	NA	0.00300 U	NA	NA	0.00300 U	NA	NA	0.00300 U	NA	NA	NA
Sodium	20	mg/L	**1.57**	NA	NA	**2,310**	NA	NA	**5,020**	NA	NA	**903**	NA	NA	NA
Thallium	0.0005	mg/L	0.0200 U	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA	NA
Vanadium	- -	mg/L	**0.00790**	NA	NA	**0.00510**	NA	NA	**0.0066**	NA	NA	**0.00320 J**	NA	NA	NA
Zinc	2	mg/L	0.0100 U	NA	NA	0.0100 U	NA	NA	**0.00180 J**	NA	NA	**0.00570 J**	NA	NA	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	OW-3-D1	OW-3-D1	OW-3-D1	MW-28-D1	MW-28-D1	MW-28-D1	MW-28-D2	MW-28-D2R	MW-28-D2R	MW-29-D1	MW-29-D1	MW-29-D1	MW-29-D1
Historical Screen Interval (feet below ground surface)			19 - 29	19 - 29	19 - 29	17.5 - 27.5	17.5 - 27.5	17.5 - 27.5	32.5 - 42.5	32.5 - 42.5	32.5 - 42.5	17 - 27	17 - 27	17 - 27	17 - 27
Current Screen Interval (Feet below current ground surface):			23 - 33	23 - 33	23 - 33	21.5 - 31.5	21.5 - 31.5	21.5 - 31.5	36.5 - 46.5	36.5 - 46.5	36.5 - 46.5	21 - 31	21 - 31	21 - 31	21 - 31
Date Collected:			02/21/13	09/13/13	01/13/16	01/25/11	06/24/16	07/28/16	01/25/11	06/24/16	07/28/16	01/25/11	09/10/13	01/14/16	06/21/16
Area of Site			Former VRU Area			Along Hampton Road									
Inorganics-Dissolved															
Aluminum	- -	mg/L	0.200 U	NA	NA	0.200 UB	NA	NA	0.200 U	NA	NA	0.200 U	NA	NA	NA
Antimony	0.003	mg/L	0.0200 U	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA	NA
Arsenic	0.025	mg/L	0.0100 U	NA	NA	0.0100 U	NA	NA	0.0100 U	NA	NA	0.0100 U	NA	NA	NA
Barium	1	mg/L	**0.0280**	NA	NA	**0.0370**	NA	NA	**0.0440**	NA	NA	**0.0150**	NA	NA	NA
Beryllium	0.003	mg/L	0.00200 U	NA	NA	0.00200 U	NA	NA	0.00200 U	NA	NA	0.00200 U	NA	NA	NA
Cadmium	0.005	mg/L	**0.000510 J**	NA	NA	**0.000880 J**	NA	NA	**0.000970 J**	NA	NA	**0.000500 J**	NA	NA	NA
Calcium	- -	mg/L	**86.7**	NA	NA	**98.1**	NA	NA	**265**	NA	NA	**51.3**	NA	NA	NA
Chromium	0.05	mg/L	**0.00340 J**	NA	NA	**0.00350 J**	NA	NA	**0.00420**	NA	NA	**0.00350 J**	NA	NA	NA
Cobalt	- -	mg/L	0.00400 U	NA	NA	**0.000840 J**	NA	NA	**0.000840 J**	NA	NA	0.00400 U	NA	NA	NA
Copper	0.2	mg/L	**0.00450 JB**	NA	NA	**0.00260 J**	NA	NA	**0.00200 J**	NA	NA	**0.00250 J**	NA	NA	NA
Iron	0.3	mg/L	**0.0490 J**	NA	NA	**0.0400 J**	**0.0790**	NA	**0.290**	**52.8**	NA	**0.200**	NA	NA	**0.440**
Lead	0.025	mg/L	0.00500 U	NA	NA	0.00500 U	NA	NA	0.00500 U	NA	NA	0.00500 U	NA	NA	NA
Magnesium	35	mg/L	**184**	NA	NA	**283**	NA	NA	**563**	NA	NA	**113**	NA	NA	NA
Manganese	0.3	mg/L	**0.0890**	NA	NA	**0.110**	**0.0680 B**	NA	**0.190**	**1.10 B**	NA	**0.210**	NA	NA	**0.270 B**
Mercury	0.0007	mg/L	0.000200 U	NA	NA	0.000200 U	NA	NA	0.000200 U	NA	NA	0.000200 U	NA	NA	NA
Nickel	0.1	mg/L	**0.00270 J**	NA	NA	0.0100 U	NA	NA	0.0100 U	NA	NA	0.0100 U	NA	NA	NA
Potassium	- -	mg/L	**75.4 B**	NA	NA	**115**	NA	NA	**217**	NA	NA	**61.2**	NA	NA	NA
Selenium	0.01	mg/L	0.0150 U	NA	NA	0.0150 U	NA	NA	0.0150 U	NA	NA	0.0150 U	NA	NA	NA
Silver	0.05	mg/L	0.00300 U	NA	NA	0.00300 U	NA	NA	0.00300 U	NA	NA	0.00300 U	NA	NA	NA
Sodium	20	mg/L	**1,570**	NA	NA	**2,280**	NA	NA	**4,650**	NA	NA	**907**	NA	NA	NA
Thallium	0.0005	mg/L	0.0200 U	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA	0.0200 U	NA	NA	NA
Vanadium	- -	mg/L	**0.00650**	NA	NA	**0.00450 J**	NA	NA	**0.00620**	NA	NA	**0.00360 J**	NA	NA	NA
Zinc	2	mg/L	0.0100 U	NA	NA	0.0100 U	NA	NA	0.0100 U	NA	NA	**0.00370 J**	NA	NA	NA
General Chemistry															
Alkalinity	- -	mg/L	NA	NA	NA	**882**	**745 B**	NA	**503**	**182**	NA	**519**	NA	NA	**567 B**
Alkalinity, Bicarbonate	- -	mg/L	NA	NA	NA	**882**	**745 B**	NA	**503**	**182**	NA	**519**	NA	NA	**567 B**
Ammonia Nitrogen	- -	mg/L	NA	NA	NA	**6.3**	NA	NA	**3.8**	NA	NA	**7.3**	NA	NA	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	NA	NA	NA	0.00015 U	NA	NA	0.00015 U	NA	NA	0.00015 U	NA	NA	NA
Ethene	- -	mg/L	NA	NA	NA	0.00015 U	NA	NA	0.00015 U	NA	NA	0.00015 U	NA	NA	NA
Methane	- -	mg/L	NA	NA	NA	**0.0012 J**	NA	NA	**0.00026 J**	NA	NA	**16 D**	NA	NA	NA
Nitrate Nitrogen	- -	mg/L	NA	NA	NA	0.05 U	NA	NA	0.05 U	NA	NA	0.05 U	NA	NA	NA
Nitrite Nitrogen	- -	mg/L	NA	NA	NA	0.05 UJ	NA	NA	0.05 UJ	NA	NA	0.05 UJ	NA	NA	NA
Orthophosphate	- -	mg/L	NA	NA	NA	**0.37**	NA	NA	**0.49**	NA	NA	**0.14**	NA	NA	NA
Soluble Organic Carbon	- -	mg/L	NA	NA	NA	**12.2**	NA	NA	**7.2**	NA	NA	**15**	NA	NA	NA
Sulfate	250	mg/L	NA	NA	NA	**134**	**155**	NA	**1,290**	**1,080**	NA	5 U	NA	NA	5 U
Sulfide	- -	mg/L	NA	NA	NA	**0.14**	**54.4**	NA	**0.85**	0.1 U	NA	**0.078 J**	NA	NA	**0.23**
Total Dissolved Solids	- -	mg/L	**5,800**	NA	NA	**7,380**	NA	NA	**18,700**	NA	NA	**2,840**	NA	NA	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-29-D2	MW-29-D2	MW-29-D2	MW-29-D2	MW-29-VD	MW-29-VD	MW-29-VD	MW-29-VD	AMW-12	AMW-12	AMW-12
Historical Screen Interval (feet below ground surface)			32 - 42	32 - 42	32 - 42	32 - 42	54 - 63	54 - 63	54 - 63	54 - 63	3 - 8	3 - 8	3 - 8
Current Screen Interval (Feet below current ground surface):			36 - 46	36 - 46	36 - 46	36 - 46	57 - 67	57 - 67	57 - 67	57 - 67	7 - 12	7 - 12	7 - 12
Date Collected:			01/25/11	09/10/13	01/14/16	06/21/16	01/25/11	09/10/13	01/14/16	06/21/16	02/20/13	09/13/13	01/14/16
Area of Site			Along Hampton Road								Former Loading Rack Area		
Volatile Organics													
1,1,1-Trichloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,1,2-Trichloroethane	1	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,1-Dichloroethane	5	ug/L	1.0 U	1.0 U	**7.3**	**4.8**	**2.6**	**4.9 J**	10 U	1.0 U	10 U	5.0 U	5.0 U
1,1-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,2-Dibromoethane	0.0006	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,2-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,2-Dichloroethane	0.6	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,2-Dichloropropane	1	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,3-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
1,4-Dichlorobenzene	3	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
2-Butanone	50	ug/L	10 U	10 U	10 U	10 U	10 U	100 U	100 U	10 U	100 U	50 U	50 U
2-Hexanone	50	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	50 U	50 U	5.0 U	50 U	25 U	25 U
4-Methyl-2-pentanone	- -	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	50 U	50 U	5.0 U	50 U	25 U	25 U
Acetone	50	ug/L	**4.8 J**	10 U	10 U	10 U	10 U	100 U	100 U	10 U	100 U	**43 J**	**25 J**
Benzene	1	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	**440**	**280**	**80**
Bromodichloromethane	50	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Bromoform	50	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Bromomethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Carbon Disulfide	60	ug/L	**2.4**	1.0 U	1.0 U	**0.62 J**	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Carbon Tetrachloride	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Chlorobenzene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Chloroethane	5	ug/L	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Chloroform	7	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Chloromethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Cyclohexane	- -	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	**13**	**16 J**	**12**
Dibromochloromethane	50	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Dichlorodifluoromethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Ethylbenzene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	**4.3 J**	5.0 U
Isopropylbenzene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	**38**	**44**	**24**
Methyl acetate	- -	ug/L	1.0 U	1.0 U	2.5 U	2.5 U	1.0 U	10 U	25 U	2.5 U	10 U	5.0 U	13 U
Methyl tert-butyl ether	10	ug/L	1.0 U	1.0 U	**66**	**51**	**15**	**140**	10 U	**0.42 J**	**80**	**52**	**32**
Methylcyclohexane	- -	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	**6.8 J**	**12**	**5.4**
Methylene Chloride	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Styrene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Tetrachloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Toluene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	**7.2 J**	**5.1**	5.0 U
trans-1,2-Dichloroethene	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	0.4	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 UF1	1.0 U	10 U	5.0 U	5.0 U
Trichloroethene	5	ug/L	**0.86 J**	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Trichlorofluoromethane	5	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Vinyl Chloride	2	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	10 U	1.0 U	10 U	5.0 U	5.0 U
Xylenes (total)	5	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	20 U	20 U	2.0 U	**6.9 J**	**7.1 J**	10 U

See Notes on Page 53.

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-29-D2	MW-29-D2	MW-29-D2	MW-29-D2	MW-29-VD	MW-29-VD	MW-29-VD	MW-29-VD	AMW-12	AMW-12	AMW-12
Historical Screen Interval (feet below ground surface)			32 - 42	32 - 42	32 - 42	32 - 42	54 - 63	54 - 63	54 - 63	54 - 63	3 - 8	3 - 8	3 - 8
Current Screen Interval (Feet below current ground surface):			36 - 46	36 - 46	36 - 46	36 - 46	57 - 67	57 - 67	57 - 67	57 - 67	7 - 12	7 - 12	7 - 12
Date Collected:			01/25/11	09/10/13	01/14/16	06/21/16	01/25/11	09/10/13	01/14/16	06/21/16	02/20/13	09/13/13	01/14/16
Area of Site			Along Hampton Road								Former Loading Rack Area		
Semivolatile Organics													
1,1'-Biphenyl	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2,4,5-Trichlorophenol	1	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2,4,6-Trichlorophenol	1	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2,4-Dichlorophenol	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2,4-Dimethylphenol	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2,4-Dinitrophenol	10	ug/L	9.4 U	9.3 U	200 U	48 U	9.7 U	9.4 U	9.6 U	9.4 U	NA	9.8 U	110 U
2,4-Dinitrotoluene	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2,6-Dinitrotoluene	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2-Chloronaphthalene	10	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2-Chlorophenol	1	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2-Methylnaphthalene	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2-Methylphenol	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
2-Nitroaniline	5	ug/L	9.4 U	9.3 U	200 U	48 U	9.7 U	9.4 U	9.6 U	9.4 U	NA	9.8 U	110 U
2-Nitrophenol	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
3,3'-Dichlorobenzidine	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
3-Nitroaniline	5	ug/L	9.4 U	9.3 U	200 U	48 U	9.7 U	9.4 U	9.6 U	9.4 U	NA	9.8 U	110 U
4,6-Dinitro-2-methylphenol	- -	ug/L	9.4 U	9.3 U	200 U	48 U	9.7 U	9.4 U	9.6 U	9.4 U	NA	9.8 U	110 U
4-Bromophenyl-phenylether	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
4-Chloro-3-Methylphenol	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
4-Chloroaniline	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	R	53 U
4-Chlorophenyl-phenylether	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
4-Methylphenol	- -	ug/L	9.4 U	9.3 U	200 U	48 U	9.7 U	9.4 U	9.6 U	9.4 U	NA	9.8 U	110 U
4-Nitroaniline	5	ug/L	9.4 U	9.3 U	200 U	48 U	9.7 U	9.4 U	9.6 U	9.4 U	NA	9.8 U	110 U
4-Nitrophenol	- -	ug/L	9.4 U	9.3 U	200 U	48 U	9.7 U	9.4 U	9.6 U	9.4 U	NA	9.8 U	110 U
Acenaphthene	20	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Acenaphthylene	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Acetophenone	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Anthracene	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Atrazine	7.5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Benzaldehyde	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Benzo(a)anthracene	0.002	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Benzo(a)pyrene	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 UJ	53 U
Benzo(b)fluoranthene	0.002	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 UJ	53 U
Benzo(g,h,i)perylene	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 UJ	53 U
Benzo(k)fluoranthene	0.002	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 UJ	53 U
bis(2-Chloroethoxy)methane	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
bis(2-Chloroethyl)ether	1	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
bis(2-Ethylhexyl)phthalate	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Butylbenzylphthalate	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	**0.42 J**	53 U
Caprolactam	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Carbazole	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Chrysene	0.002	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Dibenzo(a,h)anthracene	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 UJ	53 U
Dibenzofuran	- -	ug/L	9.4 U	9.3 U	200 U	48 U	9.7 U	9.4 U	9.6 U	9.4 U	NA	9.8 U	110 U
Diethylphthalate	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Dimethylphthalate	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U

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Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-29-D2	MW-29-D2	MW-29-D2	MW-29-D2	MW-29-VD	MW-29-VD	MW-29-VD	MW-29-VD	AMW-12	AMW-12	AMW-12
Historical Screen Interval (feet below ground surface)			32 - 42	32 - 42	32 - 42	32 - 42	54 - 63	54 - 63	54 - 63	54 - 63	3 - 8	3 - 8	3 - 8
Current Screen Interval (Feet below current ground surface):			36 - 46	36 - 46	36 - 46	36 - 46	57 - 67	57 - 67	57 - 67	57 - 67	7 - 12	7 - 12	7 - 12
Date Collected:			01/25/11	09/10/13	01/14/16	06/21/16	01/25/11	09/10/13	01/14/16	06/21/16	02/20/13	09/13/13	01/14/16
Area of Site			Along Hampton Road								Former Loading Rack Area		
Semivolatile Organics (Cont.)													
Di-n-Butylphthalate	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	**0.31 J**	4.8 U	4.7 U	NA	4.9 UB	53 U
Di-n-Octylphthalate	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Fluoranthene	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Fluorene	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Hexachlorobenzene	0.04	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Hexachlorobutadiene	0.5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Hexachlorocyclopentadiene	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Hexachloroethane	5	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Isophorone	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
naphthalene	10	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Nitrobenzene	0.4	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
N-Nitroso-di-n-propylamine	- -	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
N-Nitrosodiphenylamine	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Pentachlorophenol	- -	ug/L	9.4 U	9.3 U	200 U	48 U	9.7 U	9.4 U	9.6 U	9.4 U	NA	9.8 U	110 U
Phenanthrene	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 UB	53 U
Phenol	1	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	**4.1 J**	53 U
Pyrene	50	ug/L	4.7 U	4.7 U	100 U	24 U	4.9 U	4.7 U	4.8 U	4.7 U	NA	4.9 U	53 U
Inorganics - Total													
Aluminum	- -	mg/L	0.20 UB	NA	NA	NA	0.20 UB	NA	NA	NA	0.200 U	NA	NA
Antimony	0.003	mg/L	0.020 U	NA	NA	NA	0.020 U	NA	NA	NA	0.0200 U	NA	NA
Arsenic	0.025	mg/L	0.010 U	NA	NA	NA	0.010 U	NA	NA	NA	0.0100 U	NA	NA
Barium	1	mg/L	**0.110**	NA	NA	NA	**0.050**	NA	NA	NA	**0.0760**	NA	NA
Beryllium	0.003	mg/L	0.00200 U	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA	NA
Cadmium	0.005	mg/L	**0.00840 J**	NA	NA	NA	**0.00910 J**	NA	NA	NA	0.00100 U	NA	NA
Calcium	- -	mg/L	**1,190**	NA	NA	NA	**265**	NA	NA	NA	**122**	NA	NA
Chromium	0.05	mg/L	**0.00200 J**	NA	NA	NA	**0.00400**	NA	NA	NA	**0.00110 J**	NA	NA
Cobalt	- -	mg/L	**0.00120 J**	NA	NA	NA	**0.00130 J**	NA	NA	NA	0.00400 U	NA	NA
Copper	0.2	mg/L	0.0100 U	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 U	NA	NA
Iron	0.3	mg/L	**0.0220 J**	NA	NA	**0.0640**	**0.0630**	NA	NA	**0.390**	**27.9**	NA	NA
Lead	0.025	mg/L	0.00500 U	NA	NA	NA	0.00500 U	NA	NA	NA	**0.00670**	NA	NA
Magnesium	35	mg/L	**288.000 J**	NA	NA	NA	**639.000**	NA	NA	NA	**19.7**	NA	NA
Manganese	0.3	mg/L	**0.00860**	NA	NA	**0.150 B**	**0.200**	NA	NA	**0.0620 B**	**0.640**	NA	NA
Mercury	0.0007	mg/L	0.000200 U	NA	NA	NA	0.000200 U	NA	NA	NA	0.000200 U	NA	NA
Nickel	0.1	mg/L	**0.00570 J**	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00270 J**	NA	NA
Potassium	- -	mg/L	**339**	NA	NA	NA	**213**	NA	NA	NA	**14.5**	NA	NA
Selenium	0.01	mg/L	0.0150 U		NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA	NA
Silver	0.05	mg/L	0.00300 U	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA	NA
Sodium	20	mg/L	**7,780**	NA	NA	NA	**5,430**	NA	NA	NA	**149**	NA	NA
Thallium	0.0005	mg/L	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA
Vanadium	- -	mg/L	0.00500 U	NA	NA	NA	**0.00470 J**	NA	NA	NA	**0.00190 J**	NA	NA
Zinc	2	mg/L	0.0100 U	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00590 J**	NA	NA

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Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-29-D2	MW-29-D2	MW-29-D2	MW-29-D2	MW-29-VD	MW-29-VD	MW-29-VD	MW-29-VD	AMW-12	AMW-12	AMW-12
Historical Screen Interval (feet below ground surface)			32 - 42	32 - 42	32 - 42	32 - 42	54 - 63	54 - 63	54 - 63	54 - 63	3 - 8	3 - 8	3 - 8
Current Screen Interval (Feet below current ground surface):			36 - 46	36 - 46	36 - 46	36 - 46	57 - 67	57 - 67	57 - 67	57 - 67	7 - 12	7 - 12	7 - 12
Date Collected:			01/25/11	09/10/13	01/14/16	06/21/16	01/25/11	09/10/13	01/14/16	06/21/16	02/20/13	09/13/13	01/14/16
Area of Site			Along Hampton Road								Former Loading Rack Area		
Inorganics-Dissolved													
Aluminum	- -	mg/L	0.200 U	NA	NA	NA	0.200 UB	NA	NA	NA	0.200 U	NA	NA
Antimony	0.003	mg/L	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA
Arsenic	0.025	mg/L	0.0100 U	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00650 J**	NA	NA
Barium	1	mg/L	**0.110**	NA	NA	NA	**0.050**	NA	NA	NA	**0.0770**	NA	NA
Beryllium	0.003	mg/L	0.00200 U	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA	NA
Cadmium	0.005	mg/L	**0.000680 J**	NA	NA	NA	**0.000860 J**	NA	NA	NA	0.00100 U	NA	NA
Calcium	- -	mg/L	**1,080**	NA	NA	NA	**257**	NA	NA	NA	**122**	NA	NA
Chromium	0.05	mg/L	**0.00130 J**	NA	NA	NA	**0.00370 J**	NA	NA	NA	**0.00130 J**	NA	NA
Cobalt	- -	mg/L	**0.00120 J**	NA	NA	NA	**0.00140 J**	NA	NA	NA	0.00400 U	NA	NA
Copper	0.2	mg/L	0.0100 U	NA	NA	NA	0.0100 U	NA	NA	NA	0.0100 UB	NA	NA
Iron	0.3	mg/L	**0.0190 J**	NA	NA	0.0500 U	**0.0230 J**	NA	NA	**0.410**	**24.8**	NA	NA
Lead	0.025	mg/L	0.00500 U	NA	NA	NA	0.00500 U	NA	NA	NA	**0.00550**	NA	NA
Magnesium	35	mg/L	**392 J**	NA	NA	NA	**617**	NA	NA	NA	**19.3**	NA	NA
Manganese	0.3	mg/L	**0.0210**	NA	NA	**0.140 B**	**0.200**	NA	NA	**0.0690 B**	**0.610**	NA	NA
Mercury	0.0007	mg/L	**0.000120 J**	NA	NA	NA	**0.000140 J**	NA	NA	NA	0.000200 U	NA	NA
Nickel	0.1	mg/L	**0.00380 J**	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00370 J**	NA	NA
Potassium	- -	mg/L	**349**	NA	NA	NA	**215**	NA	NA	NA	**15.1**	NA	NA
Selenium	0.01	mg/L	0.0150 U	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA	NA
Silver	0.05	mg/L	0.00300 U	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA	NA
Sodium	20	mg/L	**7,510**	NA	NA	NA	**5,050**	NA	NA	NA	**142**	NA	NA
Thallium	0.0005	mg/L	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA
Vanadium	- -	mg/L	0.005 U	NA	NA	NA	**0.00450 J**	NA	NA	NA	**0.00220 J**	NA	NA
Zinc	2	mg/L	0.0100 U	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00350 J**	NA	NA
General Chemistry													
Alkalinity	- -	mg/L	12.6 UB	NA	NA	**453 B**	**637**	NA	NA	**229 B**	NA	NA	NA
Alkalinity, Bicarbonate	- -	mg/L	12.6 UB	NA	NA	**453 B**	**637**	NA	NA	**229 B**	NA	NA	NA
Ammonia Nitrogen	- -	mg/L	**4.9**	NA	NA	NA	**5.1**	NA	NA	NA	NA	NA	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	0.015 U	NA	NA	NA	0.15 UJ	NA	NA	NA	NA	NA	NA
Ethene	- -	mg/L	0.015 U	NA	NA	NA	0.15 UJ	NA	NA	NA	NA	NA	NA
Methane	- -	mg/L	**0.019 J**	NA	NA	NA	**0.42 J**	NA	NA	NA	NA	NA	NA
Nitrate Nitrogen	- -	mg/L	0.05 U	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA
Nitrite Nitrogen	- -	mg/L	0.05 U	NA	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA
Orthophosphate	- -	mg/L	**0.06**	NA	NA	NA	**0.43**	NA	NA	NA	NA	NA	NA
Soluble Organic Carbon	- -	mg/L	**1.7**	NA	NA	NA	**7.9**	NA	NA	NA	NA	NA	NA
Sulfate	250	mg/L	**1,850**	NA	NA	**939**	**1,170**	NA	NA	**1,890**	NA	NA	NA
Sulfide	- -	mg/L	0.1 U	NA	NA	**17**	**17.2**	NA	NA	0.1 UF1	NA	NA	NA
Total Dissolved Solids	- -	mg/L	**30,100**	NA	NA	NA	**16,900**	NA	NA	NA	**976**	NA	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-30-D1	MW-30-D1	MW-30-D1	MW-30-D1	MW-30-D2	MW-30-D2	MW-30-D2	MW-30-D2	MW-30-VD	MW-30-VD
Historical Screen Interval (feet below ground surface)			18 - 28	18 - 28	18 - 28	18 - 28	33 - 43	33 - 43	33 - 43	33 - 43	73 - 83	73 - 83
Current Screen Interval (Feet below current ground surface):			22 - 32	22 - 32	22 - 32	22 - 32	37 - 47	37 - 47	37 - 47	37 - 47	77 - 87	77 - 87
Date Collected:			01/24/11	09/09/13	01/14/16	06/22/16	04/07/11	09/10/13	01/14/16	06/22/16	01/25/11	09/10/13
Area of Site			Former Loading Rack Area									
Volatile Organics												
1,1,1-Trichloroethane	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
1,1,2-Trichloroethane	1	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
1,1-Dichloroethane	5	ug/L	**2.0 [2.0]**	1.0 U	**1.9**	**2.1**	1.0 U [1.0 U]	2.0 U	**2.9 [3.2 J]**	**0.87 J**	1.0 U	10 U
1,1-Dichloroethene	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
1,2,4-Trichlorobenzene	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 U [1.0 U]	1.0 UJ	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
1,2-Dibromoethane	0.0006	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
1,2-Dichlorobenzene	3	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	**5.0**	10 U
1,2-Dichloroethane	0.6	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	**1.5 J**	10 U
1,2-Dichloropropane	1	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
1,3-Dichlorobenzene	3	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
1,4-Dichlorobenzene	3	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
2-Butanone	50	ug/L	10 U [10 U]	10 U	10 U	10 U	10 U [10 U]	20 U	20 U [50 U]	10 U	10 U	100 U
2-Hexanone	50	ug/L	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U	5.0 U [5.0 U]	10 U	10 U [25 U]	5.0 U	5.0 U	50 U
4-Methyl-2-pentanone	- -	ug/L	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U	5.0 U [5.0 U]	10 U	10 U [25 U]	5.0 U	5.0 U	50 U
Acetone	50	ug/L	10 U [10 U]	10 U	10 U	10 U	10 U [10 U]	20 U	20 U [50 U]	10 U	10 U	100 U
Benzene	1	ug/L	**81 [87]**	**2.2**	**1.1**	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	**7.2 J**
Bromodichloromethane	50	ug/L	1.0 U [1.0 U]	1.0 UJ	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Bromoform	50	ug/L	1.0 U [1.0 U]	1.0 UJ	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Bromomethane	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Carbon Disulfide	60	ug/L	1.0 U [1.0 U]	1.0 UJ	1.0 U	**0.19 J**	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	**7.1**	10 U
Carbon Tetrachloride	5	ug/L	1.0 U [1.0 U]	1.0 UJ	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Chlorobenzene	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Chloroethane	5	ug/L	1.0 UJ [1.0 UJ]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 UJ	10 U
Chloroform	7	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Chloromethane	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
cis-1,2-Dichloroethene	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
cis-1,3-Dichloropropene	0.4	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Cyclohexane	- -	ug/L	**1.4 [1.6]**	1.0 U	**0.39 J**	**0.27 J**	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	**4.7 J**
Dibromochloromethane	50	ug/L	1.0 U [1.0 U]	1.0 UJ	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Dichlorodifluoromethane	5	ug/L	1.0 U [1.0 U]	1.0 UJ	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Ethylbenzene	5	ug/L	**1.8 [1.8]**	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Isopropylbenzene	5	ug/L	**0.97 J [1.1]**	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Methyl acetate	- -	ug/L	1.0 U [1.0 U]	1.0 U	2.5 U	2.5 U	1.0 U [1.0 U]	2.0 U	5.0 U [13 U]	2.5 U	1.0 U	10 U
Methyl tert-butyl ether	10	ug/L	**680 D [680 D]**	**15**	**94**	**53**	1.0 U **[0.42 J]**	**0.84 J**	**8.1 [7.3]**	**3.0**	**90**	**2.6 J**
Methylcyclohexane	- -	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	**2.8 J**
Methylene Chloride	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Styrene	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Tetrachloroethene	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Toluene	5	ug/L	**0.55 J [0.56 J]**	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
trans-1,2-Dichloroethene	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
trans-1,3-Dichloropropene	0.4	ug/L	1.0 U [1.0 U]	1.0 UJ	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Trichloroethene	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	**4.1**	10 U
Trichlorofluoromethane	5	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Vinyl Chloride	2	ug/L	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	2.0 U [5.0 U]	1.0 U	1.0 U	10 U
Xylenes (total)	5	ug/L	2.0 U [2.0 U]	2.0 U	2.0 U	2.0 U	2.0 U [2.0 U]	4.0 U	4.0 U [10 U]	2.0 U	2.0 U	20 U

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-30-D1	MW-30-D1	MW-30-D1	MW-30-D1	MW-30-D2	MW-30-D2	MW-30-D2	MW-30-D2	MW-30-VD	MW-30-VD
Historical Screen Interval (feet below ground surface)			18 - 28	18 - 28	18 - 28	18 - 28	33 - 43	33 - 43	33 - 43	33 - 43	73 - 83	73 - 83
Current Screen Interval (Feet below current ground surface):			22 - 32	22 - 32	22 - 32	22 - 32	37 - 47	37 - 47	37 - 47	37 - 47	77 - 87	77 - 87
Date Collected:			01/24/11	09/09/13	01/14/16	06/22/16	04/07/11	09/10/13	01/14/16	06/22/16	01/25/11	09/10/13
Area of Site			Former Loading Rack Area									
Semivolatile Organics												
1,1'-Biphenyl	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2,4,5-Trichlorophenol	1	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2,4,6-Trichlorophenol	1	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2,4-Dichlorophenol	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2,4-Dimethylphenol	50	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2,4-Dinitrophenol	10	ug/L	9.6 U [9.7 U]	10 U	210 U	9.4 U	NA	11 U	93 U [92 U]	9.3 U	9.6 U	10 U
2,4-Dinitrotoluene	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2,6-Dinitrotoluene	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2-Chloronaphthalene	10	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2-Chlorophenol	1	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2-Methylnaphthalene	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2-Methylphenol	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
2-Nitroaniline	5	ug/L	9.6 U [9.7 U]	10 U	210 U	9.4 U	NA	11 U	93 U [92 U]	9.3 U	9.6 U	10 U
2-Nitrophenol	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
3,3'-Dichlorobenzidine	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 UF2	4.8 U	5.2 U
3-Nitroaniline	5	ug/L	9.6 U [9.7 U]	10 U	210 U	9.4 U	NA	11 U	93 U [92 U]	9.3 U	9.6 U	10 U
4,6-Dinitro-2-methylphenol	- -	ug/L	9.6 U [9.7 U]	10 U	210 U	9.4 U	NA	11 U	93 U [92 U]	9.3 U	9.6 U	10 U
4-Bromophenyl-phenylether	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
4-Chloro-3-Methylphenol	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
4-Chloroaniline	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
4-Chlorophenyl-phenylether	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
4-Methylphenol	- -	ug/L	9.6 U [9.7 U]	10 U	210 U	9.4 U	NA	11 U	93 U [92 U]	9.3 U	9.6 U	10 U
4-Nitroaniline	5	ug/L	9.6 U [9.7 U]	10 U	210 U	9.4 U	NA	11 U	93 U [92 U]	9.3 U	9.6 U	10 U
4-Nitrophenol	- -	ug/L	9.6 U [9.7 U]	10 U	210 U	9.4 U	NA	11 U	93 U [92 U]	9.3 U	9.6 U	10 U
Acenaphthene	20	ug/L	**15 [15]**	**2.5 J**	110 U	**3.5 J**	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Acenaphthylene	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Acetophenone	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Anthracene	50	ug/L	**0.74 J [0.63 J]**	**0.29 J**	110 U	**0.40 J**	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Atrazine	7.5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Benzaldehyde	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Benzo(a)anthracene	0.002	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Benzo(a)pyrene	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 UJ	46 U [46 U]	4.6 U	4.8 U	5.2 U
Benzo(b)fluoranthene	0.002	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 UJ	46 U [46 U]	4.6 U	4.8 U	5.2 U
Benzo(g,h,i)perylene	- -	ug/L	4.8 U [4.9 U]	5.1 UJ	110 U	4.7 U	NA	5.3 UJ	46 U [46 U]	4.6 UF1	4.8 U	5.2 UJ
Benzo(k)fluoranthene	0.002	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 UJ	46 U [46 U]	4.6 U	4.8 U	5.2 U
bis(2-Chloroethoxy)methane	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
bis(2-Chloroethyl)ether	1	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
bis(2-Ethylhexyl)phthalate	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	**7.5 B**	NA	5.3 U	46 U [46 U]	**8.0 B**	4.8 U	5.2 U
Butylbenzylphthalate	50	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Caprolactam	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Carbazole	- -	ug/L	**7.5 [7.7]**	**1.0 J**	110 U	**0.57 J**	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Chrysene	0.002	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 UF1	4.8 U	5.2 U
Dibenzo(a,h)anthracene	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 UJ	46 U [46 U]	4.6 UF1	4.8 U	5.2 U
Dibenzofuran	- -	ug/L	**2.1 J [2.3 J]**	10 U	210 U	9.4 U	NA	11 U	93 U [92 U]	9.3 U	9.6 U	10 U
Diethylphthalate	50	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Dimethylphthalate	50	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-30-D1	MW-30-D1	MW-30-D1	MW-30-D1	MW-30-D2	MW-30-D2	MW-30-D2	MW-30-D2	MW-30-VD	MW-30-VD
Historical Screen Interval (feet below ground surface)			18 - 28	18 - 28	18 - 28	18 - 28	33 - 43	33 - 43	33 - 43	33 - 43	73 - 83	73 - 83
Current Screen Interval (Feet below current ground surface):			22 - 32	22 - 32	22 - 32	22 - 32	37 - 47	37 - 47	37 - 47	37 - 47	77 - 87	77 - 87
Date Collected:			01/24/11	09/09/13	01/14/16	06/22/16	04/07/11	09/10/13	01/14/16	06/22/16	01/25/11	09/10/13
Area of Site			Former Loading Rack Area									
Semivolatile Organics (Cont.)												
Di-n-Butylphthalate	50	ug/L	**0.39 J [0.33 J]**	5.1 U	110 U	4.7 U	NA	**0.70 J**	46 U [46 U]	4.6 U	4.8 U	**0.75 J**
Di-n-Octylphthalate	50	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 UF1	4.8 U	5.2 U
Fluoranthene	50	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Fluorene	50	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Hexachlorobenzene	0.04	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Hexachlorobutadiene	0.5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Hexachlorocyclopentadiene	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 UF1	4.8 U	5.2 U
Hexachloroethane	5	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 UJ	46 U [46 U]	4.6 UF1	4.8 U	5.2 U
Isophorone	50	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
naphthalene	10	ug/L	**0.92 J [1.0 J]**	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Nitrobenzene	0.4	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
N-Nitroso-di-n-propylamine	- -	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
N-Nitrosodiphenylamine	50	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Pentachlorophenol	- -	ug/L	9.6 U [9.7 U]	10 U	210 U	9.4 U	NA	11 U	93 U [92 U]	9.3 UF1	9.6 U	10 U
Phenanthrene	50	ug/L	**6.5 [6.6]**	**0.59 J**	110 U	**1.2 J**	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Phenol	1	ug/L	4.8 U [4.9 U]	**2.9 J**	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Pyrene	50	ug/L	4.8 U [4.9 U]	5.1 U	110 U	4.7 U	NA	5.3 U	46 U [46 U]	4.6 U	4.8 U	5.2 U
Inorganics - Total												
Aluminum	- -	mg/L	0.200 UB [0.200 UB]	NA	NA	NA	**0.550 [0.380]**	NA	NA	NA	0.200 UB	NA
Antimony	0.003	mg/L	0.020 U [0.020 U]	NA	NA	NA	0.020 U [0.020 U]	NA	NA	NA	0.020 U	NA
Arsenic	0.025	mg/L	0.010 U [0.010 U]	NA	NA	NA	**0.0061 J** [0.010 U]	NA	NA	NA	**0.0061 J**	NA
Barium	1	mg/L	**0.0440 [0.0440]**	NA	NA	NA	**0.0470 [0.0470]**	NA	NA	NA	**0.0990**	NA
Beryllium	0.003	mg/L	0.00200 U [0.00200 U]	NA	NA	NA	0.00200 U [0.00200 U]	NA	NA	NA	0.00200 U	NA
Cadmium	0.005	mg/L	**0.00600 J [0.00790 J]**	NA	NA	NA	**0.00100 [0.00120]**	NA	NA	NA	**0.00110**	NA
Calcium	- -	mg/L	**107 [107]**	NA	NA	NA	**133 [134]**	NA	NA	NA	**289**	NA
Chromium	0.05	mg/L	**0.00390 J [0.00370 J]**	NA	NA	NA	**0.00560 [0.00510]**	NA	NA	NA	**0.00430**	NA
Cobalt	- -	mg/L	**0.00110 J [0.00930 J]**	NA	NA	NA	**0.00860 J [0.00100 J]**	NA	NA	NA	**0.00160 J**	NA
Copper	0.2	mg/L	**0.00300 J [0.00250 J]**	NA	NA	NA	**0.00320 J [0.00160 J]**	NA	NA	NA	0.0100 U	NA
Iron	0.3	mg/L	**0.100 [0.130]**	NA	NA	**1.60**	**0.500 [0.380]**	NA	NA	**0.160**	**0.0950**	NA
Lead	0.025	mg/L	0.00500 U [0.00500 U]	NA	NA	NA	**0.00360 J** [0.00500 U]	NA	NA	NA	0.00500 U	NA
Magnesium	35	mg/L	**283.000 [279.000]**	NA	NA	NA	**304.000 [303.000]**	NA	NA	NA	**707.000**	NA
Manganese	0.3	mg/L	**0.0940 [0.093]**	NA	NA	**0.0920 B**	**0.150 [0.150]**	NA	NA	**0.120 B**	**0.150**	NA
Mercury	0.0007	mg/L	0.00200 U [0.00200 U]	NA	NA	NA	0.00200 U [0.00200 U]	NA	NA	NA	0.000200 U	NA
Nickel	0.1	mg/L	0.0100 U [0.0100 U]	NA	NA	NA	**0.00140 J** [0.010 U]	NA	NA	NA	**0.00390 J**	NA
Potassium	- -	mg/L	**113 [114]**	NA	NA	NA	**123 [123]**	NA	NA	NA	**258**	NA
Selenium	0.01	mg/L	0.0150 U [0.0150 U]	NA	NA	NA	0.0150 U [0.0150 U]	NA	NA	NA	0.0150 U	NA
Silver	0.05	mg/L	0.00300 U [0.00300 U]	NA	NA	NA	0.00300 U [0.00300 U]	NA	NA	NA	0.00300 U	NA
Sodium	20	mg/L	**2,400,000400]**	NA	NA	NA	**2,900 [2,870]**	NA	NA	NA	**6,100**	NA
Thallium	0.0005	mg/L	0.0200 U [0.0200 U]	NA	NA	NA	0.0200 U [0.0200 U]	NA	NA	NA	0.0200 U	NA
Vanadium	- -	mg/L	**0.00520 [0.00540]**	NA	NA	NA	**0.00420 J [0.00470 J]**	NA	NA	NA	**0.00800**	NA
Zinc	2	mg/L	**0.00370 J [0.00180 J]**	NA	NA	NA	**0.00440 J [0.00230 J]**	NA	NA	NA	**0.00230 J**	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-30-D1	MW-30-D1	MW-30-D1	MW-30-D1	MW-30-D2	MW-30-D2	MW-30-D2	MW-30-D2	MW-30-VD	MW-30-VD
Historical Screen Interval (feet below ground surface)			18 - 28	18 - 28	18 - 28	18 - 28	33 - 43	33 - 43	33 - 43	33 - 43	73 - 83	73 - 83
Current Screen Interval (Feet below current ground surface):			22 - 32	22 - 32	22 - 32	22 - 32	37 - 47	37 - 47	37 - 47	37 - 47	77 - 87	77 - 87
Date Collected:			01/24/11	09/09/13	01/14/16	06/22/16	04/07/11	09/10/13	01/14/16	06/22/16	01/25/11	09/10/13
Area of Site			Former Loading Rack Area									
Inorganics-Dissolved												
Aluminum	- -	mg/L	0.200 UB [0.200 UB]	NA	NA	NA	0.200 U [0.200 U]	NA	NA	NA	0.200 UB	NA
Antimony	0.003	mg/L	0.0200 U [0.0200 U]	NA	NA	NA	0.0200 U [0.0200 U]	NA	NA	NA	0.020.0 U	NA
Arsenic	0.025	mg/L	0.0100 U [0.0100 U]	NA	NA	NA	0.0100 U [0.0100 U]	NA	NA	NA	**0.00780 J**	NA
Barium	1	mg/L	**0.0440 [0.0440]**	NA	NA	NA	**0.047 [0.047]**	NA	NA	NA	**0.100**	NA
Beryllium	0.003	mg/L	0.00200 U [0.00200 U]	NA	NA	NA	0.00200 U [0.00200 U]	NA	NA	NA	0.00200 U	NA
Cadmium	0.005	mg/L	**0.000730 J [0.000600 J]**	NA	NA	NA	**0.000890 J [0.000660 J]**	NA	NA	NA	**0.00100**	NA
Calcium	- -	mg/L	**107 [107]**	NA	NA	NA	**138 [137]**	NA	NA	NA	**280**	NA
Chromium	0.05	mg/L	**0.00320 J [0.00360 J]**	NA	NA	NA	**0.00310 J [0.00260 J]**	NA	NA	NA	**0.0038 J**	NA
Cobalt	- -	mg/L	**0.000840 J** [0.00400 U]	NA	NA	NA	0.00400 U [0.00400 U]	NA	NA	NA	**0.00150 J**	NA
Copper	0.2	mg/L	**0.00150 J [0.00210 J]**	NA	NA	NA	0.0100 U [0.0100 U]	NA	NA	NA	0.0100 U	NA
Iron	0.3	mg/L	0.0500 U [0.0500 U]	NA	NA	**0.360 B**	0.0500 U [0.0500 U]	NA	NA	0.0500 U	0.0500 U	NA
Lead	0.025	mg/L	0.00500 U [0.00500 U]	NA	NA	NA	0.00500 U [0.00500 U]	NA	NA	NA	0.00500 U	NA
Magnesium	35	mg/L	**277 [281]**	NA	NA	NA	**315 [310]**	NA	NA	NA	**703**	NA
Manganese	0.3	mg/L	**0.0860 [0.0860]**	NA	NA	**0.0930 B**	**0.150 [0.150]**	NA	NA	**0.110 B**	**0.160**	NA
Mercury	0.0007	mg/L	0.000200 U [0.000200 U]	NA	NA	NA	0.000200 U [0.000200 U]	NA	NA	NA	0.000200 U	NA
Nickel	0.1	mg/L	0.0100 U [0.0100 U]	NA	NA	NA	0.0100 U **[0.0013 J]**	NA	NA	NA	**0.00320 J**	NA
Potassium	- -	mg/L	**114 [114]**	NA	NA	NA	**138[138]**	NA	NA	NA	**270**	NA
Selenium	0.01	mg/L	0.0150 U [0.0150 U]	NA	NA	NA	0.0150 U [0.0150 U]	NA	NA	NA	0.0150 U	NA
Silver	0.05	mg/L	0.00300 U [0.00300 U]	NA	NA	NA	0.00300 U [0.00300 U]	NA	NA	NA	0.00300 U	NA
Sodium	20	mg/L	**2,230[2,450]**	NA	NA	NA	**2,940 [2,890]**	NA	NA	NA	**5,830**	NA
Thallium	0.0005	mg/L	0.0200 U [0.0200 U]	NA	NA	NA	0.0200 U [0.0200 U]	NA	NA	NA	0.0200 U	NA
Vanadium	- -	mg/L	**0.00550 [0.00450 J]**	NA	NA	NA	**0.00350 J [0.00360 J]**	NA	NA	NA	**0.00650**	NA
Zinc	2	mg/L	0.0100 U [0.0100 U]	NA	NA	NA	**0.00250 J [0.00190 J]**	NA	NA	NA	0.0100 U	NA
General Chemistry												
Alkalinity	- -	mg/L	**939 [898]**	NA	NA	**841 B**	NA	NA	NA	**755 B**	**778**	NA
Alkalinity, Bicarbonate	- -	mg/L	**939 [898]**	NA	NA	**841 B**	NA	NA	NA	**755 B**	**778**	NA
Ammonia Nitrogen	- -	mg/L	**8 [7.7]**	NA	NA	NA	NA	NA	NA	NA	**2.6**	NA
Chloride	250	mg/L	NA	NA	NA	NA	**5,720 [5,620]**	NA	NA	NA	NA	NA
Ethane	- -	mg/L	0.15 U [1.5 U]	NA	NA	NA	NA	NA	NA	NA	0.0015 UJ	NA
Ethene	- -	mg/L	0.15 U [1.5 U]	NA	NA	NA	NA	NA	NA	NA	0.0015 UJ	NA
Methane	- -	mg/L	**1.7 J [1.2 J]**	NA	NA	NA	NA	NA	NA	NA	**0.057 DJ**	NA
Nitrate Nitrogen	- -	mg/L	0.05 U [0.05 U]	NA	NA	NA	NA	NA	NA	NA	0.05 U	NA
Nitrite Nitrogen	- -	mg/L	0.05 U [0.05 U]	NA	NA	NA	NA	NA	NA	NA	0.05 U	NA
Orthophosphate	- -	mg/L	**0.29 J [0.27 J]**	NA	NA	NA	NA	NA	NA	NA	**0.29**	NA
Soluble Organic Carbon	- -	mg/L	**12.3 [12.8]**	NA	NA	NA	NA	NA	NA	NA	**6**	NA
Sulfate	250	mg/L	25 U [25 UB]	NA	NA	**90**	NA	NA	NA	**241**	**1,280**	NA
Sulfide	- -	mg/L	**0.19 J [0.52 J]**	NA	NA	**92.7**	NA	NA	NA	**64.1 F1**	**0.17**	NA
Total Dissolved Solids	- -	mg/L	**7,950 [7,550]**	NA	NA	NA	NA	NA	NA	NA	**19,900**	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
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Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-30-VD	MW-30-VD	MW-31-D1R	MW-31-D1R	MW-31-D1R	MW-31-D1R	MW-31-D2R	MW-31-D2R	MW-31-D2R	MW-31-D2R	P-18R	P-18R
Historical Screen Interval (feet below ground surface)			73 - 83	73 - 83	17 - 27	17 - 27	17 - 27	17 - 27	32 - 42	32 - 42	32 - 42	32 - 42	2 - 8	2 - 8
Current Screen Interval (Feet below current ground surface):			77 - 87	77 - 87	21 - 31	21 - 31	21 - 31	21 - 31	36 - 46	36 - 46	36 - 46	36 - 46	6 - 12	6 - 12
Date Collected:			01/14/16	06/22/16	01/21/11	09/13/13	01/14/16	06/22/16	01/21/11	09/13/13	01/14/16	06/22/16	01/27/11	01/12/16
Area of Site			Former Loading Rack Area											
Volatile Organics														
1,1,1-Trichloroethane	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	1	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,1-Dichloroethane	5	ug/L	10 U	1.0 U	**1.1**	5.0 U	1.0 U	1.0 U	**0.99 J**	5.0 U	1.0 U	**0.94 J**	5.0 U	5.0 U
1,1-Dichloroethene	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,2-Dibromoethane	0.0006	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	3	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,2-Dichloroethane	0.6	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,2-Dichloropropane	1	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	3	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	3	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
2-Butanone	50	ug/L	100 U	10 U	10 U	50 U	10 U	10 U	10 U	50 U	10 U	10 U	50 U	50 U
2-Hexanone	50	ug/L	50 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	25 U	25 U
4-Methyl-2-pentanone	- -	ug/L	50 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	25 U	25 U
Acetone	50	ug/L	100 U	**5.9 J**	10 U	50 U	10 U	**11**	**3.9 J**	50 U	10 U	10 U	50 U	**40 J***
Benzene	1	ug/L	10 U	1.0 U	**5.6**	**98**	1.0 U	**1.1**	1.0 U	**11**	1.0 U	1.0 U	**160**	**42**
Bromodichloromethane	50	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Bromoform	50	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Bromomethane	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Carbon Disulfide	60	ug/L	10 U	1.0 U	**0.83 J**	5.0 U	1.0 U	**0.32 J**	**0.58 J**	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Carbon Tetrachloride	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Chlorobenzene	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Chloroethane	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Chloroform	7	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Chloromethane	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	5	ug/L	10 U	1.0 U	**2.1**	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	0.4	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Cyclohexane	- -	ug/L	10 U	1.0 U	1.0 U	R	1.0 U	1.0 U	1.0 U	R	1.0 U	1.0 U	**30**	**9.3**
Dibromochloromethane	50	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Ethylbenzene	5	ug/L	10 U	1.0 U	**5.3**	**4.5 J**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	**3.8 J**	5.0 U
Isopropylbenzene	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	**36**	**16**
Methyl acetate	- -	ug/L	25 U	2.5 U	1.0 U	5.0 U	2.5 U	2.5 U	1.0 U	5.0 U	2.5 U	2.5 U	5.0 U	13 U
Methyl tert-butyl ether	10	ug/L	10 U	**0.47 J**	**20**	**12**	1.0 U	**3.3**	1.0 U	5.0 U	1.0 U	**0.32 J**	5.0 U	**19**
Methylcyclohexane	- -	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	**14**	**3.6 J**
Methylene Chloride	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Styrene	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Tetrachloroethene	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Toluene	5	ug/L	10 U	1.0 U	**2.4**	**8.6**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	**4.0 J**	5.0 U
trans-1,2-Dichloroethene	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	0.4	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Trichloroethene	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	**3.1 J**	1.0 U	1.0 U	5.0 U	5.0 U
Trichlorofluoromethane	5	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Vinyl Chloride	2	ug/L	10 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U
Xylenes (total)	5	ug/L	20 U	2.0 U	**12**	**7.8 J**	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	**9.0 J**	10 U

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Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-30-VD	MW-30-VD	MW-31-D1R	MW-31-D1R	MW-31-D1R	MW-31-D1R	MW-31-D2R	MW-31-D2R	MW-31-D2R	MW-31-D2R	P-18R	P-18R
Historical Screen Interval (feet below ground surface)			73 - 83	73 - 83	17 - 27	17 - 27	17 - 27	17 - 27	32 - 42	32 - 42	32 - 42	32 - 42	2 - 8	2 - 8
Current Screen Interval (Feet below current ground surface):			77 - 87	77 - 87	21 - 31	21 - 31	21 - 31	21 - 31	36 - 46	36 - 46	36 - 46	36 - 46	6 - 12	6 - 12
Date Collected:			01/14/16	06/22/16	01/21/11	09/13/13	01/14/16	06/22/16	01/21/11	09/13/13	01/14/16	06/22/16	01/27/11	01/12/16
Area of Site			Former Loading Rack Area											
Semivolatile Organics														
1,1'-Biphenyl	5	ug/L	4.6 U	4.6 U	**9.4**	**3.0 J**	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2,4,5-Trichlorophenol	1	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2,4,6-Trichlorophenol	1	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2,4-Dichlorophenol	5	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2,4-Dimethylphenol	50	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2,4-Dinitrophenol	10	ug/L	9.2 U	9.1 U	9.5 U	10 U	9.9 U	47 U	10 U	10 U	9.5 U	9.3 U	11 U	95 U
2,4-Dinitrotoluene	5	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2,6-Dinitrotoluene	5	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2-Chloronaphthalene	10	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2-Chlorophenol	1	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2-Methylnaphthalene	- -	ug/L	4.6 U	4.6 U	**2.8 J**	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	**22**	47 U
2-Methylphenol	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
2-Nitroaniline	5	ug/L	9.2 U	9.1 U	9.5 U	10 U	9.9 U	47 U	10 U	10 U	9.5 U	9.3 U	11 U	95 U
2-Nitrophenol	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
3,3'-Dichlorobenzidine	5	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
3-Nitroaniline	5	ug/L	9.2 U	9.1 U	9.5 U	10 U	9.9 U	47 U	10 U	10 U	9.5 U	9.3 U	11 U	95 U
4,6-Dinitro-2-methylphenol	- -	ug/L	9.2 U	9.1 U	9.5 U	10 U	9.9 U	47 U	10 U	10 U	9.5 U	9.3 U	11 U	95 U
4-Bromophenyl-phenylether	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
4-Chloro-3-Methylphenol	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
4-Chloroaniline	5	ug/L	4.6 U	4.6 U	4.8 U	R	4.9 U	23 U	5.1 U	R	4.8 U	4.7 U	5.3 U	47 U
4-Chlorophenyl-phenylether	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
4-Methylphenol	- -	ug/L	9.2 U	9.1 U	9.5 U	**0.59 J**	9.9 U	47 U	10 U	10 U	9.5 U	9.3 U	**1.2 J**	95 U
4-Nitroaniline	5	ug/L	9.2 U	9.1 U	9.5 U	10 U	9.9 U	47 U	10 U	10 U	9.5 U	9.3 U	11 U	95 U
4-Nitrophenol	- -	ug/L	9.2 U	9.1 U	9.5 U	10 U	9.9 U	47 U	10 U	10 U	9.5 U	9.3 U	11 U	95 U
Acenaphthene	20	ug/L	4.6 U	4.6 U	**90**	**44**	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	**9.8**	47 U
Acenaphthylene	- -	ug/L	4.6 U	4.6 U	**1.8 J**	**0.74 J**	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Acetophenone	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Anthracene	50	ug/L	4.6 U	4.6 U	**1.3 J**	**1.8 J**	4.9 U	23 U	5.1 U	**0.52 J**	4.8 U	4.7 U	**0.63 J**	47 U
Atrazine	7.5	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Benzaldehyde	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Benzo(a)anthracene	0.002	ug/L	4.6 U	4.6 U	4.8 U	5.1 UJ	4.9 U	23 U	5.1 U	5.2 UJ	4.8 U	4.7 U	5.3 U	47 U
Benzo(a)pyrene	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 UJ	4.9 U	23 U	5.1 U	5.2 UJ	4.8 U	4.7 U	5.3 U	47 U
Benzo(b)fluoranthene	0.002	ug/L	4.6 U	4.6 U	4.8 U	5.1 UJ	4.9 U	23 U	5.1 U	5.2 UJ	4.8 U	4.7 U	5.3 U	47 U
Benzo(g,h,i)perylene	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 UJ	4.9 U	23 U	5.1 U	5.2 UJ	4.8 U	4.7 U	5.3 U	47 U
Benzo(k)fluoranthene	0.002	ug/L	4.6 U	4.6 U	4.8 U	5.1 UJ	4.9 U	23 U	5.1 U	5.2 UJ	4.8 U	4.7 U	5.3 U	47 U
bis(2-Chloroethoxy)methane	5	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
bis(2-Chloroethyl)ether	1	ug/L	4.6 U	**0.38 J**	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
bis(2-Ethylhexyl)phthalate	5	ug/L	4.6 U	**11 B**	4.8 U	5.1 UJ	4.9 U	23 U	5.1 U	**2.0 J**	4.8 U	**3.7 JB**	5.3 U	47 U
Butylbenzylphthalate	50	ug/L	4.6 U	4.6 U	4.8 U	5.1 UJ	4.9 U	23 U	5.1 U	**0.48 J**	4.8 U	4.7 U	5.3 U	47 U
Caprolactam	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Carbazole	- -	ug/L	4.6 U	4.6 U	**49**	**26**	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	**1.7 J**	47 U
Chrysene	0.002	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 UJ	4.8 U	4.7 U	5.3 U	47 U
Dibenzo(a,h)anthracene	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 UJ	4.9 U	23 U	5.1 U	5.2 UJ	4.8 U	4.7 U	5.3 U	47 U
Dibenzofuran	- -	ug/L	9.2 U	9.1 U	**32**	**9.0 J**	9.9 U	47 U	10 U	10 U	9.5 U	9.3 U	**2.2 J**	95 U
Diethylphthalate	50	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Dimethylphthalate	50	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	**1.9 J**	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U

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Historical Screen Interval (feet below ground surface)			73 - 83	73 - 83	17 - 27	17 - 27	17 - 27	17 - 27	32 - 42	32 - 42	32 - 42	32 - 42	2 - 8	2 - 8
Current Screen Interval (Feet below current ground surface):			77 - 87	77 - 87	21 - 31	21 - 31	21 - 31	21 - 31	36 - 46	36 - 46	36 - 46	36 - 46	6 - 12	6 - 12
Date Collected:			01/14/16	06/22/16	01/21/11	09/13/13	01/14/16	06/22/16	01/21/11	09/13/13	01/14/16	06/22/16	01/27/11	01/12/16
Area of Site			Former Loading Rack Area											
Semivolatile Organics (Cont.)														
Di-n-Butylphthalate	50	ug/L	4.6 U	4.6 U	**0.39 J**	5.1 UB	4.9 U	23 U	5.1 U	5.2 UB	4.8 U	4.7 U	5.3 U	47 U
Di-n-Octylphthalate	50	ug/L	4.6 U	4.6 U	4.8 U	5.1 UJ	4.9 U	23 U	5.1 U	5.2 UJ	4.8 U	4.7 U	5.3 U	47 U
Fluoranthene	50	ug/L	4.6 U	4.6 U	**1.0 J**	**0.94 J**	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	**0.65 J**	47 U
Fluorene	50	ug/L	4.6 U	4.6 U	**19**	**5.5**	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	**4.0 J**	47 U
Hexachlorobenzene	0.04	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Hexachlorobutadiene	0.5	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Hexachlorocyclopentadiene	5	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Hexachloroethane	5	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	4.6 U	4.6 U	4.8 U	5.1 UJ	4.9 U	23 U	5.1 U	5.2 UJ	4.8 U	4.7 U	5.3 U	47 U
Isophorone	50	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
naphthalene	10	ug/L	4.6 U	4.6 U	**130**	**48**	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	**6.3**	47 U
Nitrobenzene	0.4	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
N-Nitroso-di-n-propylamine	- -	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
N-Nitrosodiphenylamine	50	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Pentachlorophenol	- -	ug/L	9.2 U	9.1 U	9.5 U	10 U	9.9 U	47 U	10 U	10 U	9.5 U	9.3 U	11 U	95 U
Phenanthrene	50	ug/L	4.6 U	4.6 U	**25**	**15**	4.9 U	23 U	5.1 U	5.2 UB	4.8 U	4.7 U	**2.3 J**	47 U
Phenol	1	ug/L	4.6 U	4.6 U	4.8 U	5.1 U	4.9 U	**29**	5.1 U	5.2 U	4.8 U	4.7 U	5.3 U	47 U
Pyrene	50	ug/L	4.6 U	4.6 U	**0.39 J**	**1.5 J**	4.9 U	23 U	5.1 U	5.2 U	4.8 U	4.7 U	**0.46 J**	47 U
Inorganics - Total														
Aluminum	- -	mg/L	NA	NA	**0.130 J**	NA	NA	NA	**0.210**	NA	NA	NA	**0.270**	NA
Antimony	0.003	mg/L	NA	NA	0.020 U	NA	NA	NA	0.020 U	NA	NA	NA	0.0200 U	NA
Arsenic	0.025	mg/L	NA	NA	**0.0081 J**	NA	NA	NA	0.010 U	NA	NA	NA	**0.0056 J**	NA
Barium	1	mg/L	NA	NA	**0.0590**	NA	NA	NA	**0.140**	NA	NA	NA	**0.043**	NA
Beryllium	0.003	mg/L	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA
Cadmium	0.005	mg/L	NA	NA	**0.00610 J**	NA	NA	NA	**0.00760 J**	NA	NA	NA	**0.00500 J**	NA
Calcium	- -	mg/L	NA	NA	**120**	NA	NA	NA	**371**	NA	NA	NA	**81**	NA
Chromium	0.05	mg/L	NA	NA	**0.00390 J**	NA	NA	NA	**0.00350 J**	NA	NA	NA	**0.00110 J**	NA
Cobalt	- -	mg/L	NA	NA	**0.00800 J**	NA	NA	NA	**0.00170 J**	NA	NA	NA	**0.00150 J**	NA
Copper	0.2	mg/L	NA	NA	**0.00230 J**	NA	NA	NA	**0.00160 J**	NA	NA	NA	**0.00180 J**	NA
Iron	0.3	mg/L	NA	**6.60**	**0.170**	NA	NA	**0.320**	**0.0990**	NA	NA	**2.40**	**8.700**	NA
Lead	0.025	mg/L	NA	NA	0.00500 U	NA	NA	NA	0.00500 U	NA	NA	NA	0.00500 U	NA
Magnesium	35	mg/L	NA	NA	**273.000 J**	NA	NA	NA	**540.00 J**	NA	NA	NA	**16.100**	NA
Manganese	0.3	mg/L	NA	**0.290 B**	**0.430**	NA	NA	**0.0220 B**	**0.120**	NA	NA	**0.430 B**	**0.420**	NA
Mercury	0.0007	mg/L	NA	NA	0.000200 U	NA	NA	NA	0.000200 U	NA	NA	NA	0.000200 U	NA
Nickel	0.1	mg/L	NA	NA	0.0100 U	NA	NA	NA	**0.00270 J**	NA	NA	NA	**0.00360 J**	NA
Potassium	- -	mg/L	NA	NA	**118**	NA	NA	NA	**222**	NA	NA	NA	**15.5**	NA
Selenium	0.01	mg/L	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA
Silver	0.05	mg/L	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA
Sodium	20	mg/L	NA	NA	**2,370 J**	NA	NA	NA	**5,180 J**	NA	NA	NA	**73.9**	NA
Thallium	0.0005	mg/L	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA
Vanadium	- -	mg/L	NA	NA	**0.00580**	NA	NA	NA	**0.00390 J**	NA	NA	NA	**0.00590**	NA
Zinc	2	mg/L	NA	NA	**0.00330 J**	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00850 J**	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-30-VD	MW-30-VD	MW-31-D1R	MW-31-D1R	MW-31-D1R	MW-31-D1R	MW-31-D2R	MW-31-D2R	MW-31-D2R	MW-31-D2R	P-18R	P-18R
Historical Screen Interval (feet below ground surface)			73 - 83	73 - 83	17 - 27	17 - 27	17 - 27	17 - 27	32 - 42	32 - 42	32 - 42	32 - 42	2 - 8	2 - 8
Current Screen Interval (Feet below current ground surface):			77 - 87	77 - 87	21 - 31	21 - 31	21 - 31	21 - 31	36 - 46	36 - 46	36 - 46	36 - 46	6 - 12	6 - 12
Date Collected:			01/14/16	06/22/16	01/21/11	09/13/13	01/14/16	06/22/16	01/21/11	09/13/13	01/14/16	06/22/16	01/27/11	01/12/16
Area of Site			Former Loading Rack Area											
Inorganics-Dissolved														
Aluminum	- -	mg/L	NA	NA	0.0500 U	NA	NA	NA	**0.0670 J**	NA	NA	NA	**0.0600 J**	NA
Antimony	0.003	mg/L	NA	NA	0.0500 U	NA	NA	NA	0.020.0 U	NA	NA	NA	0.020.0 U	NA
Arsenic	0.025	mg/L	NA	NA	0.0500 U	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00610 J**	NA
Barium	1	mg/L	NA	NA	0.0500 U	NA	NA	NA	**0.130**	NA	NA	NA	**0.0420**	NA
Beryllium	0.003	mg/L	NA	NA	0.0500 U	NA	NA	NA	0.00200 U	NA	NA	NA	0.00200 U	NA
Cadmium	0.005	mg/L	NA	NA	0.0500 U	NA	NA	NA	**0.00110**	NA	NA	NA	**0.000530 J**	NA
Calcium	- -	mg/L	NA	NA	0.0500 U	NA	NA	NA	**363**	NA	NA	NA	**80.9**	NA
Chromium	0.05	mg/L	NA	NA	0.0500 U	NA	NA	NA	**0.00220 J**	NA	NA	NA	**0.00100 J**	NA
Cobalt	- -	mg/L	NA	NA	0.0500 U	NA	NA	NA	**0.00100 J**	NA	NA	NA	**0.00140 J**	NA
Copper	0.2	mg/L	NA	NA	0.0500 U	NA	NA	NA	0.0100 UB	NA	NA	NA	**0.00220 J**	NA
Iron	0.3	mg/L	NA	**4.90 B**	0.0500 U	NA	NA	**0.230 B**	**0.0250 J**	NA	NA	**2.20 B**	**9.50**	NA
Lead	0.025	mg/L	NA	NA	0.00500 U	NA	NA	NA	0.00500 U	NA	NA	NA	0.00500 U	NA
Magnesium	35	mg/L	NA	NA	**268**	NA	NA	NA	**595**	NA	NA	NA	**16.8**	NA
Manganese	0.3	mg/L	NA	**0.260 B**	**0.420**	NA	NA	**0.0250 B**	**0.120**	NA	NA	**0.430 B**	**0.450**	NA
Mercury	0.0007	mg/L	NA	NA	0.000200 U	NA	NA	NA	0.000200 U	NA	NA	NA	0.000200 U	NA
Nickel	0.1	mg/L	NA	NA	0.0100 U	NA	NA	NA	**0.00320 J**	NA	NA	NA	**0.00340 J**	NA
Potassium	- -	mg/L	NA	NA	**106**	NA	NA	NA	**204**	NA	NA	NA	**15.2**	NA
Selenium	0.01	mg/L	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA	NA	NA	0.0150 U	NA
Silver	0.05	mg/L	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA	NA	NA	0.00300 U	NA
Sodium	20	mg/L	NA	NA	**2,460**	NA	NA	NA	**4,800**	NA	NA	NA	**80.4**	NA
Thallium	0.0005	mg/L	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA	NA	NA	0.0200 U	NA
Vanadium	- -	mg/L	NA	NA	**0.006**	NA	NA	NA	**0.00380 J**	NA	NA	NA	**0.00510**	NA
Zinc	2	mg/L	NA	NA	0.0100 U	NA	NA	NA	0.0100 U	NA	NA	NA	**0.00650 J**	NA
General Chemistry														
Alkalinity	- -	mg/L	NA	**713 B**	**854**	NA	NA	**221 B**	**537**	NA	NA	**508 B**	**270**	NA
Alkalinity, Bicarbonate	- -	mg/L	NA	**713 B**	**854**	NA	NA	**221 B**	**537**	NA	NA	**508 B**	**270**	NA
Ammonia Nitrogen	- -	mg/L	NA	NA	**5.1**	NA	NA	NA	**1.9**	NA	NA	NA	**5.1**	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	NA	NA	0.3 U	NA	NA	NA	0.3 U	NA	NA	NA	1.5 UJ	NA
Ethene	- -	mg/L	NA	NA	0.3 U	NA	NA	NA	0.3 U	NA	NA	NA	1.5 UJ	NA
Methane	- -	mg/L	NA	NA	**0.59**	NA	NA	NA	**0.27**	NA	NA	NA	**12 J**	NA
Nitrate Nitrogen	- -	mg/L	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA
Nitrite Nitrogen	- -	mg/L	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA
Orthophosphate	- -	mg/L	NA	NA	1 U	NA	NA	NA	**0.27**	NA	NA	NA	**0.39**	NA
Soluble Organic Carbon	- -	mg/L	NA	NA	**13.1**	NA	NA	NA	**20.9**	NA	NA	NA	**14.3**	NA
Sulfate	250	mg/L	NA	**1,770**	**149**	NA	NA	**47.2**	**1,360**	NA	NA	**750**	5 UB	NA
Sulfide	- -	mg/L	NA	0.1 U	**0.12**	NA	NA	**0.6**	**5.5**	NA	NA	**2.8**	0.1 U	NA
Total Dissolved Solids	- -	mg/L	NA	NA	**7,590**	NA	NA	NA	**17,300**	NA	NA	NA	**493**	NA

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-32D	MW-32D	AMW-4	AMW-4	AMW-5	AMW-5	AMW-7	AMW-7	AMW-7	AMW-7	MW-35D	TW-1
Historical Screen Interval (feet below ground surface)			24 - 34	24 - 34	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	16 - 26	NA
Current Screen Interval (Feet below current ground surface):			28 - 38	28 - 38	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	20 - 30	6 - 16
Date Collected:			01/19/11	09/13/13	01/26/11	09/11/13	01/26/11	09/11/13	01/26/11	09/10/13	01/12/16	06/21/16	01/27/11	06/16/16
Area of Site			Former Garage Building Area		Southwest Area									
Volatile Organics														
1,1,1-Trichloroethane	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	0.0006	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	0.6	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	3	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	3	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
2-Butanone	50	ug/L	10 U	50 U	50 U	50 U	50 U	50 U	50 U	10 U	50 U	10 U	10 U	10 U
2-Hexanone	50	ug/L	5.0 U	25 U	25 U	25 U	25 U	25 U	25 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-pentanone	- -	ug/L	5.0 U	25 U	25 U	25 U	25 U	25 U	25 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U
Acetone	50	ug/L	10 U	50 U	50 U	50 U	**46 J**	**17 J**	**20 J**	10 U	**30 J**	**6.2 J**	10 U	**9.6 J**
Benzene	1	ug/L	1.0 U	5.0 U	**22**	**97**	**7.0**	**2.5 J**	**6.4**	1.0 U	**5.7**	**1.1**	**3.7**	**4.7**
Bromodichloromethane	50	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Bromoform	50	ug/L	1.0 U	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 UJ	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Carbon Disulfide	60	ug/L	1.0 U	**1.9 J**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	**0.43 J**	**0.87 J**	1.0 U
Carbon Tetrachloride	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Chloroform	7	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	0.4	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	- -	ug/L	1.0 U	R	**38**	**52**	**6.8**	**5.2**	**3.5 J**	1.0 U	5.0 U	**18**	**13**	**19**
Dibromochloromethane	50	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	5	ug/L	**1.0**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	**1.1**
Isopropylbenzene	5	ug/L	**1.3**	5.0 U	**11**	**21**	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	**2.8**	**17**	**6.3**
Methyl acetate	- -	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	13 U	2.5 U	1.0 U	2.5 U
Methyl tert-butyl ether	10	ug/L	**13**	**8.0**	5.0 U	5.0 U	5.0 U	**3.7 J**	**3.5 J**	**0.87 J**	**1.4 J**	**0.23 J**	**3.0**	1.0 U
Methylcyclohexane	- -	ug/L	1.0 U	5.0 U	**33**	**33**	**3.2 J**	**3.4 J**	5.0 U	1.0 U	**1.5 J**	**9.4**	**2.1**	**21**
Methylene Chloride	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Styrene	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Toluene	5	ug/L	1.0 U	5.0 U	**3.0 J**	**4.5 J**	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	**1.9**
trans-1,2-Dichloroethene	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	0.4	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 UF1	1.0 U	1.0 U	1.0 U
Trichloroethene	5	ug/L	**0.65 J**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	5	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	2	ug/L	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	5	ug/L	2.0 U	10 U	**13**	**6.9 J**	**4.0 J**	10 U	**4.1 J**	2.0 U	10 U	**0.79 J**	**0.66 J**	**6.2**

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Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-32D	MW-32D	AMW-4	AMW-4	AMW-5	AMW-5	AMW-7	AMW-7	AMW-7	AMW-7	MW-35D	TW-1
Historical Screen Interval (feet below ground surface)			24 - 34	24 - 34	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	16 - 26	NA
Current Screen Interval (Feet below current ground surface):			28 - 38	28 - 38	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	20 - 30	6 - 16
Date Collected:			01/19/11	09/13/13	01/26/11	09/11/13	01/26/11	09/11/13	01/26/11	09/10/13	01/12/16	06/21/16	01/27/11	06/16/16
Area of Site			Former Garage Building Area		Southwest Area									
Semivolatile Organics														
1,1'-Biphenyl	5	ug/L	4.7 U	4.7 U	**0.71 J**	5.3 U	**1.5 J**	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
2,4,5-Trichlorophenol	1	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 UF2	25 U	4.8 U	47 U
2,4,6-Trichlorophenol	1	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
2,4-Dichlorophenol	5	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
2,4-Dimethylphenol	50	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	**1.7 J**	**3.0 J**	5.0 U	50 U	25 U	4.8 U	47 U
2,4-Dinitrophenol	10	ug/L	9.5 U	9.4 U	9.6 U	11 U	9.5 U	11 U	9.5 U	10 U	99 UF1	49 U	9.6 U	94 U
2,4-Dinitrotoluene	5	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
2,6-Dinitrotoluene	5	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
2-Chloronaphthalene	10	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
2-Chlorophenol	1	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
2-Methylnaphthalene	- -	ug/L	4.7 U	4.7 U	**15**	**0.87 J**	**19**	**5.5**	**4.1 J**	**2.0 J**	50 U	25 U	4.8 U	**8.6 J**
2-Methylphenol	- -	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	**2.2 J**	**1.2 J**	5.0 U	50 U	25 U	4.8 U	47 U
2-Nitroaniline	5	ug/L	9.5 U	9.4 U	9.6 U	11 U	9.5 U	11 U	9.5 U	10 U	99 U	49 U	9.6 U	94 U
2-Nitrophenol	- -	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
3,3'-Dichlorobenzidine	5	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 UF1	25 U	4.8 U	47 U
3-Nitroaniline	5	ug/L	9.5 U	9.4 U	9.6 U	11 U	9.5 U	11 U	9.5 U	10 U	99 U	49 U	9.6 U	94 U
4,6-Dinitro-2-methylphenol	- -	ug/L	9.5 U	9.4 U	9.6 U	11 U	9.5 U	11 U	9.5 U	10 U	99 UF1	49 U	9.6 U	94 U
4-Bromophenyl-phenylether	- -	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
4-Chloro-3-Methylphenol	- -	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
4-Chloroaniline	5	ug/L	4.7 U	R	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 UF1	25 U	4.8 U	47 U
4-Chlorophenyl-phenylether	- -	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
4-Methylphenol	- -	ug/L	9.5 U	9.4 U	**3.2 J**	11 U	**7.1 J**	**6.6 J**	**6.4 J**	**2.4 J**	99 U	**2.5 J**	9.6 U	94 U
4-Nitroaniline	5	ug/L	9.5 U	9.4 U	9.6 U	11 U	9.5 U	11 U	9.5 U	10 U	99 U	49 U	9.6 U	94 U
4-Nitrophenol	- -	ug/L	9.5 U	9.4 U	9.6 U	11 U	9.5 U	11 U	9.5 U	10 U	99 U	49 U	9.6 U	94 U
Acenaphthene	20	ug/L	**1.5 J**	**0.54 J**	**2.5 J**	**3.4 J**	**2.6 J**	**0.97 J**	**2.7 J**	**1.5 J**	50 U	**9.2 J**	**2.3 J**	47 U
Acenaphthylene	- -	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	**0.52 J**	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Acetophenone	- -	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	**2.6 J**	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Anthracene	50	ug/L	**1.8 J**	**1.7 J**	4.8 U	5.3 U	4.7 U	**0.45 J**	4.7 U	**0.42 J**	50 UF2	25 U	4.8 U	47 U
Atrazine	7.5	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Benzaldehyde	- -	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 UB	4.7 U	**1.1 J**	50 U	25 U	4.8 U	47 U
Benzo(a)anthracene	0.002	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Benzo(a)pyrene	- -	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Benzo(b)fluoranthene	0.002	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Benzo(g,h,i)perylene	- -	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 UJ	50 U	25 U	4.8 U	47 U
Benzo(k)fluoranthene	0.002	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
bis(2-Chloroethoxy)methane	5	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
bis(2-Chloroethyl)ether	1	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
bis(2-Ethylhexyl)phthalate	5	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Butylbenzylphthalate	50	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Caprolactam	- -	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 UF1	25 U	4.8 U	47 U
Carbazole	- -	ug/L	**21**	**14**	**1.2 J**	5.3 U	**3.5 J**	**1.8 J**	**1.3 J**	**2.4 J**	50 U	**3.2 J**	4.8 U	**7.2 J**
Chrysene	0.002	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Dibenzo(a,h)anthracene	- -	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Dibenzofuran	- -	ug/L	9.5 U	9.4 U	**1.3 J**	**1.9 J**	**2.3 J**	**0.79 J**	**0.81 J**	**0.60 J**	99 U	**5.4 J**	**0.69 J**	94 U
Diethylphthalate	50	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 UF2	25 U	4.8 U	47 U
Dimethylphthalate	50	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 UF2	25 U	4.8 U	47 U

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-32D	MW-32D	AMW-4	AMW-4	AMW-5	AMW-5	AMW-7	AMW-7	AMW-7	AMW-7	MW-35D	TW-1
Historical Screen Interval (feet below ground surface)			24 - 34	24 - 34	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	16 - 26	NA
Current Screen Interval (Feet below current ground surface):			28 - 38	28 - 38	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	20 - 30	6 - 16
Date Collected:			01/19/11	09/13/13	01/26/11	09/11/13	01/26/11	09/11/13	01/26/11	09/10/13	01/12/16	06/21/16	01/27/11	06/16/16
Area of Site			Former Garage Building Area		Southwest Area									
Semivolatile Organics (Cont.)														
Di-n-Butylphthalate	50	ug/L	4.7 U	4.7 UB	4.8 U	5.3 U	4.7 U	**0.78 J**	**0.33 J**	**0.44 J**	50 UF2	25 U	**0.37 J**	47 U
Di-n-Octylphthalate	50	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Fluoranthene	50	ug/L	**1.2 J**	**1.2 J**	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	**6.2 J**
Fluorene	50	ug/L	4.7 U	**0.40 J**	**11**	**4.2 J**	**1.7 J**	**2.4 J**	**2.5 J**	**1.9 J**	50 UF2	**6.4 J**	4.8 U	47 U
Hexachlorobenzene	0.04	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Hexachlorobutadiene	0.5	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Hexachlorocyclopentadiene	5	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Hexachloroethane	5	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	4.7 U	4.7 UJ	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
Isophorone	50	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	**1.4 J**	**0.61 J**	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
naphthalene	10	ug/L	4.7 U	4.7 U	**18**	**4.2 J**	**45**	**18**	**50**	**8.8**	**10 J**	**8.8 J**	4.8 U	**13 J**
Nitrobenzene	0.4	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
N-Nitroso-di-n-propylamine	- -	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	47 U
N-Nitrosodiphenylamine	50	ug/L	4.7 U	4.7 U	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 UF2	25 U	4.8 U	47 U
Pentachlorophenol	- -	ug/L	9.5 U	9.4 U	9.6 U	11 U	9.5 U	11 U	9.5 U	10 U	99 U	49 U	9.6 U	94 U
Phenanthrene	50	ug/L	**25**	**17**	**0.82 J**	5.3 U	**1.5 J**	**0.47 J**	4.7 U	5.0 U	50 U	**4.1 J**	4.8 U	**7.5 J**
Phenol	1	ug/L	4.7 U	4.7 U	**42**	**6.3**	**110**	**150 D**	**84**	**90 D**	**64**	**73**	4.8 U	**9.3 J**
Pyrene	50	ug/L	**0.46 J**	**0.49 J**	4.8 U	5.3 U	4.7 U	5.4 U	4.7 U	5.0 U	50 U	25 U	4.8 U	**6.0 J**
Inorganics - Total														
Aluminum	- -	mg/L	0.200 U	NA	**0.20**	NA	**3.80**	NA	0.00300 U	NA	NA	NA	**6.200**	**3.90**
Antimony	0.003	mg/L	0.020 U	NA	0.020 U	NA	0.020 U	NA	0.00300 U	NA	NA	NA	0.020 U	0.0200 U
Arsenic	0.025	mg/L	0.010 U	NA	0.0100 U	NA	0.0100 U	NA	0.00300 U	NA	NA	NA	**0.0076 J**	**0.0130 J**
Barium	1	mg/L	**0.0290**	NA	**0.00970**	NA	**0.0130**	NA	0.00300 U	NA	NA	NA	**0.0330**	**0.0830**
Beryllium	0.003	mg/L	0.00200 U	NA	0.00200 U	NA	0.00200 U	NA	0.00300 U	NA	NA	NA	0.00200 U	0.00200 U
Cadmium	0.005	mg/L	**0.00780 J**	NA	**0.00520 J**	NA	**0.00450 J**	NA	0.00300 U	NA	NA	NA	**0.00650 J**	0.00200 U
Calcium	- -	mg/L	**89.9**	NA	**81.5**	NA	**142**	NA	0.00300 U	NA	NA	NA	**111**	**122 B**
Chromium	0.05	mg/L	**0.00240 J**	NA	0.00400 U	NA	**0.0011 J**	NA	0.00300 U	NA	NA	NA	**0.0150**	**0.0150**
Cobalt	- -	mg/L	0.00400 U	NA	0.00400 U	NA	**0.00760 J**	NA	0.00300 U	NA	NA	NA	**0.00270 J**	**0.00190 J**
Copper	0.2	mg/L	0.0100 U	NA	0.0100 U	NA	**0.00530 J**	NA	0.00300 U	NA	NA	NA	**0.00770 J**	**0.0110**
Iron	0.3	mg/L	**0.0440 J**	NA	**3.600**	NA	**0.160**	NA	0.00300 U	NA	NA	**0.170**	**8.100**	**5.90 ^**
Lead	0.025	mg/L	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA	0.00300 U	NA	NA	NA	**0.00840**	**0.0540**
Magnesium	35	mg/L	**209.000**	NA	**12.7**	NA	**0.470**	NA	0.00300 U	NA	NA	NA	**30.500**	**8.60**
Manganese	0.3	mg/L	**0.0400**	NA	**0.440**	NA	**0.00420**	NA	0.00300 U	NA	NA	**0.0740 B**	**0.160**	**0.100 ^**
Mercury	0.0007	mg/L	0.000200 U	NA	0.000200 U	NA	0.000200 U	NA	0.00300 U	NA	NA	NA	0.000200 U	0.000200 U
Nickel	0.1	mg/L	0.0100 U	NA	**0.00530 J**	NA	**0.0190**	NA	0.00300 U	NA	NA	NA	**0.00770 J**	**0.00850 J**
Potassium	- -	mg/L	**84.5**	NA	**25.1**	NA	**42.3**	NA	0.00300 U	NA	NA	NA	**21.3**	**30.1**
Selenium	0.01	mg/L	0.0150 U	NA	0.0150 U	NA	0.0150 U	NA	0.00300 U	NA	NA	NA	0.0150 U	0.0250 U
Silver	0.05	mg/L	0.00300 U	NA	**0.00170 J**	NA	0.00300 U	NA	0.00300 U	NA	NA	NA	0.00300 U	0.00600 U
Sodium	20	mg/L	**1,840**	NA	**277**	NA	**259**	NA	**491**	NA	NA	NA	**273**	**296**
Thallium	0.0005	mg/L	0.0200 U	NA	0.0200 U	NA	0.0200 U	NA	0.0200 U	NA	NA	NA	0.0200 U	0.0200 U
Vanadium	- -	mg/L	**0.00530**	NA	**0.00610**	NA	**0.00640**	NA	**0.00630**	NA	NA	NA	**0.0170**	**0.0130**
Zinc	2	mg/L	0.0100 U	NA	0.0100 U	NA	0.0100 U	NA	0.0100 U	NA	NA	NA	**0.0260**	**0.120 B**

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Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-32D	MW-32D	AMW-4	AMW-4	AMW-5	AMW-5	AMW-7	AMW-7	AMW-7	AMW-7	MW-35D	TW-1
Historical Screen Interval (feet below ground surface)			24 - 34	24 - 34	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	2 - 12	16 - 26	NA
Current Screen Interval (Feet below current ground surface):			28 - 38	28 - 38	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	6 - 16	20 - 30	6 - 16
Date Collected:			01/19/11	09/13/13	01/26/11	09/11/13	01/26/11	09/11/13	01/26/11	09/10/13	01/12/16	06/21/16	01/27/11	06/16/16
Area of Site			Former Garage Building Area		Southwest Area									
Inorganics-Dissolved														
Aluminum	- -	mg/L	0.200 U	NA	**0.220**	NA	**3.800**	NA	0.200 U	NA	NA	NA	**0.200**	NA
Antimony	0.003	mg/L	0.020.0 U	NA	0.0200 U	NA	0.0200 U	NA	0.0200 U	NA	NA	NA	0.020.0 U	NA
Arsenic	0.025	mg/L	0.0100 U	NA	0.0100 U	NA	**0.00650 J**	NA	0.0100 U	NA	NA	NA	0.0100 U	NA
Barium	1	mg/L	**0.0280**	NA	**0.00970**	NA	**0.0110**	NA	**0.0140**	NA	NA	NA	**0.0110**	NA
Beryllium	0.003	mg/L	0.00200 U	NA	0.00200 U	NA	0.00200 U	NA	0.00200 U	NA	NA	NA	0.00200 U	NA
Cadmium	0.005	mg/L	**0.000950 J**	NA	**0.000510 J**	NA	**0.000450 J**	NA	**0.000640 J**	NA	NA	NA	**0.000480 J**	NA
Calcium	- -	mg/L	**90.5**	NA	**83.6**	NA	**142**	NA	**46.7**	NA	NA	NA	**97.1**	NA
Chromium	0.05	mg/L	**0.00250 J**	NA	0.00400 U	NA	0.00400 U	NA	**0.00120 J**	NA	NA	NA	**0.00100 J**	NA
Cobalt	- -	mg/L	0.00400 U	NA	0.00400 U	NA	**0.000660 J**	NA	0.00400 U	NA	NA	NA	0.00400 U	NA
Copper	0.2	mg/L	**0.00170 J**	NA	0.0100 U	NA	**0.00280 J**	NA	**0.00210 J**	NA	NA	NA	**0.00230 J**	NA
Iron	0.3	mg/L	0.0500 U	NA	**2.700**	NA	**0.0610**	NA	**0.0420 J**	NA	NA	**0.0850**	**0.250**	NA
Lead	0.025	mg/L	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA	NA	NA	0.00500 U	NA
Magnesium	35	mg/L	**215**	NA	**12.90**	NA	**0.490**	NA	**33.30**	NA	NA	NA	**27.3**	NA
Manganese	0.3	mg/L	**0.0370**	NA	**0.460**	NA	**0.00190 J**	NA	**0.0330**	NA	NA	**0.0850 B**	**0.0630**	NA
Mercury	0.0007	mg/L	0.000200 U	NA	0.000200 U	NA	0.000200 U	NA	0.000200 U	NA	NA	NA	0.000200 U	NA
Nickel	0.1	mg/L	0.0100 U	NA	**0.00490 J**	NA	**0.0200**	NA	**0.00630 J**	NA	NA	NA	0.0100 U	NA
Potassium	- -	mg/L	**92.4**	NA	**25.40**	NA	**43.90**	NA	**46.40**	NA	NA	NA	**20.6**	NA
Selenium	0.01	mg/L	0.0150 U	NA	0.0150 U	NA	0.0150 U	NA	0.0150 U	NA	NA	NA	0.0150 U	NA
Silver	0.05	mg/L	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	NA	NA	0.00300 U	NA
Sodium	20	mg/L	**1,890**	NA	**280**	NA	**266**	NA	**479**	NA	NA	NA	**281**	NA
Thallium	0.0005	mg/L	0.0200 U	NA	0.0200 U	NA	0.0200 U	NA	0.0200 U	NA	NA	NA	0.0200 U	NA
Vanadium	- -	mg/L	**0.00480 J**	NA	**0.00630**	NA	**0.00520**	NA	**0.00540**	NA	NA	NA	**0.00180 J**	NA
Zinc	2	mg/L	0.0100 U	NA	0.0100 U	NA	0.0100 U	NA	**0.00190 J**	NA	NA	NA	**0.00200 J**	NA
General Chemistry														
Alkalinity	- -	mg/L	**924**	NA	**292**	NA	**338**	NA	**309**	NA	NA	**199 B**	**282**	NA
Alkalinity, Bicarbonate	- -	mg/L	**924**	NA	**292**	NA	**338**	NA	**309**	NA	NA	**199 B**	**282**	NA
Ammonia Nitrogen	- -	mg/L	**5.8**	NA	**13.9**	NA	**18.7**	NA	**17**	NA	NA	NA	**5.1**	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	- -	mg/L	0.0015 U	NA	1.5 UJ	NA	1.5 UJ	NA	1.5 UJ	NA	NA	NA	1.5 UJ	NA
Ethene	- -	mg/L	0.0015 U	NA	1.5 UJ	NA	1.5 UJ	NA	1.5 UJ	NA	NA	NA	1.5 UJ	NA
Methane	- -	mg/L	**1.7 DJ**	NA	**14 J**	NA	**9.6 J**	NA	**16 J**	NA	NA	NA	**12 J**	NA
Nitrate Nitrogen	- -	mg/L	0.05 U	NA	0.05 U	NA	0.05 U	NA	0.05 U	NA	NA	NA	0.05 U	NA
Nitrite Nitrogen	- -	mg/L	0.05 U	NA	0.05 U	NA	**0.16**	NA	0.05 U	NA	NA	NA	0.05 U	NA
Orthophosphate	- -	mg/L	**0.38**	NA	**0.54 J**	NA	**0.28 J**	NA	**1.5 J**	NA	NA	NA	**1.3**	NA
Soluble Organic Carbon	- -	mg/L	**13.3**	NA	**36.8**	NA	**41.5**	NA	**37.2**	NA	NA	NA	**19.1**	NA
Sulfate	250	mg/L	**15.2**	NA	5 UB	NA	11 UB	NA	5 UB	NA	NA	**82.3**	**6.1**	NA
Sulfide	- -	mg/L	**0.47**	NA	0.1 U	NA	0.1 U	NA	**0.31**	NA	NA	**5.2**	**1**	NA
Total Dissolved Solids	- -	mg/L	**6,040**	NA	**1,010**	NA	**1,170**	NA	**1,600**	NA	NA	NA	**1,050**	NA

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Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	TW-2	TW-3	MW-33D	MW-18R	MW-18R	MW-18R	AMW-11	AMW-11	MW-DR	MW-DR	P-10	P-10
Historical Screen Interval (feet below ground surface)			NA	NA	18 - 28	2 - 7	2 - 7	9	2 - 12	2 - 12	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			6 - 16	6 - 16	22 - 32	6 - 11	6 - 11	6 - 11	6 - 16	6 - 16	NA	NA	NA	NA
Date Collected:			06/16/16	06/16/16	01/27/11	02/20/13	09/13/13	06/22/16	01/26/11	09/11/13	01/26/11	09/12/13	04/07/11	09/17/13
Area of Site			Southwest Area		Former OWS Area				Former Retention Pond Area				Former Tank No. 111	
Volatile Organics														
1,1,1-Trichloroethane	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,1-Dichloroethane	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,1-Dichloroethene	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	1.0 U
1,2-Dibromoethane	0.0006	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,2-Dichloroethane	0.6	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,2-Dichloropropane	1	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,3-Dichlorobenzene	3	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
1,4-Dichlorobenzene	3	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
2-Butanone	50	ug/L	**16**	1,000 U	10 U	50 U	50 U	100 U	50 U	50 U	50 U	100 U	10 U	10 U
2-Hexanone	50	ug/L	5.0 U	500 U	5.0 U	25 U	25 U	50 U	25 U	25 U	25 U	50 U	5.0 U	5.0 U
4-Methyl-2-pentanone	- -	ug/L	5.0 U	500 U	5.0 U	25 U	25 U	50 U	25 U	25 U	25 U	50 U	5.0 U	5.0 U
Acetone	50	ug/L	**98**	1,000 U	10 U	50 U	50 U	100 U	50 U	50 U	50 U	100 U	**23**	**5.8 J**
Benzene	1	ug/L	**6.8**	100 U	1.0 U	**74**	**230**	**310**	**68**	**26**	**9.5**	10 U	**3.1**	1.0 U
Bromodichloromethane	50	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	1.0 U
Bromoform	50	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 UJ	5.0 U	10 UJ	1.0 U	1.0 U
Bromomethane	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	1.0 U
Carbon Disulfide	60	ug/L	**1.8**	100 U	1.0 U	5.0 U	**3.1 J**	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	**15**
Carbon Tetrachloride	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	1.0 U
Chlorobenzene	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
Chloroethane	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	R
Chloroform	7	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
Chloromethane	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	1.0 U
cis-1,2-Dichloroethene	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	**14**	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	0.4	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	1.0 U
Cyclohexane	- -	ug/L	**30**	100 U	1.0 U	**5.2**	**19 J**	**20**	**49**	**29**	**6.9**	10 U	**8.6**	**0.99 J**
Dibromochloromethane	50	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	1.0 U
Dichlorodifluoromethane	5	ug/L	1.0 U	100 U	1.0 U	5.0 UJ	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	1.0 UJ
Ethylbenzene	5	ug/L	**1.3**	**930**	1.0 U	**5.5**	**20**	10 U	**5.7**	**13**	5.0 U	10 U	1.0 U	1.0 U
Isopropylbenzene	5	ug/L	**10**	100 U	1.0 U	5.0 U	**16**	**14**	**15**	**15**	5.0 U	10 U	**2.6**	1.0 U
Methyl acetate	- -	ug/L	2.5 U	250 U	1.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
Methyl tert-butyl ether	10	ug/L	1.0 U	100 U	**4.2**	**16**	**49**	**65**	5.0 U	**5.5**	**7.6**	**2.7 J**	1.0 U	**0.67 J**
Methylcyclohexane	- -	ug/L	**60**	100 U	1.0 U	**7.2**	**14**	**4.4 J**	**11**	**8.3**	5.0 U	10 U	**11**	**1.1**
Methylene Chloride	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
Styrene	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
Tetrachloroethene	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
Toluene	5	ug/L	**1.0**	100 U	1.0 U	5.0 U	**3.4 J**	10 U	**4.8 J**	**9.6**	5.0 U	10 U	**0.72 J**	1.0 U
trans-1,2-Dichloroethene	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	0.4	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 UJ	1.0 U	1.0 U
Trichloroethene	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
Trichlorofluoromethane	5	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
Vinyl Chloride	2	ug/L	1.0 U	100 U	1.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	10 U	1.0 U	1.0 U
Xylenes (total)	5	ug/L	**7.1**	**5,600**	2.0 U	10 U	**3.8 J**	20 U	**18**	**32**	10 U	20 U	**0.86 J**	2.0 U

See Notes on Page 53.

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	TW-2	TW-3	MW-33D	MW-18R	MW-18R	MW-18R	AMW-11	AMW-11	MW-DR	MW-DR	P-10	P-10
Historical Screen Interval (feet below ground surface)			NA	NA	18 - 28	2 - 7	2 - 7	9	2 - 12	2 - 12	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			6 - 16	6 - 16	22 - 32	6 - 11	6 - 11	6 - 11	6 - 16	6 - 16	NA	NA	NA	NA
Date Collected:			06/16/16	06/16/16	01/27/11	02/20/13	09/13/13	06/22/16	01/26/11	09/11/13	01/26/11	09/12/13	04/07/11	09/17/13
Area of Site			Southwest Area		Former OWS Area				Former Retention Pond Area				Former Tank No. 111	
Semivolatile Organics														
1,1'-Biphenyl	5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	**11**	**0.85 J**	4.7 U	5.2 U	NA	4.8 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
2,4,5-Trichlorophenol	1	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
2,4,6-Trichlorophenol	1	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
2,4-Dichlorophenol	5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
2,4-Dimethylphenol	50	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	**7.2**	**6.6**	4.7 U	5.2 U	NA	4.8 U
2,4-Dinitrophenol	10	ug/L	38 U	93 U	9.6 U	NA	9.6 U	47 U	10 U	10 U	9.4 U	10 U	NA	9.5 U
2,4-Dinitrotoluene	5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
2,6-Dinitrotoluene	5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
2-Chloronaphthalene	10	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
2-Chlorophenol	1	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
2-Methylnaphthalene	- -	ug/L	**48**	**14 J**	4.8 U	NA	**22**	23 U	**90**	**10**	4.7 U	**2.3 J**	NA	**1.9 J**
2-Methylphenol	- -	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
2-Nitroaniline	5	ug/L	38 U	93 U	9.6 U	NA	9.6 U	47 U	10 U	10 U	9.4 U	10 U	NA	9.5 U
2-Nitrophenol	- -	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
3,3'-Dichlorobenzidine	5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	R
3-Nitroaniline	5	ug/L	38 U	93 U	9.6 U	NA	9.6 U	47 U	10 U	10 U	9.4 U	10 U	NA	9.5 UJ
4,6-Dinitro-2-methylphenol	- -	ug/L	38 U	93 U	9.6 U	NA	9.6 U	47 U	10 U	10 U	9.4 U	10 U	NA	9.5 U
4-Bromophenyl-phenylether	- -	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
4-Chloro-3-Methylphenol	- -	ug/L	19 U	47 U	4.8 U	NA	**0.54 J**	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
4-Chloroaniline	5	ug/L	19 U	47 U	4.8 U	NA	R	23 U	5.0 U	5.1 U	4.7 U	5.2 UJ	NA	4.8 UJ
4-Chlorophenyl-phenylether	- -	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
4-Methylphenol	- -	ug/L	**11 J**	**12 J**	9.6 U	NA	9.6 U	47 U	**1.3 J**	10 U	9.4 U	10 U	NA	**0.62 J**
4-Nitroaniline	5	ug/L	38 U	93 U	9.6 U	NA	9.6 U	47 U	10 U	10 U	9.4 U	10 U	NA	9.5 U
4-Nitrophenol	- -	ug/L	38 U	93 U	9.6 U	NA	9.6 U	47 U	10 U	10 U	9.4 U	10 U	NA	9.5 U
Acenaphthene	20	ug/L	**3.1 J**	**6.2 J**	4.8 U	NA	**2.0 J**	23 U	**160**	**96 D**	4.7 U	**0.85 J**	NA	**2.0 J**
Acenaphthylene	- -	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	**1.0 J**	4.7 U	5.2 U	NA	4.8 U
Acetophenone	- -	ug/L	19 U	**6.3 J**	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	**0.76 J**	NA	4.8 U
Anthracene	50	ug/L	19 U	47 U	4.8 U	NA	**0.43 J**	23 U	**16**	**5.5**	4.7 U	5.2 U	NA	4.8 U
Atrazine	7.5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	R
Benzaldehyde	- -	ug/L	19 U	**4.0 J**	4.8 U	NA	**0.63 J**	23 U	5.0 U	**1.0 JB**	4.7 U	**0.41 J**	NA	**0.56 J**
Benzo(a)anthracene	0.002	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	**2.9 J**	5.1 U	4.7 U	5.2 U	NA	**0.39 J**
Benzo(a)pyrene	- -	ug/L	19 U	47 U	4.8 U	NA	4.8 UJ	23 U	**0.91 J**	5.1 U	4.7 U	5.2 U	NA	**0.50 J**
Benzo(b)fluoranthene	0.002	ug/L	19 U	47 U	4.8 U	NA	4.8 UJ	23 U	**1.1 J**	5.1 U	4.7 U	5.2 U	NA	**1.0 J**
Benzo(g,h,i)perylene	- -	ug/L	19 U	47 U	4.8 U	NA	4.8 UJ	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
Benzo(k)fluoranthene	0.002	ug/L	19 U	47 U	4.8 U	NA	4.8 UJ	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
bis(2-Chloroethoxy)methane	5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
bis(2-Chloroethyl)ether	1	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
bis(2-Ethylhexyl)phthalate	5	ug/L	19 U	47 U	**1.8 J**	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	**120 D**
Butylbenzylphthalate	50	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
Caprolactam	- -	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 UJ
Carbazole	- -	ug/L	**2.0 J**	**9.5 J**	4.8 U	NA	**2.2 J**	23 U	**45**	**27**	4.7 U	5.2 U	NA	4.8 U
Chrysene	0.002	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	**2.7 J**	5.1 U	4.7 U	5.2 U	NA	**0.75 J**
Dibenzo(a,h)anthracene	- -	ug/L	19 U	47 U	4.8 U	NA	4.8 UJ	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
Dibenzofuran	- -	ug/L	**1.9 J**	93 U	9.6 U	NA	**1.7 J**	47 U	**110**	**58**	9.4 U	10 U	NA	9.5 U
Diethylphthalate	50	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	**2.4 J**	4.7 U	**1.9 J**	NA	4.8 U
Dimethylphthalate	50	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U

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Historical Screen Interval (feet below ground surface)			NA	NA	18 - 28	2 - 7	2 - 7	9	2 - 12	2 - 12	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			6 - 16	6 - 16	22 - 32	6 - 11	6 - 11	6 - 11	6 - 16	6 - 16	NA	NA	NA	NA
Date Collected:			06/16/16	06/16/16	01/27/11	02/20/13	09/13/13	06/22/16	01/26/11	09/11/13	01/26/11	09/12/13	04/07/11	09/17/13
Area of Site			Southwest Area		Former OWS Area				Former Retention Pond Area				Former Tank No. 111	
Semivolatile Organics (Cont.)														
Di-n-Butylphthalate	50	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
Di-n-Octylphthalate	50	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	**2.4 J**	5.1 U	4.7 U	5.2 U	NA	4.8 U
Fluoranthene	50	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	**28**	**11**	4.7 U	5.2 U	NA	**1.1 J**
Fluorene	50	ug/L	**3.5 J**	**5.3 J**	4.8 U	NA	**2.6 J**	23 U	**110**	**55**	4.7 U	5.2 U	NA	4.8 U
Hexachlorobenzene	0.04	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
Hexachlorobutadiene	0.5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
Hexachlorocyclopentadiene	5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
Hexachloroethane	5	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	19 U	47 U	4.8 U	NA	4.8 UJ	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
Isophorone	50	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
naphthalene	10	ug/L	**15 J**	**49**	4.8 U	NA	**1.5 J**	23 U	**400**	**170 D**	4.7 U	5.2 U	NA	**1.3 J**
Nitrobenzene	0.4	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
N-Nitroso-di-n-propylamine	- -	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	5.1 U	4.7 U	5.2 U	NA	4.8 U
N-Nitrosodiphenylamine	50	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	5.0 U	**1.9 J**	4.7 U	5.2 U	NA	R
Pentachlorophenol	- -	ug/L	38 U	93 U	9.6 U	NA	9.6 U	47 U	10 U	10 U	9.4 U	10 U	NA	9.5 U
Phenanthrene	50	ug/L	**2.5 J**	**5.9 J**	4.8 U	NA	**5.0**	23 U	**140**	**18**	4.7 U	5.2 U	NA	4.8 U
Phenol	1	ug/L	**55**	**200**	4.8 U	NA	**1.3 J**	**1.9 J**	5.0 U	5.1 U	4.7 U	5.2 U	NA	**1.3 J**
Pyrene	50	ug/L	19 U	47 U	4.8 U	NA	4.8 U	23 U	**18**	**3.8 J**	4.7 U	5.2 U	NA	**1.4 J**
Inorganics - Total														
Aluminum	- -	mg/L	**3.00**	**4.70**	**0.690**	**0.340**	NA	NA	**4.30**	NA	**1.700**	NA	**0.110 J**	NA
Antimony	0.003	mg/L	0.0200 U	0.0200 U	0.020 U	0.0200 U	NA	NA	0.020 U	NA	0.020 U	NA	0.0200 U	NA
Arsenic	0.025	mg/L	**0.00990 J**	**0.0350**	0.010 U	**0.0130**			**0.0062 J**	NA	**0.039**	NA	0.010 U	NA
Barium	1	mg/L	**0.0150**	**0.0550**	**0.0190**	**0.0380**	NA	NA	**48.0**	NA	**0.0310**	NA	**0.0220**	NA
Beryllium	0.003	mg/L	0.00200 U	0.00200 U	0.00200 U	0.00200 U	NA	NA	0.00200 U	NA	0.00200 U	NA	0.00200 U	NA
Cadmium	0.005	mg/L	0.00200 U	0.00200 U	**0.00940 J**	0.00100 U	NA	NA	**0.00630 J**	NA	**0.00110**		0.00100 U	NA
Calcium	- -	mg/L	**138 B**	**166 B**	**74.4**	**104**	NA	NA	**87.4**	NA	**46 J**	NA	**138**	NA
Chromium	0.05	mg/L	**0.00800**	**0.00530**	**0.00320 J**	**0.00430**	NA	NA	**0.00780**	NA	**0.00580**	NA	**0.00720**	NA
Cobalt	- -	mg/L	**0.000900 J**	**0.00210 J**	0.00400 U	0.00400 U	NA	NA	**0.00170 J**	NA	**0.00990 J**	NA	0.00400 U	NA
Copper	0.2	mg/L	**0.00270 J**	**0.0120**	**0.00250 J**	**0.0150**	NA	NA	**0.00330 J**	NA	**0.00930 J**	NA	0.0100 U	NA
Iron	0.3	mg/L	**1.80**	**2.70**	**0.650**	**7.50**	NA	**11.2**	**13.800**	NA	**3.200**	NA	**3.500**	NA
Lead	0.025	mg/L	**0.0160**	**0.0460**	0.00500 U	**0.0500**	NA	NA	**0.00820**	NA	**0.00940**	NA	**0.00490 J**	NA
Magnesium	35	mg/L	**3.50**	**1.70**	**182.000**	**18.2**	NA	NA	**38.7**	NA	**20.400**	NA	**10.700**	NA
Manganese	0.3	mg/L	**0.0180**	**0.0380**	**0.0480**	**0.200**	NA	**0.450 B**	**0.560**	NA	**0.0660**	NA	**0.260**	NA
Mercury	0.0007	mg/L	0.000200 U	**0.000150 J**	0.000200 U	0.000200 U	NA	NA	0.000200 U	NA	0.000200 U	NA	0.000200 U	NA
Nickel	0.1	mg/L	**0.0170**	**0.0290**	**0.00130 J**	**0.00460 J**	NA	NA	**0.00520 J**	NA	**0.00370 J**	NA	**0.00610 J**	NA
Potassium	- -	mg/L	**21.5**	**58.4**	**74**	**20.8**	NA	NA	**13.5**	NA	**16.5**	NA	**8.6**	NA
Selenium	0.01	mg/L	0.0250 U	0.0250 U	0.0150 U	0.0150 U	NA	NA	0.0150 U	NA	0.0150 U	NA	0.0150 U	NA
Silver	0.05	mg/L	0.00600 U	0.00600 U	0.00300 U	0.00300 U	NA	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA
Sodium	20	mg/L	**191**	**383**	**1,690**	**299**	NA	NA	**164**	NA	**186**	NA	**53.6**	NA
Thallium	0.0005	mg/L	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA	0.0200 U	NA	0.0200 U	NA	0.0200 U	NA
Vanadium	- -	mg/L	**0.00670**	**0.0310**	**0.00560**	**0.0280**	NA	NA	**0.0140**	NA	**0.0070**	NA	**0.00340 J**	NA
Zinc	2	mg/L	**0.00780 JB**	**0.0380 B**	**0.00380 J**	**0.0100**	NA	NA	**0.035**	NA	**0.0320**	NA	**0.00630 J**	NA

See Notes on Page 53.

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	TW-2	TW-3	MW-33D	MW-18R	MW-18R	MW-18R	AMW-11	AMW-11	MW-DR	MW-DR	P-10	P-10
Historical Screen Interval (feet below ground surface)			NA	NA	18 - 28	2 - 7	2 - 7	9	2 - 12	2 - 12	NA	NA	NA	NA
Current Screen Interval (Feet below current ground surface):			6 - 16	6 - 16	22 - 32	6 - 11	6 - 11	6 - 11	6 - 16	6 - 16	NA	NA	NA	NA
Date Collected:			06/16/16	06/16/16	01/27/11	02/20/13	09/13/13	06/22/16	01/26/11	09/11/13	01/26/11	09/12/13	04/07/11	09/17/13
Area of Site			Southwest Area		Former OWS Area				Former Retention Pond Area				Former Tank No. 111	
Inorganics-Dissolved														
Aluminum	- -	mg/L	NA	NA	**0.0730 J**	**0.0780 J**	NA	NA	**0.260**	NA	0.200 U	NA	0.200 U	NA
Antimony	0.003	mg/L	NA	NA	0.020.0 U	0.0200 U	NA	NA	0.0200 U	NA	0.020.0 U	NA	0.020.0 U	NA
Arsenic	0.025	mg/L	NA	NA	0.0100 U	**0.0150**	NA	NA	0.0100 U	NA	**0.020**	NA	0.0100 U	NA
Barium	1	mg/L	NA	NA	**0.0190**	**0.0400**	NA	NA	**0.0360**	NA	**0.0300**	NA	**0.0220**	NA
Beryllium	0.003	mg/L	NA	NA	0.00200 U	0.00200 U	NA	NA	0.00200 U	NA	0.00200 U	NA	0.00200 U	NA
Cadmium	0.005	mg/L	NA	NA	**0.000770 J**	**0.000610 J**	NA	NA	**0.000530 J**	NA	**0.000550 J**	NA	0.00100 U	NA
Calcium	- -	mg/L	NA	NA	**73**	**113**	NA	NA	**89.9**	NA	**54 J**	NA	**136**	NA
Chromium	0.05	mg/L	NA	NA	**0.00140 J**	**0.00350 J**	NA	NA	**0.000940 J**	NA	**0.00120 J**	NA	0.00400 U	NA
Cobalt	- -	mg/L	NA	NA	0.00400 U	0.00400 U	NA	NA	0.00400 U	NA	0.00400 U	NA	0.00400 U	NA
Copper	0.2	mg/L	NA	NA	**0.00360 J**	0.0100 UB	NA	NA	**0.00170 J**	NA	**0.00170 J**	NA	**0.00170 J**	NA
Iron	0.3	mg/L	NA	NA	0.0500 U	**7.10**	NA	**11.5 B**	**8.700**	NA	**1.70**	NA	**2.80**	NA
Lead	0.025	mg/L	NA	NA	0.00500 U	**0.0100**	NA	NA	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA
Magnesium	35	mg/L	NA	NA	**186**	**19.1**	NA	NA	**41.60**	NA	**25.8**	NA	**10**	NA
Manganese	0.3	mg/L	NA	NA	**0.0400**	**0.210**	NA	**0.470 B**	**0.0560**	NA	**0.0850**	NA	**0.250**	NA
Mercury	0.0007	mg/L	NA	NA	0.000200 U	0.000200 U	NA	NA	0.000200 U	NA	0.000200 U	NA	0.000200 U	NA
Nickel	0.1	mg/L	NA	NA	0.0100 U	**0.00650 J**	NA	NA	0.0100 U	NA	**0.00170 J**	NA	0.0100 U	NA
Potassium	- -	mg/L	NA	NA	**75.3**	**22.4**	NA	NA	**13.70**	NA	**18.5**	NA	**7.9**	NA
Selenium	0.01	mg/L	NA	NA	0.0150 U	0.0150 U	NA	NA	0.0150 U	NA	0.0150 U	NA	0.0150 U	NA
Silver	0.05	mg/L	NA	NA	0.00300 U	0.00300 U	NA	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA
Sodium	20	mg/L	NA	NA	**1,660**	**304**	NA	NA	**167**	NA	**206**	NA	**44.5**	NA
Thallium	0.0005	mg/L	NA	NA	0.0200 U	0.0200 U	NA	NA	0.0200 U	NA	0.0200 U	NA	0.0200 U	NA
Vanadium	- -	mg/L	NA	NA	**0.00270 J**	**0.0280**	NA	NA	**0.00580**	NA	**0.00320 J**	NA	**0.00150 J**	NA
Zinc	2	mg/L	NA	NA	0.0100 U	**0.00280 J**	NA	NA	**0.00440 J**	NA	0.0100 U	NA	**0.00200 J**	NA
General Chemistry														
Alkalinity	- -	mg/L	NA	NA	**597**	NA	NA	**515 B**	**414**	NA	**228**	NA	NA	NA
Alkalinity, Bicarbonate	- -	mg/L	NA	NA	**597**	NA	NA	**515 B**	**414**	NA	**228**	NA	NA	NA
Ammonia Nitrogen	- -	mg/L	NA	NA	**2.9**	NA	NA	NA	**3.9**	NA	**1.1**	NA	NA	NA
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**59.3**	NA
Ethane	- -	mg/L	NA	NA	0.15 UJ	NA	NA	NA	1.5 UJ	NA	0.15 UJ	NA	NA	NA
Ethene	- -	mg/L	NA	NA	0.15 UJ	NA	NA	NA	1.5 UJ	NA	0.15 UJ	NA	NA	NA
Methane	- -	mg/L	NA	NA	**0.31 J**	NA	NA	NA	**11 J**	NA	**1.4 J**	NA	NA	NA
Nitrate Nitrogen	- -	mg/L	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	0.05 U	NA	NA	NA
Nitrite Nitrogen	- -	mg/L	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	0.05 U	NA	NA	NA
Orthophosphate	- -	mg/L	NA	NA	**0.59**	NA	NA	NA	**0.84 J**	NA	**0.33 J**	NA	NA	NA
Soluble Organic Carbon	- -	mg/L	NA	NA	**11**	NA	NA	NA	**28.2**	NA	**14.7**	NA	NA	NA
Sulfate	250	mg/L	NA	NA	**181**	NA	NA	**27.8**	6.5 UB	NA	**31.4**	NA	NA	NA
Sulfide	- -	mg/L	NA	NA	**13.2**	NA	NA	0.1 U	0.1 U	NA	0.1 U	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	**4,920**	**1,230**	NA	NA	**829**	NA	**730**	NA	NA	NA

See Notes on Page 53.

Table 6
Summary of 2011 to 2016 Groundwater Analytical Data

Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Town of Hempstead, NY

Notes:

1. Results compared to NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance Values.
2. Field duplicate sample results are presented in brackets, [ ].
   Gray font = not detected. Bold font = detected. Bold font with Gray shading = Result detected above NYSDEC TOGS 1.1.1.
3. Abbreviations:
   - - = NYSDEC TOGS 1.1.1 not available.
   ug/L = micrograms per Liter.
   NA = Not analyzed.
   ND = Not detected.
   NYSDEC = New York State Department of Environmental Conservation.
   VOC = Volatile Organic Compounds.
   SVOC = Semi-Volatile Organic Compounds.
4. Qualifier Definitions:
   B = Compound quantitated using a secondary dilution. Indicates an estimated value between the instrument detection limit and the Reporting Limit (RL).
   D = Compound quantitated using a secondary dilution.
   E = Estimated value. Result exceeds calibration limit.
   J = Estimated value. Result is greater than the RL but less than the MDL.
   R = Data was rejected as part of validation.
   U = Analyte not detected at listed reporting detection limit.
   F1 = MS and/or MSD Recovery is outside acceptance limits.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	GP-1(2002) - - 05/02/02	GP-2(2002) - - 05/02/02	GP-3(2002) - - 05/02/02	GP-4(2002) - - 05/02/02	GP-5(2002) - - 05/02/02	GP-6(1995) - - 12/15/95	GP-6(2002) - - 05/02/02	GP-7(2002) - - 05/02/02	GP-8(2002) - - 05/02/02	GP-9(2002) - - 05/02/02	GP-10(2002) - - 05/02/02	GW-01 - - 04/15/97	GW-02 - - 04/15/97	GW-03 - - 04/15/97
Volatile Organics																
Benzene	1	ug/L	ND	ND	**17**	ND	ND	**430**	**14,000**	**2,800**	ND	**200**	ND	**540**	**29**	**2,700**
Toluene	5	ug/L	ND	ND	ND	ND	ND	**8,000**	ND	ND	ND	**180**	**120**	**16**	**5.3**	**44**
Ethylbenzene	5	ug/L	**52**	**8,800**	ND	ND	ND	**19,000**	**160,000**	**76,000**	**2.0**	**180**	**7,200**	**570**	**9.0**	**510**
Xylenes (total)	5	ug/L	ND	**11,000**	**8.2**	ND	ND	**230,000**	ND	ND	**4.4**	**530**	**640**	ND	**43**	**120**
Methyl tert-butyl ether	10	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	**2,400**	**52**	**450**
Naphthalene	10	ug/L	**440**	**6,200**	ND	ND	ND	**23,000**	ND	ND	ND	ND	NA	**430**	**27**	**900**
Isopropylbenzene	5	ug/L	NA	NA	NA	NA	NA	**4,400**	NA	NA	NA	NA	NA	**64**	**13**	**180**
1,1,1-Trichloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	NA	NA	NA	**52,000**	NA	NA	NA	NA	NA	ND	**7.8**	ND
1,3-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	ND	ND	NA	ND	ND	ND	ND	ND	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	5	ug/L	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	NA	NA	NA
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	ug/L	ND	NA	NA	ND	ND	**160,000**	ND	ND	ND	NA	NA	ND	**31**	**120**
Methylene Chloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	**56,000**	NA	NA	NA	NA	NA	**27**	ND	**87**
n-Propylbenzene	- -	ug/L	NA	NA	NA	NA	NA	**9,500**	NA	NA	NA	NA	NA	**130**	**21**	**380**
o-Xylene	- -	ug/L	ND	NA	NA	ND	ND	**73,000**	ND	ND	ND	NA	NA	ND	**12**	ND
p-Isopropyltoluene	- -	ug/L	NA	NA	NA	NA	NA	**2,400**	NA	NA	NA	NA	NA	ND	**6.5**	ND
sec-Butylbenzene	- -	ug/L	NA	NA	NA	ND	NA	**3,900**	NA	NA	NA	NA	NA	**20**	**15**	**50**

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	GP-1(2002) - - 05/02/02	GP-2(2002) - - 05/02/02	GP-3(2002) - - 05/02/02	GP-4(2002) - - 05/02/02	GP-5(2002) - - 05/02/02	GP-6(1995) - - 12/15/95	GP-6(2002) - - 05/02/02	GP-7(2002) - - 05/02/02	GP-8(2002) - - 05/02/02	GP-9(2002) - - 05/02/02	GP-10(2002) - - 05/02/02	GW-01 - - 04/15/97	GW-02 - - 04/15/97	GW-03 - - 04/15/97
Volatile Organics (Cont.)																
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	**2,300**	NA	NA	NA	NA	NA	ND	**15**	ND
Tertiary butyl alcohol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total VOCs	- -	ug/L	**490**	**26,000**	**25**	**100**	**7.6**	**650,000**	**180,000**	**79,000**	**6.4**	**1,100**	**8,000**	**4,200**	**290**	**5,500**
trans-1,2-Dichloroethene	5	ug/L	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	NA	NA	NA
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5	ug/L	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2	ug/L	ND	ND	ND	**100**	**7.6**	NA	ND	ND	ND	ND	ND	NA	NA	NA
Semivolatile Organics																
Naphthalene	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	0.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total SVOCs	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	GW-04 - - 04/15/97	GW-05 - - 04/15/97	GW-06 - - 04/15/97	GW-07 - - 04/15/97	GW-08 - - 04/15/97	GW-09 - - 04/15/97	GW-10 - - 04/15/97	GW-12 - - 04/15/97	HA-01 - - 12/15/95	HA-01 - - 02/29/96	HA-02 - - 12/15/95	HA-02 - - 02/29/96	MW-01 10.28 12/19/95	MW-01 10.28 02/29/96	MW-01 10.28 01/27/98	MW-01 10.28 04/08/98	MW-01 10.28 11/02/01
Volatile Organics																			
Benzene	1	ug/L	**110**	ND	**100**	ND	**1.8**	ND	**170**	ND	**24**	ND	ND	ND	NA	**1.8**	NA	**2.0**	**2.7**
Toluene	5	ug/L	**12**	ND	ND	ND	**6.1**	ND	ND	ND	**61**	ND	ND	ND	NA	ND	NA	**0.30 J**	ND
Ethylbenzene	5	ug/L	**5.2**	ND	ND	ND	**1.0**	ND	**30**	ND	ND	ND	ND	ND	NA	ND	NA	**0.90 J**	ND
Xylenes (total)	5	ug/L	**16**	ND	**110**	ND	**4.0**	ND	ND	**240**	ND	ND	ND	ND	NA	ND	NA	**1.9**	ND
Methyl tert-butyl ether	10	ug/L	**130**	ND	**1,600**	ND	**19**	**13**	**84**	**300**	ND	**1.1**	ND	**2.6**	NA	**80**	NA	**54**	**20**
Naphthalene	10	ug/L	**4.1**	ND	**470**	**16**	**3.0**	ND	**120**	**170**	ND	ND	ND	ND	NA	**4.4**	NA	**12**	**9.3**
Isopropylbenzene	5	ug/L	ND	ND	ND	**1.4**	**2.4**	ND	**94**	ND	ND	ND	ND	ND	NA	**4.1**	NA	**7.9**	NA
1,1,1-Trichloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	**5.4**	ND	**120**	ND	ND	ND	ND	**400**	ND	ND	ND	ND	NA	ND	NA	**0.50 J**	NA
1,3-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
m&p-Xylene	- -	ug/L	**10**	ND	**110**	ND	**4.0**	ND	ND	**240**	ND	ND	ND	ND	NA	ND	NA	**1.5 J**	ND
Methylene Chloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA
n-Butylbenzene	- -	ug/L	**4.4**	ND	**230**	**1.1**	ND	ND	**34**	**210**	ND	ND	ND	ND	NA	**3.8**	NA	**3.8**	NA
n-Propylbenzene	- -	ug/L	**1.1**	ND	**80**	**2.3**	**3.5**	ND	**180**	ND	ND	ND	ND	ND	NA	**2.1**	NA	**3.1**	NA
o-Xylene	- -	ug/L	**6.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	**0.40 J**	ND
p-Isopropyltoluene	- -	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	**2.1**	NA
sec-Butylbenzene	- -	ug/L	**2.1**	ND	ND	**1.8**	**1.6**	ND	**19**	ND	ND	ND	ND	ND	NA	ND	NA	**4.0**	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	GW-04 - - 04/15/97	GW-05 - - 04/15/97	GW-06 - - 04/15/97	GW-07 - - 04/15/97	GW-08 - - 04/15/97	GW-09 - - 04/15/97	GW-10 - - 04/15/97	GW-12 - - 04/15/97	HA-01 - - 12/15/95	HA-01 - - 02/29/96	HA-02 - - 12/15/95	HA-02 - - 02/29/96	MW-01 10.28 12/19/95	MW-01 10.28 02/29/96	MW-01 10.28 01/27/98	MW-01 10.28 04/08/98	MW-01 10.28 11/02/01
Volatile Organics (Cont.)																			
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	**4.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	**2.3**	NA
Tertiary butyl alcohol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Tetrachloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
Total VOCs	- -	ug/L	**310**	0	**2,800**	**23**	**42**	**13**	**730**	**1,600**	**85**	**1.1**	ND	**2.6**	NA	**96**	NA	**97**	**32**
trans-1,2-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics																			
Naphthalene	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	**7.0 J**	NA	NA
2,4-Dimethylphenol	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	**2.0 J**	NA	NA
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA
Anthracene	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	**1.0 J**	NA	NA
Benzo(a)anthracene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	ND	NA	NA
Benzo(a)pyrene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	ND	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	ND	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	ND	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	ND	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	ND	NA	NA
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	ND	NA	NA
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	**2.0 J**	NA	NA
Fluorene	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	**4.0 J**	NA	NA
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	ND	NA	NA
Nitrobenzene	0.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	ND	NA	NA
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	**4.0 J**	NA	NA
Phenol	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	**2.0 J**	NA	NA
Total SVOCs	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	**22**	NA	NA
General Chemistry																			
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																			
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	**3,000**	NA	**5,300**	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-01 10.28 04/03/02	MW-01 10.28 08/20/02	MW-03 10.26 12/19/95	MW-03 10.26 02/29/96	MW-03 10.26 08/20/02	MW-03A 9.3 01/27/98	MW-03A 9.3 04/08/98	MW-03A 9.3 11/02/01	MW-03A 9.3 04/30/02	MW-03A 9.3 08/20/02	MW-04A 9.41 08/20/02	MW-05 10.24 12/19/95	MW-05 10.24 02/29/96	MW-05 10.24 08/20/02	MW-07 9.21 08/20/02	MW-07A 10 08/20/02	MW-08 10.15 12/19/95
Volatile Organics																			
Benzene	1	ug/L	**3.8**	**1.0**	NA	**1,300**	**200**	NA	ND	ND	ND	ND	ND	NA	NA	ND	**150**	**4.1**	NA
Toluene	5	ug/L	ND	ND	NA	**33**	ND	NA	ND	ND	ND	NA	ND	NA	ND	ND	**11**	**0.60**	NA
Ethylbenzene	5	ug/L	ND	ND	NA	**96**	**2.4**	NA	ND	ND	ND	ND	ND	NA	ND	ND	**220**	**0.50**	NA
Xylenes (total)	5	ug/L	ND	ND	NA	**640**	**2.1**	NA	**0.50**	ND	ND	ND	ND	NA	ND	ND	**48**	**0.40**	NA
Methyl tert-butyl ether	10	ug/L	NA	**15**	NA	**13**	**3.0**	NA	**9.8**	**8.5**	NA	**8.3**	**31**	NA	**1.7**	ND	**7.4**	**0.90**	NA
Naphthalene	10	ug/L	NA	NA	NA	**42**	NA	NA	**1.2**	ND	ND	NA	NA	NA	ND	NA	NA	NA	NA
Isopropylbenzene	5	ug/L	NA	NA	NA	**5.9**	NA	NA	**0.90 J**	NA	NA	NA	NA	NA	**2.8**	NA	NA	NA	NA
1,1,1-Trichloroethane	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
1,1,2-Trichloroethane	1	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
1,1-Dichloroethane	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
1,1-Dichloroethene	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
1,2-Dichlorobenzene	3	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
1,2-Dichloroethane	0.6	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
1,2-Dichloropropane	1	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	NA	**33**	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA
1,3-Dichlorobenzene	3	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
1,4-Dichlorobenzene	3	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA
Acrylonitrile	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.6**	NA	**1.4**	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
cis-1,3-Dichloropropene	0.4	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
Dibromochloromethane	50	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
m&p-Xylene	- -	ug/L	ND	ND	NA	**480**	ND	NA	**0.50 J**	ND	ND	ND	ND	NA	ND	ND	ND	ND	NA
Methylene Chloride	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
n-Butylbenzene	- -	ug/L	NA	NA	NA	**20**	NA	NA	**0.80 J**	NA	NA	NA	NA	NA	**1.0**	NA	NA	NA	NA
n-Propylbenzene	- -	ug/L	NA	NA	NA	**7.0**	NA	NA	**0.80 J**	NA	NA	NA	NA	NA	**3.9**	NA	NA	NA	NA
o-Xylene	- -	ug/L	ND	ND	NA	**160**	ND	NA	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	NA
p-Isopropyltoluene	- -	ug/L	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA
sec-Butylbenzene	- -	ug/L	NA	NA	NA	ND	NA	NA	**0.50 J**	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-01 10.28 04/03/02	MW-01 10.28 08/20/02	MW-03 10.26 12/19/95	MW-03 10.26 02/29/96	MW-03 10.26 08/20/02	MW-03A 9.3 01/27/98	MW-03A 9.3 04/08/98	MW-03A 9.3 11/02/01	MW-03A 9.3 04/30/02	MW-03A 9.3 08/20/02	MW-04A 9.41 08/20/02	MW-05 10.24 12/19/95	MW-05 10.24 02/29/96	MW-05 10.24 08/20/02	MW-07 9.21 08/20/02	MW-07A 10 08/20/02	MW-08 10.15 12/19/95
Volatile Organics (Cont.)																			
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	ND	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA
Tertiary butyl alcohol	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	ND	NA	**11**	ND	NA	NA	ND	ND	ND	NA
Tetrachloroethene	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	ND	ND	ND	NA
Total VOCs	- -	ug/L	**3.8**	**16**	NA	**2,800**	**200**	NA	**15**	**8.5**	ND	**20**	**35**	NA	**11**	ND	**430**	**6.5**	NA
trans-1,2-Dichloroethene	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
trans-1,3-Dichloropropene	0.4	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
Trichloroethene	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
Trichlorofluoromethane	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
Vinyl Chloride	2	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA
Semivolatile Organics																			
Naphthalene	10	ug/L	NA	ND	**54**	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	**580**	ND	**23**
2,4-Dimethylphenol	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
Acenaphthene	20	ug/L	NA	**1.2**	ND	NA	**8.2**	ND	NA	NA	NA	ND	**1.2**	ND	NA	**5.5**	**150**	ND	ND
Acenaphthylene	- -	ug/L	NA	ND	ND	NA	ND	NA	NA	NA	NA	NA	ND	ND	NA	ND	ND	NA	ND
Anthracene	50	ug/L	NA	**0.66**	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	**36**	NA	ND
Benzo(a)anthracene	0.002	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	**25**	NA	ND
Benzo(a)pyrene	- -	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	**8.7**	NA	ND
Benzo(b)fluoranthene	0.002	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	**11**	NA	ND
Benzo(g,h,i)perylene	- -	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	**1.1**	NA	ND
Benzo(k)fluoranthene	0.002	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	**8.5**	NA	ND
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	**2.1**	NA	NA	ND	**30**	**23**	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	**17**	NA	ND
Dibenzo(a,h)anthracene	- -	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	**0.53**	NA	ND
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	NA	**0.68**	ND	NA	ND	ND	NA	NA	NA	ND	**0.77**	ND	NA	ND	**150**	ND	ND
Fluorene	50	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	**0.59**	ND	NA	ND	**140**	**4.8**	ND
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	**1.4**	NA	ND
Nitrobenzene	0.4	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	ND
Pentachlorophenol	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	ND	NA	NA
PheNAnthrene	50	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	ND	ND	NA	**3.7**	**250**	ND	ND
Phenol	1	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	ND	ND	NA
Pyrene	50	ug/L	NA	ND	ND	NA	ND	ND	NA	NA	NA	ND	**0.63**	ND	NA	**0.67**	**95**	NA	ND
Total SVOCs	- -	ug/L	NA	**2.5**	**54**	NA	**8.2**	ND	NA	NA	NA	ND	**5.3**	ND	NA	**10**	**1,500**	**28**	**23**
General Chemistry																			
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																			
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	**5,400**	NA	NA	**720**	NA	NA	NA	NA	NA	**2,700**	NA	NA	NA	NA	**3,800**

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-08 10.15 02/29/96	MW-08 10.15 01/27/98	MW-08 10.15 04/08/98	MW-08 10.15 11/02/01	MW-08 10.15 04/30/02	MW-08 10.15 08/20/02	MW-08 10.15 06/03/03	MW-08 10.15 02/11/04	MW-08 10.15 05/20/04	MW-08 10.15 10/26/04	MW-08 10.15 03/10/05	MW-08 10.15 08/11/05	MW-09 13.8 06/05/95	MW-09 13.8 12/18/95	MW-09 13.8 04/08/96	MW-09 13.8 06/05/96	MW-09 13.8 09/13/96
Volatile Organics																			
Benzene	1	ug/L	**160**	NA	**51**	**500**	**68**	**400**	**0.60**	**20**	**47**	**44**	**30**	**36**	**110**	NA	**57**	NA	**270**
Toluene	5	ug/L	**18**	NA	**12**	ND	**1.9**	**7.9**	ND	**13**	**13**	**16**	**19**	**13**	**180**	NA	**48**	NA	**89**
Ethylbenzene	5	ug/L	**100**	NA	**130**	**150**	**32**	**48**	**24**	**260**	**290**	**92**	**190**	**58**	**520**	NA	**260**	NA	**620**
Xylenes (total)	5	ug/L	**350**	NA	**900**	**77**	**17**	**38**	**41**	**91**	**110**	**48**	**60**	**33**	**3,000**	NA	**1,400**	NA	**2,500**
Methyl tert-butyl ether	10	ug/L	**4.6**	NA	ND	**35**	NA	**33**	ND	**2.7**	**2.1**	**3.5**	**1.6**	**2.5**	**33**	NA	ND	NA	**340**
Naphthalene	10	ug/L	**18**	NA	**33**	**89**	**21**	NA	NA	NA	NA	NA	ND	ND	**200**	NA	**95**	NA	**190**
Isopropylbenzene	5	ug/L	**6.1**	NA	**15**	NA	NA	NA	NA	NA	NA	NA	ND	ND	**30**	NA	**21**	NA	**29**
1,1,1-Trichloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
1,1-Dichloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	**1.6**	ND	NA	NA	NA	NA	NA
1,1-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
1,2-Dichloropropane	1	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	**26**	NA	**140**	NA	NA	NA	NA	NA	NA	NA	ND	ND	**220**	NA	**120**	NA	**180**
1,3-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
Acrylonitrile	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.5**	**2.5**	ND	NA	ND	NA	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.3**	**1.3**	ND	NA	ND	NA	ND
cis-1,2-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
Dibromochloromethane	50	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
m&p-Xylene	- -	ug/L	**250**	NA	**660**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2,500**	NA	**1,300**	NA	**2,300**
Methylene Chloride	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
n-Butylbenzene	- -	ug/L	**22**	NA	**74**	NA	NA	NA	NA	NA	NA	NA	ND	ND	**91**	NA	**46**	NA	**80**
n-Propylbenzene	- -	ug/L	**11**	NA	**23**	NA	NA	NA	NA	NA	NA	NA	ND	ND	**65**	NA	**41**	NA	**65**
o-Xylene	- -	ug/L	**100**	NA	**240**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**490**	NA	**120**	NA	**230**
p-Isopropyltoluene	- -	ug/L	ND	NA	**4.8 J**	NA	NA	NA	NA	NA	NA	NA	ND	ND	**80**	NA	**4.7 J**	NA	ND
sec-Butylbenzene	- -	ug/L	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	ND	NA	ND

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-08 10.15 02/29/96	MW-08 10.15 01/27/98	MW-08 10.15 04/08/98	MW-08 10.15 11/02/01	MW-08 10.15 04/30/02	MW-08 10.15 08/20/02	MW-08 10.15 06/03/03	MW-08 10.15 02/11/04	MW-08 10.15 05/20/04	MW-08 10.15 10/26/04	MW-08 10.15 03/10/05	MW-08 10.15 08/11/05	MW-09 13.8 06/05/95	MW-09 13.8 12/18/95	MW-09 13.8 04/08/96	MW-09 13.8 06/05/96	MW-09 13.8 09/13/96
Volatile Organics (Cont.)																			
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	ND	NA	**3.5 J**	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	ND	NA	ND
Tertiary butyl alcohol	- -	ug/L	NA	NA	NA	ND	NA	ND	ND	ND	ND	**87**	**7.6**	ND	NA	NA	NA	NA	NA
Tetrachloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
Total VOCs	- -	ug/L	**1,100**	NA	**2,300**	**840**	**140**	**530**	**65**	**390**	**460**	**290**	**310**	**150**	**7,500**	NA	**3,500**	NA	**6,900**
trans-1,2-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
Trichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
Trichlorofluoromethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
Vinyl Chloride	2	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	NA	NA	NA
Semivolatile Organics																			
Naphthalene	10	ug/L	NA	**6.0 J**	NA	NA	NA	**100**	**0.57**	**94**	**1.6**	**110**	**100**	**39**	NA	**190**	NA	**93**	**150**
2,4-Dimethylphenol	50	ug/L	NA	ND	NA	NA	NA	ND	ND	NA	**3.7**	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	ug/L	NA	**1.0 J**	NA	NA	NA	ND	ND	**0.70**	**1.3**	**1.2 J**	**1.4**	**1.2**	NA	NA	NA	NA	ND
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Anthracene	50	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Benzo(a)anthracene	0.002	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Benzo(a)pyrene	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Benzo(b)fluoranthene	0.002	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Benzo(g,h,i)perylene	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Benzo(k)fluoranthene	0.002	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	NA	NA	NA	**4.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Dibenzo(a,h)anthracene	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Fluorene	50	ug/L	NA	ND	NA	NA	NA	**0.79**	ND	NA	**1.2**	NA	NA	**0.64**	NA	NA	NA	NA	ND
Hexachlorocyclopentadiene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Nitrobenzene	0.4	ug/L	NA	ND	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	NA	ND	NA	NA	NA	**0.71**	ND	NA	**1.3**	NA	NA	**0.63**	NA	NA	NA	NA	ND
Phenol	1	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	50	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND
Total SVOCs	- -	ug/L	NA	**7.0**	NA	NA	NA	**110**	**0.57**	**94**	**9.1**	**110**	**100**	**42**	NA	**190**	NA	**93**	**150**
General Chemistry																			
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																			
Total Petroleum Hydrocarbons	- -	ug/L	NA	**2,100**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,100**	NA	**3,500**	**3,300**

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-09 13.8 04/15/97	MW-09 13.8 07/15/97	MW-09 13.8 01/27/98	MW-09 13.8 11/02/01	MW-09 13.8 04/30/02	MW-09 13.8 08/20/02	MW-10 14.2 12/15/95	MW-10 14.2 08/20/02	MW-10 14.2 07/10/03	MW-10D 14.2 08/20/02	MW-11 13.6 12/18/95	MW-11 13.6 12/19/95	MW-11 13.6 01/27/98	MW-11 13.6 04/08/98	MW-11 13.6 11/02/01	MW-11 13.6 04/30/02	MW-11 13.6 08/20/02
Volatile Organics																			
Benzene	1	ug/L	**170**	**200**	NA	**860**	**620**	**520**	NA	**120**	NA	NA	NA	NA	NA	**620**	**75**	**83**	**56**
Toluene	5	ug/L	**26**	**15**	NA	ND	**3.4**	ND	NA	**11**	NA	NA	NA	NA	NA	**27**	**13**	**17**	**15**
Ethylbenzene	5	ug/L	**300**	**210**	NA	**34**	**120**	**79**	NA	**410**	NA	NA	NA	NA	NA	**1,100**	**410**	**1,000**	**650**
Xylenes (total)	5	ug/L	**1,000**	**320**	NA	**37**	**150**	**33**	NA	**45**	NA	NA	NA	NA	NA	**2,500**	**180**	**320**	**400**
Methyl tert-butyl ether	10	ug/L	**50**	**28**	NA	**47**	NA	**33**	NA	**16**	NA	NA	NA	NA	NA	ND	ND	NA	ND
Naphthalene	10	ug/L	**95**	**59**	NA	**640**	**160**	NA	NA	NA	NA	NA	NA	NA	NA	**220**	**160**	**190**	NA
Isopropylbenzene	5	ug/L	**20**	**13**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**40**	NA	NA	NA
1,1,1-Trichloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
1,1,2-Trichloroethane	1	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
1,1-Dichloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
1,1-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
1,2-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
1,2-Dichloroethane	0.6	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
1,2-Dichloropropane	1	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
1,3,5-Trimethylbenzene	- -	ug/L	**99**	**41**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**100**	NA	NA	NA
1,3-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
Acrylonitrile	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND	ND	NA	ND	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND	ND	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	ND	ND	NA	ND	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
Dibromochloromethane	50	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
m&p-Xylene	- -	ug/L	**1,000**	**300**	NA	ND	ND	ND	NA	ND	NA	NA	NA	NA	NA	**2,500**	ND	ND	ND
Methylene Chloride	5	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
n-Butylbenzene	- -	ug/L	**50**	**35**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**46**	NA	NA	NA
n-Propylbenzene	- -	ug/L	**40**	**23**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**61**	NA	NA	NA
o-Xylene	- -	ug/L	**5.0**	**21**	NA	ND	ND	ND	NA	ND	NA	NA	NA	NA	NA	**16 J**	ND	ND	ND
p-Isopropyltoluene	- -	ug/L	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.7 J**	NA	NA	NA
sec-Butylbenzene	- -	ug/L	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-09 13.8 04/15/97	MW-09 13.8 07/15/97	MW-09 13.8 01/27/98	MW-09 13.8 11/02/01	MW-09 13.8 04/30/02	MW-09 13.8 08/20/02	MW-10 14.2 12/15/95	MW-10 14.2 08/20/02	MW-10 14.2 07/10/03	MW-10D 14.2 08/20/02	MW-11 13.6 12/18/95	MW-11 13.6 12/19/95	MW-11 13.6 01/27/98	MW-11 13.6 04/08/98	MW-11 13.6 11/02/01	MW-11 13.6 04/30/02	MW-11 13.6 08/20/02
Volatile Organics (Cont.)																			
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA
Tertiary butyl alcohol	- -	ug/L	NA	NA	NA	ND	NA	**45**	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	ND
Tetrachloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
Total VOCs	- -	ug/L	**2,900**	**1,300**	NA	**1,600**	**1,100**	**710**	NA	**590**	ND	NA	NA	NA	NA	**7,300**	**840**	**1,600**	**1,100**
trans-1,2-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
Trichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
Trichlorofluoromethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
Vinyl Chloride	2	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND
Semivolatile Organics																			
Naphthalene	10	ug/L	NA	NA	**5.0 J**	NA	NA	NA	**300**	**230**	NA	**150**	**320**	**380**	**220**	NA	NA	NA	**160**
2,4-Dimethylphenol	50	ug/L	NA	NA	NA	NA	NA	NA	NA	**3.5**	NA	ND	NA	NA	NA	NA	NA	NA	**6.6**
Acenaphthene	20	ug/L	NA	NA	**1.0 J**	NA	NA	NA	ND	**6.8**	NA	**2.1**	ND	ND	**1.0 J**	NA	NA	NA	**1.7**
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA
Anthracene	50	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
Benzo(a)anthracene	0.002	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
Benzo(a)pyrene	- -	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	NA	NA	NA	NA	NA	**1.9**	NA	ND	NA	NA	NA	NA	NA	NA	ND
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	NA	NA	ND	NA	NA	NA	ND	N	NA	ND	ND	ND	ND	NA	NA	NA	ND
Fluorene	50	ug/L	NA	NA	ND	NA	NA	NA	ND	**3.9**	NA	**1.7**	ND	ND	**1.0 J**	NA	NA	NA	**1.7**
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
Nitrobenzene	0.4	ug/L	NA	NA	ND	NA	NA	NA	ND	ND	NA	ND	ND	ND	ND	NA	NA	NA	ND
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	NA	NA	ND	NA	NA	NA	ND	**1.5**	NA	ND	ND	**11**	ND	NA	NA	NA	**0.59**
Phenol	1	ug/L	NA	NA	NA	NA	NA	NA	NA	**44**	NA	ND	NA	NA	NA	NA	NA	NA	ND
Pyrene	50	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
Total SVOCs	- -	ug/L	NA	NA	**6.0**	NA	NA	NA	**300**	**290**	NA	**150**	**320**	**390**	**220**	NA	NA	NA	**170**
General Chemistry																			
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																			
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	**2,400**	NA	NA	NA	**3,900**	NA	NA	NA	**3,700**	**16,000**	**3,000**	NA	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-11 13.6 06/03/03	MW-11 13.6 02/11/04	MW-11 13.6 05/20/04	MW-11 13.6 10/24/04	MW-11 13.6 10/26/04	MW-11 13.6 03/10/05	MW-11 13.6 08/11/05	MW-11AR - - 08/20/02	MW-11AR - - 03/19/03	MW-11AR - - 06/03/03	MW-11AR - - 02/11/04	MW-11AR - - 05/20/04	MW-11AR - - 10/26/04	MW-11AR - - 03/09/05	MW-11AR - - 03/10/05	MW-12 13.9 02/11/04
Volatile Organics																		
Benzene	1	ug/L	**8.1**	**12**	**3.3**	**13**	NA	**5.7**	**9.3**	**910**	**90**	**44**	**11**	**74**	**86**	**18**	NA	**1,500**
Toluene	5	ug/L	**5.8**	**6.4**	**1.9**	**5.9**	NA	**3.8**	**4.0**	**250**	**11**	**3.8**	**0.60**	**30**	**15**	**4.2**	NA	**25**
Ethylbenzene	5	ug/L	**560**	**480**	**180**	**260**	NA	**240**	**140**	**930**	**120**	**5.6**	ND	**9.2**	**6.8**	**20**	NA	**920**
Xylenes (total)	5	ug/L	**390**	**190**	**84**	**57**	NA	**45**	**15**	**2,700**	**300**	**40**	**7.5**	**110**	**23**	**22**	NA	**1,800**
Methyl tert-butyl ether	10	ug/L	ND	ND	ND	ND	NA	ND	ND	**300**	**17**	**9.2**	**1.8**	**11**	**20**	**1.9**	NA	ND
Naphthalene	10	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA
Isopropylbenzene	5	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA
1,1,1-Trichloroethane	5	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
1,1-Dichloroethane	5	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
1,1-Dichloroethene	5	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
1,2-Dichlorobenzene	3	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
1,2-Dichloropropane	1	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	3	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	NA	NA	NA
Acrylonitrile	- -	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	NA	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND
cis-1,2-Dichloroethene	5	ug/L	NA	NA	ND	NA	NA	ND	ND	**29,000**	**80**	**56**	**1.8**	**860**	**410**	**49**	NA	NA
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
Dibromochloromethane	50	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
m&p-Xylene	- -	ug/L	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND
Methylene Chloride	5	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	ND	ND	NA	NA
n-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA
n-Propylbenzene	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA
o-Xylene	- -	ug/L	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND
p-Isopropyltoluene	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA
sec-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA

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Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-11 13.6 06/03/03	MW-11 13.6 02/11/04	MW-11 13.6 05/20/04	MW-11 13.6 10/24/04	MW-11 13.6 10/26/04	MW-11 13.6 03/10/05	MW-11 13.6 08/11/05	MW-11AR - - 08/20/02	MW-11AR - - 03/19/03	MW-11AR - - 06/03/03	MW-11AR - - 02/11/04	MW-11AR - - 05/20/04	MW-11AR - - 10/26/04	MW-11AR - - 03/09/05	MW-11AR - - 03/10/05	MW-12 13.9 02/11/04
Volatile Organics (Cont.)																		
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	ND	NA	NA
Tertiary butyl alcohol	- -	ug/L	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND
Tetrachloroethene	5	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
Total VOCs	- -	ug/L	**960**	**690**	**270**	**330**	NA	**290**	**170**	**44,000**	**860**	**210**	**50**	**1,400**	**810**	**180**	NA	**4,200**
trans-1,2-Dichloroethene	5	ug/L	NA	NA	ND	NA	NA	ND	ND	**99**	NA	NA	NA	**5.0**	**3.2**	**0.50**	NA	NA
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	NA
Trichloroethene	5	ug/L	NA	NA	ND	NA	NA	ND	ND	**2,100**	**14**	**15**	**0.40**	ND	**13**	**0.80**	NA	NA
Trichlorofluoromethane	5	ug/L	NA	NA	ND	NA	NA	ND	ND	ND	**210**	**27**	**27**	ND	NA	**27**	NA	NA
Vinyl Chloride	2	ug/L	NA	NA	ND	NA	NA	ND	ND	**7,800**	**13**	**12**	NA	**270**	**240**	**36**	NA	NA
Semivolatile Organics																		
Naphthalene	10	ug/L	**72**	**130**	**95**	NA	**89**	**78**	**56**	**500**	**16**	**24**	**0.79**	**32**	ND	NA	**5.8**	**160**
2,4-Dimethylphenol	50	ug/L	ND	ND	ND	NA	ND	ND	ND	**15**	ND	ND	ND	ND	ND	NA	ND	**9.4**
Acenaphthene	20	ug/L	**0.77**	**2.8**	**1.1**	NA	**2.4**	**1.8**	**2.4**	**4.7**	ND	**0.50**	ND	ND	ND	NA	ND	**4.2**
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA
Anthracene	50	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	ND	**0.74**
Benzo(a)anthracene	0.002	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	ND	ND
Benzo(a)pyrene	- -	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	NA	ND	NA	ND	ND
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA	ND	NA	ND	NA	ND	ND
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	**4.5**	NA	NA	ND	**1.2**	ND	**7.2**	ND	NA	ND	NA	ND	NA	ND	**6.0**
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	ND	NA	NA	ND	ND	ND	ND	ND	NA	ND	NA	ND	NA	ND	ND
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA
Di-n-Butylphthalate	50	ug/L	NA	NA	**1.1**	NA	ND	ND	ND	NA	ND	NA	NA	ND	ND	NA	ND	NA
Fluoranthene	50	ug/L	NA	ND	NA	NA	ND	ND	ND	**1.7**	ND	NA	ND	NA	ND	NA	ND	**1.2**
Fluorene	50	ug/L	**0.85**	**2.5**	**1.2**	NA	**2.3**	**1.5**	**2.1**	**5.5**	ND	**0.85**	ND	ND	ND	NA	ND	**6.3**
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA
Nitrobenzene	0.4	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA
PheNAnthrene	50	ug/L	**0.53**	**1.1**	ND	NA	**0.88 J**	**0.55**	**0.95**	ND	ND	ND	ND	ND	ND	NA	ND	**6.7**
Phenol	1	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	**2.4 J**	NA	**2.4 J**	**3.5**
Pyrene	50	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	ND	NA	ND	NA	ND	NA	ND	**1.1**
Total SVOCs	- -	ug/L	**74**	**140**	**99**	NA	**95**	**84**	**62**	**530**	**16**	**25**	**0.79**	**32**	**2.4**	NA	**8.2**	**200**
General Chemistry																		
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																		
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-12 13.9 10/26/04	MW-12 13.9 03/10/05	MW-12A 11.7 12/19/95	MW-12A 11.7 04/08/96	MW-12A 11.7 12/27/98	MW-12A 11.7 11/02/01	MW-12A 11.7 04/30/02	MW-12A 11.7 08/20/02	MW-13 12.15 12/18/95	MW-13 12.15 08/20/02	MW-14R 11.57 03/05/03	MW-14R 11.57 06/03/03	MW-14R 11.57 02/11/04	MW-14R 11.57 05/20/04	MW-14R 11.57 10/26/04	MW-14R 11.57 03/10/05	MW-15 8.87 08/20/02
Volatile Organics																			
Benzene	1	ug/L	**990**	**890**	NA	**34**	NA	**26**	**3.4**	**12**	NA	**5.4**	**42**	**12**	**1.4**	**7.1**	**1.3**	ND	ND
Toluene	5	ug/L	**14**	**13**	NA	**2.9 J**	NA	**1.2**	ND	**2.5**	NA	**1.5**	**1.3**	ND	ND	ND	ND	ND	ND
Ethylbenzene	5	ug/L	**450**	**400**	NA	**85**	NA	**2.9**	**9.9**	**26**	NA	**0.60**	**22**	**11**	**0.40**	**1.9**	ND	ND	ND
Xylenes (total)	5	ug/L	**350**	**280**	NA	**24**	NA	**4.5**	**5.7**	**9.1**	NA	**2.8**	**12**	**4.3**	ND	**0.20**	ND	ND	ND
Methyl tert-butyl ether	10	ug/L	ND	ND	NA	**41**	NA	**25**	NA	**4.1**	NA	**2.5**	**8.4**	**1.3**	ND	**0.80**	**1.6**	ND	**4.7**
Naphthalene	10	ug/L	NA	ND	NA	**27**	NA	ND	**22**	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
Isopropylbenzene	5	ug/L	NA	ND	NA	**33**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
1,1,1-Trichloroethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/L	NA	**3.7**	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
1,1,2-Trichloroethane	1	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
1,1-Dichloroethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
1,1-Dichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
1,2-Dichlorobenzene	3	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
1,2-Dichloroethane	0.6	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
1,2-Dichloropropane	1	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	NA	**32**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.60 J**	NA
1,3-Dichlorobenzene	3	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
1,4-Dichlorobenzene	3	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
Acrylonitrile	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND	ND	NA	ND	NA	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
cis-1,3-Dichloropropene	0.4	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
Dibromochloromethane	50	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
m&p-Xylene	- -	ug/L	ND	ND	NA	**20**	NA	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
n-Butylbenzene	- -	ug/L	NA	ND	NA	**27**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
n-Propylbenzene	- -	ug/L	NA	ND	NA	**58**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
o-Xylene	- -	ug/L	ND	ND	NA	**3.9 J**	NA	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	- -	ug/L	NA	ND	NA	**1.7 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
sec-Butylbenzene	- -	ug/L	NA	ND	NA	**9.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA

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Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-12 13.9 10/26/04	MW-12 13.9 03/10/05	MW-12A 11.7 12/19/95	MW-12A 11.7 04/08/96	MW-12A 11.7 12/27/98	MW-12A 11.7 11/02/01	MW-12A 11.7 04/30/02	MW-12A 11.7 08/20/02	MW-13 12.15 12/18/95	MW-13 12.15 08/20/02	MW-14R 11.57 03/05/03	MW-14R 11.57 06/03/03	MW-14R 11.57 02/11/04	MW-14R 11.57 05/20/04	MW-14R 11.57 10/26/04	MW-14R 11.57 03/10/05	MW-15 8.87 08/20/02
Volatile Organics (Cont.)																			
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
tert-Butylbenzene	- -	ug/L	NA	ND	NA	**3.4 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
Tertiary butyl alcohol	- -	ug/L	ND	ND	NA	NA	NA	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
Total VOCs	- -	ug/L	**1,800**	**1,600**	NA	**400**	NA	**59**	**41**	**53**	NA	**13**	**85**	**28**	**1.8**	**10**	**2.9**	**0.60**	**4.7**
trans-1,2-Dichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
trans-1,3-Dichloropropene	0.4	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
Trichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
Trichlorofluoromethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
Vinyl Chloride	2	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	ND
Semivolatile Organics																			
Naphthalene	10	ug/L	**310**	**230**	**130**	NA	**58**	NA	NA	**31**	ND	ND	**12**	**6.0**	ND	ND	ND	ND	ND
2,4-Dimethylphenol	50	ug/L	ND	ND	NA	NA	NA	NA	NA	**1.2**	NA	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	20	ug/L	**14**	**20**	**23**	NA	**6.0 J**	NA	NA	**25**	ND	**3.3**	**1.1**	**0.58**	ND	ND	**0.34**	ND	**3.2**
Acenaphthylene	- -	ug/L	NA	ND	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA
Anthracene	50	ug/L	**4.3**	**9.9**	ND	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA
Benzo(a)anthracene	0.002	ug/L	**1.9 J**	**2.7**	ND	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA
Benzo(a)pyrene	- -	ug/L	**0.91 J**	**0.83 J**	ND	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	ND	ND	NA
Benzo(b)fluoranthene	0.002	ug/L	**1.2 J**	**4.2**	ND	NA	ND	NA	NA	**0.76**	ND	ND	NA	NA	ND	NA	ND	ND	ND
Benzo(g,h,i)perylene	- -	ug/L	NA	ND	ND	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA
Benzo(k)fluoranthene	0.002	ug/L	**0.78 J**	**0.69 J**	ND	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	**70**	**88**	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	**1.5**	NA	ND	ND	ND
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	**1.5 J**	**0.84 J**	ND	NA	ND	NA	NA	**0.74**	ND	ND	ND	NA	ND	NA	ND	ND	ND
Dibenzo(a,h)anthracene	- -	ug/L	NA	ND	ND	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA
Di-n-Butylphthalate	50	ug/L	**8.1**	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	ND	ND	ND	NA
Fluoranthene	50	ug/L	**33**	**16**	ND	NA	**1.0 J**	NA	NA	ND	ND	**1.0**	ND	NA	ND	NA	ND	ND	ND
Fluorene	50	ug/L	ND	**49**	ND	NA	**6.0 J**	NA	NA	ND	ND	**2.5**	**1.8**	**0.98**	ND	ND	ND	ND	**1.4**
Hexachlorocyclopentadiene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	ND	ND
Hexachloroethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	ND	ND	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA
Nitrobenzene	0.4	ug/L	ND	ND	ND	NA	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
PheNAnthrene	50	ug/L	**57**	**77**	ND	NA	**2.0 J**	NA	NA	**6.1**	ND	**1.0**	**0.97**	ND	ND	ND	ND	ND	ND
Phenol	1	ug/L	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	**0.89**	ND	ND	ND	ND	NA
Pyrene	50	ug/L	**14**	ND	ND	NA	ND	NA	NA	ND	ND	**0.99**	ND	NA	ND	NA	ND	ND	ND
Total SVOCs	- -	ug/L	**510**	**500**	**150**	NA	**73**	NA	NA	**65**	ND	**8.8**	**16**	**8.5**	**1.5**	ND	**0.34**	ND	**4.6**
General Chemistry																			
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																			
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	**1,000**	NA	**1,100**	NA	NA	NA	**1,100**	NA	NA	NA	NA	NA	NA	NA	NA

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Former Gulf Oil Terminal
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ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-16 13.85 12/15/95	MW-16 13.85 06/05/96	MW-16 13.85 09/13/96	MW-16 13.85 04/15/97	MW-16 13.85 07/15/97	MW-16 13.85 01/27/98	MW-16 13.85 04/08/98	MW-16 13.85 11/02/01	MW-16 13.85 04/30/02	MW-16 13.85 08/20/02	MW-17 14.55 12/12/95	MW-17 14.55 12/18/95	MW-17 14.55 06/05/96	MW-17 14.55 09/13/96	MW-17 14.55 04/15/97
Volatile Organics																	
Benzene	1	ug/L	**20**	**23**	**22**	**83**	**64**	NA	**150 [120]**	**13**	**31**	**55**	ND	**120**	**68**	**80**	**120**
Toluene	5	ug/L	ND	ND	ND	**1.4**	ND	NA	ND [ND]	ND	ND	ND	ND	**3.5**	**2.5**	**2.4**	ND
Ethylbenzene	5	ug/L	ND	ND	ND	ND	ND	NA	**21 J [11 J]**	ND	ND	ND	ND	ND	**2.8**	ND	ND
Xylenes (total)	5	ug/L	ND	**2.8**	**2.2**	**98**	ND	NA	ND [ND]	ND	**3.1**	**2.1**	ND	**7.5**	**8.0**	**5.9**	ND
Methyl tert-butyl ether	10	ug/L	**3,000**	**1,500**	**1,200**	**8,000**	**5,900**	NA	**6,100 [5,400]**	**660**	NA	**1,500**	ND	**240**	**120**	**190**	**230**
Naphthalene	10	ug/L	ND	**2.4**	**4.6**	ND	ND	NA	**72 J [40 J]**	ND	**5.1**	NA	ND	**45**	**100**	**25**	**88**
Isopropylbenzene	5	ug/L	**1.3**	**1.9**	**1.4**	**2.2**	ND	NA	ND [ND]	NA	NA	NA	ND	**13**	**10**	**12**	**14**
1,1,1-Trichloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
1,1-Dichloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
1,1-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
1,2-Dichloropropane	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	ND	ND	ND	ND	ND	NA	ND [ND]	NA	NA	NA	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Acrylonitrile	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND	ND	ND	ND	ND	NA	ND [ND]	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	ND	ND	ND	ND	ND	NA	ND [ND]	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Dibromochloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
m&p-Xylene	- -	ug/L	**2.0**	**2.8**	**2.2**	**2.8**	ND	NA	ND [ND]	ND	ND	ND	ND	**7.5**	**5.6**	**5.9**	ND
Methylene Chloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
n-Butylbenzene	- -	ug/L	**1.4**	ND	ND	ND	ND	NA	**ND [13 J]**	NA	NA	NA	ND	NA	**4.7**	**6.4**	ND
n-Propylbenzene	- -	ug/L	**2.3**	**3.4**	**2.3**	**3.6**	ND	NA	ND [ND]	NA	NA	NA	ND	**18**	**14**	**17**	**18**
o-Xylene	- -	ug/L	ND	ND	ND	**95**	ND	NA	ND [ND]	ND	ND	ND	ND	ND	**2.4**	ND	ND
p-Isopropyltoluene	- -	ug/L	**1.4**	**1.3**	ND	ND	ND	NA	ND [ND]	NA	NA	NA	ND	**6.6**	ND	ND	ND
sec-Butylbenzene	- -	ug/L	ND	ND	ND	ND	ND	NA	ND [ND]	NA	NA	NA	ND	**3.2**	**2.5**	**3.2**	ND

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Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-16 13.85 12/15/95	MW-16 13.85 06/05/96	MW-16 13.85 09/13/96	MW-16 13.85 04/15/97	MW-16 13.85 07/15/97	MW-16 13.85 01/27/98	MW-16 13.85 04/08/98	MW-16 13.85 11/02/01	MW-16 13.85 04/30/02	MW-16 13.85 08/20/02	MW-17 14.55 12/12/95	MW-17 14.55 12/18/95	MW-17 14.55 06/05/96	MW-17 14.55 09/13/96	MW-17 14.55 04/15/97
Volatile Organics (Cont.)																	
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	ND	**1.3**	ND	ND	**12**	NA	ND [ND]	NA	NA	NA	ND	ND	**1.1**	ND	ND
Tertiary butyl alcohol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	**1,900**	NA	**5,200**	NA	NA	NA	NA	NA
Tetrachloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
Total VOCs	- -	ug/L	**3,000**	**1,500**	**1,200**	**8,200**	**6,000**	NA	**6,300 [5,600]**	**2,600**	**39**	**57**	ND	**460**	**340**	**350**	**470**
trans-1,2-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Trichloroethene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Trichlorofluoromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Vinyl Chloride	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Semivolatile Organics																	
Naphthalene	10	ug/L	ND	ND	ND	NA	NA	**28 [26]**	NA	NA	NA	**1.1**	NA	**37**	**64 [59]**	**20 [17]**	NA
2,4-Dimethylphenol	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Acenaphthene	20	ug/L	ND	ND	ND	NA	NA	**3.0 J [3.0 J]**	NA	NA	NA	**5.4**	NA	**16**	**16 [17]**	**17 [15]**	NA
Acenaphthylene	- -	ug/L	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND [ND]	ND [ND]	NA
Anthracene	50	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	NA	NA	ND	ND [ND]	ND [ND]	NA
Benzo(a)anthracene	0.002	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	NA	NA	ND	ND [ND]	ND [ND]	NA
Benzo(a)pyrene	- -	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	NA	NA	ND	ND [ND]	ND [ND]	NA
Benzo(b)fluoranthene	0.002	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	ND	NA	ND	ND [ND]	ND [ND]	NA
Benzo(g,h,i)perylene	- -	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	NA	NA	ND	ND [ND]	ND [ND]	NA
Benzo(k)fluoranthene	0.002	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	NA	NA	ND	**10 [10]**	ND [ND]	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Chloride	250,000	ug/L	NA	**480**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	ND	NA	ND	ND [ND]	ND [ND]	NA
Dibenzo(a,h)anthracene	- -	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	NA	NA	ND	ND [ND]	ND [ND]	NA
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	ND	NA	ND	ND [ND]	ND [ND]	NA
Fluorene	50	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	**0.88**	NA	ND	ND [ND]	**7.9 [7.3]**	NA
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	NA	NA	ND	ND [ND]	ND [ND]	NA
Nitrobenzene	0.4	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	ND	NA	ND	ND [ND]	ND [ND]	NA
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	ND	NA	ND	ND [ND]	**5.9 [ND]**	NA
Phenol	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	50	ug/L	ND	ND	ND	NA	NA	ND [ND]	NA	NA	NA	ND	NA	ND	ND [ND]	ND [ND]	NA
Total SVOCs	- -	ug/L	ND	ND	ND	NA	NA	**31 [29]**	NA	NA	NA	**7.4**	NA	**53**	**90 [86]**	**51 [39]**	NA
General Chemistry																	
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.66**	NA	NA
Total Dissolved Solids	- -	mg/L	NA	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.61**	NA	NA
TPH																	
Total Petroleum Hydrocarbons	- -	ug/L	ND	ND	ND	NA	NA	**480 J [490 J]**	NA	NA	NA	NA	NA	**1,200**	**1,100 [2,400]**	ND [ND]	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-17 14.55 07/15/97	MW-17 14.55 01/27/98	MW-17 14.55 04/09/98	MW-17 14.55 11/02/01	MW-17 14.55 04/30/02	MW-17 14.55 08/20/02	MW-18 12.2 12/12/95	MW-18 12.2 04/30/02	MW-18 12.2 08/20/02	MW-19 - - 12/12/95	MW-19 - - 12/18/95	MW-19 - - 06/05/96	MW-19 - - 04/15/97	MW-19 - - 07/15/97	MW-19 - - 01/27/98	MW-19 - - 04/09/98	MW-19 - - 11/02/01
Volatile Organics																			
Benzene	1	ug/L	**84 [90]**	NA	**72**	**16**	**6.3**	**3.0**	**1,700**	**350**	**370**	**27**	**23**	**72**	**14**	**11**	NA	ND	ND
Toluene	5	ug/L	ND [ND]	NA	**2.3 J**	**1.4**	ND	ND	**1,400**	**12**	**7.2**	ND	ND	ND	ND	ND	NA	ND	ND
Ethylbenzene	5	ug/L	ND [ND]	NA	**3.4 J**	**1.3**	ND	ND	**39,000**	**380**	**69**	ND	ND	ND	ND	ND	NA	ND	ND
Xylenes (total)	5	ug/L	ND [ND]	NA	**8.2**	**4.5**	**3.2**	**0.40**	**66,000**	**33**	**17**	ND	ND	ND	ND	ND	NA	ND	ND
Methyl tert-butyl ether	10	ug/L	**180 [180]**	NA	**190**	**71**	NA	**60**	ND	NA	**490**	ND	**240**	**120**	**65**	**57**	NA	**5.7**	ND
Naphthalene	10	ug/L	**28 [28]**	NA	**160**	**2.7**	**17**	NA	**33,000**	**78**	NA	ND	ND	**100**	ND	ND	NA	ND	ND
Isopropylbenzene	5	ug/L	ND [ND]	NA	**12**	NA	NA	NA	**7,600**	NA	NA	ND	ND	**18**	**1.2**	ND	NA	**0.40 J**	NA
1,1,1-Trichloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	1	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	ND [ND]	NA	**1.3 J**	NA	NA	NA	**25,000**	NA	NA	ND	ND	ND	ND	ND	NA	ND	NA
1,3-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND [ND]	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	ND [ND]	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
cis-1,2-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	50	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	ug/L	ND [ND]	NA	**5.7 J**	ND	ND	ND	**62,000**	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Methylene Chloride	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	ND	NA	NA	NA	NA	NA	ND	NA
n-Butylbenzene	- -	ug/L	ND [ND]	NA	**8.1**	NA	NA	NA	**56,000**	NA	NA	**94**	**1.9**	ND	ND	ND	NA	**0.30 J**	NA
n-Propylbenzene	- -	ug/L	ND [ND]	NA	**14**	NA	NA	NA	**21,000**	NA	NA	ND	**3.0**	**2.2**	ND	ND	NA	**0.40 J**	NA
o-Xylene	- -	ug/L	ND [ND]	NA	**2.5 J**	ND	ND	ND	**3,900**	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
p-Isopropyltoluene	- -	ug/L	ND [ND]	NA	ND	NA	NA	NA	**6,200**	NA	NA	ND	ND	ND	ND	ND	NA	ND	NA
sec-Butylbenzene	- -	ug/L	ND [ND]	NA	**5.1**	NA	NA	NA	**8,200**	NA	NA	ND	ND	ND	ND	ND	NA	**0.20 J**	NA

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Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-17 14.55 07/15/97	MW-17 14.55 01/27/98	MW-17 14.55 04/09/98	MW-17 14.55 11/02/01	MW-17 14.55 04/30/02	MW-17 14.55 08/20/02	MW-18 12.2 12/12/95	MW-18 12.2 04/30/02	MW-18 12.2 08/20/02	MW-19 - - 12/12/95	MW-19 - - 12/18/95	MW-19 - - 06/05/96	MW-19 - - 04/15/97	MW-19 - - 07/15/97	MW-19 - - 01/27/98	MW-19 - - 04/09/98	MW-19 - - 11/02/01
Volatile Organics (Cont.)																			
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	ND [ND]	NA	**2.4 J**	NA	NA	NA	**4,600**	NA	NA	ND	ND	ND	ND	ND	NA	ND	NA
Tertiary butyl alcohol	- -	ug/L	NA	NA	NA	ND	NA	**32**	NA	NA	**410**	NA	NA	NA	NA	NA	NA	ND	ND
Tetrachloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	ND	NA	NA	NA	ND	NA	ND	NA
Total VOCs	- -	ug/L	**290 [300]**	NA	**490**	**96**	**26**	**95**	**340,000**	**860**	**1,400**	**120**	**270**	**310**	**80**	**68**	NA	**7.0**	ND
trans-1,2-Dichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics																			
Naphthalene	10	ug/L	NA	**66**	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	ND	NA	NA
2,4-Dimethylphenol	50	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	**2.7**	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	ug/L	NA	**19**	NA	NA	NA	**17**	NA	NA	**1.9**	NA	ND	ND	NA	NA	ND	NA	NA
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA
Anthracene	50	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA
Benzo(a)anthracene	0.002	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA
Benzo(a)pyrene	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	ND	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	ND	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	**4.1**	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**17**	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	ND	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	ND	NA	NA
Dibenzo(a,h)anthracene	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	NA	**2.0 J**	NA	NA	NA	**0.81**	NA	NA	ND	NA	ND	ND	NA	NA	ND	NA	NA
Fluorene	50	ug/L	NA	**9.0 J**	NA	NA	NA	**5.3**	NA	NA	**2.8**	NA	ND	ND	NA	NA	ND	NA	NA
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	**12**	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA
Nitrobenzene	0.4	ug/L	NA	ND	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	ND	NA	NA
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	NA	**6.0 J**	NA	NA	NA	ND	NA	NA	**2.9**	NA	ND	ND	NA	NA	ND	NA	NA
Phenol	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	50	ug/L	NA	**1.0 J**	NA	NA	NA	ND	NA	NA	ND	NA	ND	ND	NA	NA	ND	NA	NA
Total SVOCs	- -	ug/L	NA	**100**	NA	NA	NA	**23**	NA	NA	**26**	NA	ND	ND	NA	NA	ND	NA	NA
General Chemistry																			
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.34**	NA	NA	NA	NA	NA
TPH																			
Total Petroleum Hydrocarbons	- -	ug/L	NA	**720**	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-19 - - 04/30/02	MW-19 - - 08/20/02	MW-20 11.1 12/12/95	MW-20 11.1 12/13/95	MW-20 11.1 12/18/95	MW-20 11.1 06/05/96	MW-20 11.1 09/13/96	MW-20 11.1 04/15/97	MW-20 11.1 07/15/97	MW-20 11.1 01/27/98	MW-20 11.1 04/09/98	MW-20 11.1 11/02/01	MW-20 11.1 04/30/02	MW-20 11.1 08/20/02	MW-21 10.1 01/27/98	MW-21 10.1 04/09/98
Volatile Organics																		
Benzene	1	ug/L	**5.1**	**0.90**	**19**	ND	NA	**1.5**	**170**	**25 [26]**	**70**	NA	**76 J**	**130**	**10**	**140**	NA	**800**
Toluene	5	ug/L	ND	**0.60**	**2.1**	ND	NA	ND	**40**	ND [ND]	ND	NA	ND	**2.8**	ND	**28**	NA	**16**
Ethylbenzene	5	ug/L	ND	ND	**30**	ND	NA	ND	**16**	**1.4 [1.9]**	ND	NA	ND	ND	NA	**3.0**	NA	**650**
Xylenes (total)	5	ug/L	ND	ND	**6.7**	ND	NA	ND	**9.2**	ND [ND]	ND	NA	ND	**6.5**	ND	**19**	NA	**340**
Methyl tert-butyl ether	10	ug/L	NA	ND	**9,100**	ND	NA	**1,700**	**54,000**	**9,300 [9,900]**	**19,000**	NA	**2,200**	**120**	NA	**680**	NA	**2,200**
Naphthalene	10	ug/L	**7.5**	NA	**20**	**140**	NA	ND	**14**	ND [ND]	ND	NA	**110**	ND	ND	NA	NA	**330**
Isopropylbenzene	5	ug/L	NA	NA	**16**	ND	NA	ND	**18**	**1.2 [ND]**	ND	NA	ND	NA	NA	NA	NA	**42**
1,1,1-Trichloroethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
1,1-Dichloroethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.9**	NA	NA
1,1-Dichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
1,2-Dichlorobenzene	3	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
1,2-Dichloropropane	1	ug/L	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	**6.2**	ND	NA	ND	ND	ND [ND]	ND	NA	**26 J**	NA	NA	NA	NA	**26 J**
1,3-Dichlorobenzene	3	ug/L	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Acrylonitrile	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND	ND	ND	ND	NA	ND	ND	ND [ND]	ND	NA	ND	ND	ND	ND	NA	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	ND	ND	ND	ND	NA	ND	ND	ND [ND]	ND	NA	ND	ND	ND	ND	NA	ND
cis-1,2-Dichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	**770**	NA	NA
cis-1,3-Dichloropropene	0.4	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Dibromochloromethane	50	ug/L	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
m&p-Xylene	- -	ug/L	ND	ND	**6.7**	ND	NA	ND	**9.2**	ND [ND]	ND	NA	ND	ND	ND	ND	NA	**320**
Methylene Chloride	5	ug/L	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
n-Butylbenzene	- -	ug/L	NA	NA	**2.3**	ND	NA	ND	**4.9**	ND [ND]	ND	NA	**36 J**	NA	NA	NA	NA	**54**
n-Propylbenzene	- -	ug/L	NA	NA	**39**	ND	NA	ND	**40**	ND [ND]	ND	NA	ND	NA	NA	NA	NA	**65**
o-Xylene	- -	ug/L	ND	ND	ND	ND	NA	ND	ND	ND [ND]	ND	NA	ND	ND	ND	ND	NA	**16 J**
p-Isopropyltoluene	- -	ug/L	NA	NA	ND	ND	NA	ND	ND	ND [ND]	ND	NA	ND	NA	NA	NA	NA	ND
sec-Butylbenzene	- -	ug/L	NA	NA	**2.4**	ND	NA	ND	**3.9**	ND [ND]	ND	NA	ND	NA	NA	NA	NA	ND

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-19 - - 04/30/02	MW-19 - - 08/20/02	MW-20 11.1 12/12/95	MW-20 11.1 12/13/95	MW-20 11.1 12/18/95	MW-20 11.1 06/05/96	MW-20 11.1 09/13/96	MW-20 11.1 04/15/97	MW-20 11.1 07/15/97	MW-20 11.1 01/27/98	MW-20 11.1 04/09/98	MW-20 11.1 11/02/01	MW-20 11.1 04/30/02	MW-20 11.1 08/20/02	MW-21 10.1 01/27/98	MW-21 10.1 04/09/98
Volatile Organics (Cont.)																		
Styrene	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	NA	NA	ND	NA	ND	ND	ND [ND]	ND	NA	ND	NA	ND	NA	NA	ND
Tertiary butyl alcohol	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	**490**	NA	NA
Tetrachloroethene	5	ug/L	NA	ND	NA	ND	NA	NA	NA	NA	ND	NA	ND	NA	ND	ND	NA	ND
Total VOCs	- -	ug/L	**13**	**1.4**	**9,300**	**140**	NA	**1,700**	**54,000**	**9,300 [9,900]**	**19,000**	NA	**2,400**	**260**	**10**	**2,100**	NA	**4,900**
trans-1,2-Dichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA
trans-1,3-Dichloropropene	0.4	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Trichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA
Trichlorofluoromethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Vinyl Chloride	2	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	**1,400**	NA	NA
Semivolatile Organics																		
Naphthalene	10	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	NA	**7.0 J**	NA	NA	NA	ND	**150**	NA
2,4-Dimethylphenol	50	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Acenaphthene	20	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	ND	**3.0 J**	NA
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	50	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA
Benzo(a)anthracene	0.002	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA
Benzo(a)pyrene	- -	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	**1.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA
Di-n-Butylphthalate	50	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Fluoranthene	50	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA
Fluorene	50	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	ND	**3.0 J**	NA
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA
Nitrobenzene	0.4	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	ND	**3.0 J**	NA
Phenol	1	ug/L	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Pyrene	50	ug/L	NA	ND	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA
Total SVOCs	- -	ug/L	NA	**1.6**	NA	NA	ND	ND	ND	NA	NA	**7.0**	NA	NA	NA	ND	**160**	NA
General Chemistry																		
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	**0.18**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																		
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	**550**	ND	**820**	NA	NA	**360 J**	NA	NA	NA	NA	**4,900**	NA

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Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-21 10.1 11/02/01	MW-21 10.1 04/30/02	MW-21 10.1 08/20/02	MW-21 10.1 03/05/03	MW-21 10.1 06/03/03	MW-21 10.1 02/11/04	MW-21 10.1 05/20/04	MW-21 10.1 10/26/04	MW-21 10.1 03/10/05	MW-22 12 08/20/02	MW-22 12 03/05/03	MW-22 12 06/03/03	MW-22 12 02/11/04	MW-22 12 05/20/04	MW-22 12 10/26/04	MW-22 12 03/10/05
Volatile Organics																		
Benzene	1	ug/L	**340**	ND	**73**	**410**	**640**	**230**	**100**	**87**	**190**	**200**	**150**	**200**	**26**	**190**	**240**	**8.1**
Toluene	5	ug/L	ND	ND	ND	**6.2**	**6.1**	**2.7**	**1.3**	**1.1**	**3.0**	ND	**3.5**	**2.9**	**0.50**	**1.9**	**4.8**	ND
Ethylbenzene	5	ug/L	**51**	ND	ND	**92**	**74**	**34**	**12**	**5.8**	**77**	**14**	**90**	**170**	**0.50**	**53**	**2.6**	**2.4**
Xylenes (total)	5	ug/L	ND	ND	**4.5**	**14**	**17**	**7.7**	**8.1**	**4.6**	**37**	**2.8**	ND	**61**	**5.2**	**17**	**7.2**	**0.50**
Methyl tert-butyl ether	10	ug/L	**730**	NA	**440**	**660**	**970**	**280**	**160**	**140**	**97**	**530**	**34**	**44**	**4.0**	**21**	**41**	**1.7**
Naphthalene	10	ug/L	**37**	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
Isopropylbenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
1,1,1-Trichloroethane	5	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
1,1,2-Trichloroethane	1	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
1,1-Dichloroethane	5	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
1,1-Dichloroethene	5	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
1,2-Dichlorobenzene	3	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
1,2-Dichloroethane	0.6	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
1,2-Dichloropropane	1	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
1,3-Dichlorobenzene	3	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
1,4-Dichlorobenzene	3	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
Acrylonitrile	- -	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
Dibromochloromethane	50	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
m&p-Xylene	- -	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	5	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
n-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
n-Propylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
o-Xylene	- -	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
sec-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND

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Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-21 10.1 11/02/01	MW-21 10.1 04/30/02	MW-21 10.1 08/20/02	MW-21 10.1 03/05/03	MW-21 10.1 06/03/03	MW-21 10.1 02/11/04	MW-21 10.1 05/20/04	MW-21 10.1 10/26/04	MW-21 10.1 03/10/05	MW-22 12 08/20/02	MW-22 12 03/05/03	MW-22 12 06/03/03	MW-22 12 02/11/04	MW-22 12 05/20/04	MW-22 12 10/26/04	MW-22 12 03/10/05
Volatile Organics (Cont.)																		
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
Tertiary butyl alcohol	- -	ug/L	ND	NA	**490**	ND	ND	**41**	**23**	**7.9**	**15**	**80**	**35**	ND	ND	ND	ND	ND
Tetrachloroethene	5	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
Total VOCs	- -	ug/L	**1,200**	ND	**1,000**	**1,200**	**1,700**	**600**	**310**	**240**	**420**	**830**	**310**	**470**	**37**	**280**	**290**	**13**
trans-1,2-Dichloroethene	5	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
Trichloroethene	5	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
Trichlorofluoromethane	5	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
Vinyl Chloride	2	ug/L	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND
Semivolatile Organics																		
Naphthalene	10	ug/L	NA	NA	**1.9**	**3.5**	**8.5**	**13**	**2.0**	**1.3**	**18**	NA	**76**	**69**	**4.5**	**30**	**5.6**	**1.5**
2,4-Dimethylphenol	50	ug/L	NA	NA	**29**	**9.3**	**15**	**17**	**1.4**	**1.7 J**	**4.9**	NA	ND	ND	ND	ND	ND	ND
Acenaphthene	20	ug/L	NA	NA	**6.7**	**4.2**	**3.7**	**4.6**	**6.0**	**7.4**	**3.5**	NA	**2.3**	**2.2**	**0.71**	**1.1**	**0.84**	ND
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
Anthracene	50	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	ND	NA	NA	NA	ND	NA	ND	ND
Benzo(a)anthracene	0.002	ug/L	NA	NA	NA	NA	NA	**0.89**	NA	ND	ND	NA	NA	NA	ND	NA	ND	ND
Benzo(a)pyrene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	ND	ND
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	**0.90**	NA	ND	ND	NA	NA	NA	ND	NA	ND	ND
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	**0.62**	NA	ND	ND	NA	NA	NA	ND	NA	ND	ND
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	**4.1**	**2.0**	NA	**7.7**	NA	ND	ND	NA	ND	NA	**1.1**	NA	ND	**3.2**
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	NA	NA	ND	NA	**0.57**	NA	ND	ND	NA	ND	NA	ND	NA	ND	ND
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
Di-n-Butylphthalate	50	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	NA	NA	ND	ND	ND
Fluoranthene	50	ug/L	NA	NA	**2.8**	**1.2**	NA	ND	NA	ND	ND	NA	ND	NA	ND	NA	ND	ND
Fluorene	50	ug/L	NA	NA	**4.9**	**1.9**	**1.7**	**2.4**	**1.6**	**2.1**	**1.6**	NA	**3.3**	**2.8**	**1.2**	**1.6**	**1.1**	**1.1**
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
Nitrobenzene	0.4	ug/L	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND
PheNAnthrene	50	ug/L	NA	NA	**1.6**	**0.74**	**0.76**	ND	ND	**0.47**	ND	NA	**2.9**	**1.7**	**0.75**	**0.79**	ND	ND
Phenol	1	ug/L	NA	NA	**14**	**2.3**	**1.9**	**3.6**	ND	ND	ND	NA	ND	**3.6**	ND	**9.7**	**5.7**	ND
Pyrene	50	ug/L	NA	NA	**2.7**	**2.1**	NA	**4.3**	NA	ND	**1.5**	NA	ND	NA	ND	NA	ND	ND
Total SVOCs	- -	ug/L	NA	NA	**67**	**27**	**31**	**56**	**11**	**13**	ND	NA	**85**	**80**	**8.3**	**43**	**13**	**5.8**
General Chemistry																		
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																		
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-23-D1 16.5 - 26.5 10/27/04	MW-23-D1 16.5 - 26.5 03/09/05	MW-23-D1 16.5 - 26.5 08/10/05	MW-23-D1 16.5 - 26.5 03/15/06	MW-23-D2 31 - 41 10/27/04	MW-23-D2 31 - 41 03/09/05	MW-23-D2 31 - 41 08/10/05	MW-23-D2 31 - 41 03/15/06	MW-24-D1 17 - 27 10/27/04	MW-24-D1 17 - 27 03/09/05	MW-24-D1 17 - 27 08/10/05	MW-24-D1 17 - 27 03/15/06	MW-24-D2 32 - 42 10/27/04	MW-24-D2 32 - 42 03/09/05
Volatile Organics																
Benzene	1	ug/L	**1.4**	**2.3**	**12**	**13**	**1.2**	**0.73 J**	**0.69**	ND	**4.7**	**3.7 J**	**1.7**	**4.8**	ND	**0.50 J**
Toluene	5	ug/L	**0.40**	ND	**9.6**	**9.0 J**	**0.30 J**	ND	**0.20**	ND	**2.3**	ND	**0.90**	**2.5 J**	**0.30 J**	**0.30 J**
Ethylbenzene	5	ug/L	**0.32 J**	**1.2**	**4.0**	**4.3 J**	ND	ND	ND	ND	ND	ND	ND	**1.8 J**	ND	ND
Xylenes (total)	5	ug/L	**0.90 J**	**0.20**	**12**	**11 J**	ND	ND	ND	ND	ND	ND	ND	**3.8 J**	**0.90 J**	**0.30 J**
Methyl tert-butyl ether	10	ug/L	**180**	**620**	**470**	**680**	**65**	**200**	**220**	**470**	**1,100 J**	**820**	**590**	**1,200**	**120**	**270**
Naphthalene	10	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Isopropylbenzene	5	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
1,1,1-Trichloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.3 J**	ND	ND
1,2-Dichlorobenzene	3	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND
1,2-Dichloroethane	0.6	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
1,3-Dichlorobenzene	3	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND
1,4-Dichlorobenzene	3	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND
Acrylonitrile	- -	ug/L	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA
Chloromethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/L	**1.5**	**2.8**	**160**	**55**	ND	ND	ND	ND	**280**	**240**	**240**	**670**	**5.9**	**33**
cis-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	50	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	- -	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Methylene Chloride	5	ug/L	**4.1**	ND	ND	ND	ND	ND	ND	ND	**6.6**	ND	ND	ND	**1.2 J**	**3.0**
n-Butylbenzene	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
n-Propylbenzene	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
o-Xylene	- -	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
p-Isopropyltoluene	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
sec-Butylbenzene	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
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Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-23-D1 16.5 - 26.5 10/27/04	MW-23-D1 16.5 - 26.5 03/09/05	MW-23-D1 16.5 - 26.5 08/10/05	MW-23-D1 16.5 - 26.5 03/15/06	MW-23-D2 31 - 41 10/27/04	MW-23-D2 31 - 41 03/09/05	MW-23-D2 31 - 41 08/10/05	MW-23-D2 31 - 41 03/15/06	MW-24-D1 17 - 27 10/27/04	MW-24-D1 17 - 27 03/09/05	MW-24-D1 17 - 27 08/10/05	MW-24-D1 17 - 27 03/15/06	MW-24-D2 32 - 42 10/27/04	MW-24-D2 32 - 42 03/09/05
Volatile Organics (Cont.)																
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Tertiary butyl alcohol	- -	ug/L	**1,800**	**820**	**1,100**	**1,500**	**2,100**	**2,400**	**2,000**	ND	**3,000**	**1,600**	**980**	**1,900**	**640**	**1,300**
Tetrachloroethene	5	ug/L	ND	ND	ND	ND	ND	ND	**0.32**	ND	ND	ND	ND	ND	ND	ND
Total VOCs	- -	ug/L	**190**	**1,500**	**1,900**	**2,500**	**67**	**2,600**	**2,200**	**470**	**5,200**	**4,100**	**2,300**	**5,200**	**790**	**1,800**
trans-1,2-Dichloroethene	5	ug/L	ND	ND	**3.3**	**3.8 J**	ND	ND	ND	ND	ND	**5.8 J**	**5.8**	**8.3 J**	ND	**0.70 J**
trans-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	ug/L	ND	ND	**0.31**	ND	ND	ND	ND	ND	**860**	**1,400**	**530**	**1,400**	**20**	**160**
Trichlorofluoromethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	ug/L	ND	**1.2**	**140**	**250**	ND	ND	ND	ND	**18**	**21**	**6.5**	**26**	ND	**5.2**
Semivolatile Organics																
Naphthalene	10	ug/L	**1.7 J**	ND	**17**	**73**	**1.8 J**	ND	**0.57**	ND	**1.1 J**	**1.8 J**	ND	**2.0 J**	ND	ND
2,4-Dimethylphenol	50	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	20	ug/L	**1.9 J**	ND	**1.9**	**8.4 J**	**0.41 J**	ND	ND	ND	**4.0**	**6.9**	**3.0**	ND	ND	**1.6 J**
Acenaphthylene	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Anthracene	50	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	0.002	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Benzo(a)pyrene	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Benzo(b)fluoranthene	0.002	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Benzo(g,h,i)perylene	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Benzo(k)fluoranthene	0.002	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
bis(2-Ethylhexyl)phthalate	5	ug/L	**5.2**	**1.4 J**	**1.2**	**1.4 J**	**3.4**	**2.3**	ND	ND	**2.1**	ND	ND	ND	**2.8**	ND
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Dibenzo(a,h)anthracene	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Di-n-Butylphthalate	50	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Fluoranthene	50	ug/L	NA	ND	ND	**0.90 J**	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Fluorene	50	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.40 J**	ND	ND
Hexachlorocyclopentadiene	5	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Hexachloroethane	5	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
Nitrobenzene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	- -	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	ND
PheNAnthrene	50	ug/L	**0.36 J**	ND	ND	**0.40 J**	ND	ND	ND	ND	**0.54 J**	**1.2 J**	ND	**1.7 J**	ND	ND
Phenol	1	ug/L	ND	ND	ND	ND	ND	ND	**2.4**	ND	ND	ND	ND	ND	ND	ND
Pyrene	50	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	NA	**8.0**	ND	ND	NA	ND
Total SVOCs	- -	ug/L	**9.2**	**1.4**	**20**	**84**	**5.6**	**2.3**	**3.0**	ND	**7.7**	**18**	**3.0**	**4.0**	**2.8**	**1.6**
General Chemistry																
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-24-D2 32 - 42 08/10/05	MW-24-D2 32 - 42 03/15/06	MW-24-VD 63 - 73 01/09/07	MW-25-D1 16 - 26 10/27/04	MW-25-D1 16 - 26 03/09/05	MW-25-D1 16 - 26 03/15/05	MW-25-D1 16 - 26 08/10/05	MW-25-D1 16 - 26 03/15/06	MW-25-D2 31 - 41 10/27/04	MW-25-D2 31 - 41 03/09/05	MW-25-D2 31 - 41 08/10/05	MW-25-D2 31 - 41 03/15/06	MW-25-VD 63 - 73 01/09/07	MW-26-D1 15 - 25 10/26/04
Volatile Organics																
Benzene	1	ug/L	ND	ND	ND	ND	ND	**15**	**8.6**	NA	**7.5**	ND	**220**	ND	ND [ND]	**2.9**
Toluene	5	ug/L	**0.20**	ND	**1.3 J**	**120**	**16 J**	**23 J**	**12**	NA	**19**	ND	**290**	ND	**0.29 J [0.22 J]**	**0.50**
Ethylbenzene	5	ug/L	ND	ND	ND	ND	ND	**9.5 J**	ND	NA	**10**	ND	ND	ND	ND [ND]	**0.90**
Xylenes (total)	5	ug/L	ND	ND	ND	ND	**21**	**28 J**	**21**	NA	**30**	ND	ND	ND	**0.35** [ND]	**0.80**
Methyl tert-butyl ether	10	ug/L	**220**	**290**	**5.6**	**1,100**	**1,100**	**1,300**	**1,100**	NA	**280**	**2,600**	**3,500**	**3,200 J**	**0.43 J** [ND]	**110**
Naphthalene	10	ug/L	ND	ND	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA
Isopropylbenzene	5	ug/L	ND	ND	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA
1,1,1-Trichloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
1,1,2,2-Tetrachloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
1,1,2-Trichloroethane	1	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
1,1-Dichloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
1,1-Dichloroethene	5	ug/L	ND	ND	ND	ND	ND	**34**	**9.1**	NA	ND	ND	ND	ND	ND [ND]	ND
1,2-Dichlorobenzene	3	ug/L	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	ND	NA	NA	ND
1,2-Dichloroethane	0.6	ug/L	**32**	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	**1.3 [0.88 J]**	ND
1,2-Dichloropropane	1	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
1,3,5-Trimethylbenzene	- -	ug/L	ND	ND	NA	NA	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA
1,3-Dichlorobenzene	3	ug/L	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	ND	NA	NA	ND
1,4-Dichlorobenzene	3	ug/L	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	ND	NA	NA	ND
2-Butanone	50	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [ND]	NA
2-Hexanone	50	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [ND]	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [ND]	NA
Acetone	50	ug/L	NA	NA	**110**	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [ND]	NA
Acrolein	- -	ug/L	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	ND	NA	NA	ND
Acrylonitrile	- -	ug/L	**0.40**	NA	NA	ND	ND	NA	ND	NA	ND	ND	ND	NA	NA	ND
Bromodichloromethane	50	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [ND]	NA
Bromoform	50	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [ND]	NA
Bromomethane	5	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [ND]	NA
Carbon Disulfide	60	ug/L	NA	NA	**6.8 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.8 J [1.3 J]**	NA
Carbon Tetrachloride	5	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [ND]	NA
Chlorobenzene	5	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [ND]	NA
Chloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
Chloroform	7	ug/L	ND	ND	ND	NA	NA	ND	ND	NA	ND	ND	ND	ND	ND [ND]	NA
Chloromethane	5	ug/L	ND	ND	**6.1**	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
cis-1,2-Dichloroethene	5	ug/L	ND	**62**	**7.8**	**6,500**	**5,500**	**10,000**	**5,000**	NA	**820**	**21,000**	**26,000**	**26,000**	**5.1 [4.4]**	**6.2**
cis-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
Dibromochloromethane	50	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
m&p-Xylene	- -	ug/L	ND	ND	NA	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND
Methylene Chloride	5	ug/L	ND	ND	ND	**25,000**	**1,100**	**1,000**	**1,200**	NA	**6,500**	**140,000**	**230,000**	**320,000**	**12 [11]**	**8.4**
n-Butylbenzene	- -	ug/L	ND	ND	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA
n-Propylbenzene	- -	ug/L	ND	ND	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA
o-Xylene	- -	ug/L	ND	ND	NA	ND	ND	NA	ND	NA	ND	ND	ND	ND	NA	ND
p-Isopropyltoluene	- -	ug/L	ND	ND	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA
sec-Butylbenzene	- -	ug/L	ND	ND	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA

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Table D-1
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Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: Sample Depth(Feet): Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-24-D2 32 - 42 08/10/05	MW-24-D2 32 - 42 03/15/06	MW-24-VD 63 - 73 01/09/07	MW-25-D1 16 - 26 10/27/04	MW-25-D1 16 - 26 03/09/05	MW-25-D1 16 - 26 03/15/05	MW-25-D1 16 - 26 08/10/05	MW-25-D1 16 - 26 03/15/06	MW-25-D2 31 - 41 10/27/04	MW-25-D2 31 - 41 03/09/05	MW-25-D2 31 - 41 08/10/05	MW-25-D2 31 - 41 03/15/06	MW-25-VD 63 - 73 01/09/07	MW-26-D1 15 - 25 10/26/04
Volatile Organics (Cont.)																
Styrene	5	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND [ND]	NA
tert-Butylbenzene	- -	ug/L	ND	ND	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	NA	NA
Tertiary butyl alcohol	- -	ug/L	**710**	**860**	ND	ND	**1,900**	**1,900**	**2,000**	NA	ND	ND	ND	**9,600 J**	ND [ND]	**980**
Tetrachloroethene	5	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
Total VOCs	- -	ug/L	**380**	**1,200**	**160**	**110,000**	**13,000**	**17,000**	**10,000**	NA	**19,000**	**660,000**	**760,000**	**1,200,000**	**45 [38]**	**220**
trans-1,2-Dichloroethene	5	ug/L	**0.50**	NA	ND	ND	**51**	**64**	**30**	NA	ND	ND	ND	ND	ND [ND]	ND
trans-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND [ND]	ND
Trichloroethene	5	ug/L	**130**	**20**	**18**	**72,000**	**1,500**	**900**	**410**	NA	**11,000**	**500,000**	**500,000**	**880,000**	**24 [20]**	**88**
Trichlorofluoromethane	5	ug/L	ND	ND	NA	ND	ND	ND	ND	NA	ND	ND	ND	ND	NA	ND
Vinyl Chloride	2	ug/L	ND	ND	ND	ND	**2,300**	**3,100**	**620**	NA	ND	ND	ND	ND	ND [ND]	ND
Semivolatile Organics																
Naphthalene	10	ug/L	ND	ND	NA	**3.9**	**57**	NA	**33**	**63**	ND	ND	**10**	**49**	NA	**1.5 J**
2,4-Dimethylphenol	50	ug/L	ND	ND	NA	**1.6 J**	ND	NA	**2.3**	**2.8 J**	ND	**4.9 J**	**3.6**	**4.0 J**	NA	ND
Acenaphthene	20	ug/L	**0.98**	**0.50 J**	NA	**5.3**	**37**	NA	**31**	**42**	**4.5**	**2.1**	**2.1**	**2.3 J**	NA	ND
Acenaphthylene	- -	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Anthracene	50	ug/L	ND	ND	NA	ND	**1.1 J**	NA	**1.1**	**1.2 J**	**0.38 J**	ND	ND	**0.30 J**	NA	NA
Benzo(a)anthracene	0.002	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Benzo(a)pyrene	- -	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	**1.1**	ND	NA	ND	ND	NA	**1.8**	ND	**4.7**	**1.4 J**	**1.2**	ND	NA	**1.8 J**
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Dibenzo(a,h)anthracene	- -	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Di-n-Butylphthalate	50	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Fluoranthene	50	ug/L	ND	ND	NA	NA	ND	NA	ND	**5.2 J**	NA	ND	ND	ND	NA	NA
Fluorene	50	ug/L	ND	ND	NA	**1.5 J**	**9.6**	NA	**7.4**	ND	**1.9 J**	**0.97 J**	ND	**0.80 J**	NA	NA
Hexachlorocyclopentadiene	5	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Hexachloroethane	5	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Nitrobenzene	0.4	ug/L	ND	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA	ND
Pentachlorophenol	- -	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
PheNAnthrene	50	ug/L	ND	ND	NA	**1.7 J**	**13**	NA	**12**	**12**	**2.3**	**0.85 J**	ND	**0.60 J**	NA	NA
Phenol	1	ug/L	ND	ND	NA	**2.8**	ND	NA	ND	ND	ND	**7.4**	**5.8**	ND	NA	NA
Pyrene	50	ug/L	ND	ND	NA	NA	ND	NA	ND	ND	NA	ND	ND	ND	NA	NA
Total SVOCs	- -	ug/L	**2.1**	**0.50 J**	NA	**17**	**120**	NA	**88**	**130**	**14**	**18**	**23**	**57**	NA	**3.3**
General Chemistry																
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table D-1
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Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-26-D1 15 - 25 03/09/05	MW-26-D1 15 - 25 08/10/05	MW-26-D2 30 - 40 10/26/04	MW-26-D2 30 - 40 03/09/05	MW-26-D2 30 - 40 08/10/05	MW-26-VD 58 - 68 01/09/07	MW-27-D1 18 - 28 10/27/04	MW-27-D1 18 - 28 03/09/05	MW-27-D1 18 - 28 08/10/05	MW-27-D1 18 - 28 03/15/06	MW-27-D2 33 - 43 10/27/04	MW-27-D2 33 - 43 03/09/05	MW-27-D2 33 - 43 08/10/05	MW-27-D2 33 - 43 03/15/06
Volatile Organics																
Benzene	1	ug/L	**7.8**	**7.5**	ND	ND	ND	**0.60 J**	**5.2**	**6.2 J**	**5.2**	**5.4**	**1.0**	**1.9**	**1.7**	ND
Toluene	5	ug/L	**0.50 J**	**0.60**	ND	ND	ND	**2.1**	ND	ND	ND	ND	**2.8**	**1.7**	**2.0**	ND
Ethylbenzene	5	ug/L	**4.5**	**2.8**	ND	ND	ND	**0.52 J**	ND	ND	ND	ND	ND	**13**	**9.3**	**6.6 J**
Xylenes (total)	5	ug/L	**1.1**	**1.1**	**0.40**	ND	ND	**1.5**	**3.7**	ND	ND	ND	**270**	**41**	**43**	**6.6 J**
Methyl tert-butyl ether	10	ug/L	**520**	**640**	**130**	**140**	**120**	ND	**150**	**280**	**240**	**340**	**64**	**85**	**100**	**110**
Naphthalene	10	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
Isopropylbenzene	5	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
1,1,1-Trichloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ug/L	ND	ND	**1.7**	**1.9**	**2.1**	ND	ND	ND	ND	ND	**1.9**	**1.6**	**1.1**	ND
1,1-Dichloroethene	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ug/L	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA
1,2-Dichloroethane	0.6	ug/L	**11**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
1,3-Dichlorobenzene	3	ug/L	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA
1,4-Dichlorobenzene	3	ug/L	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA
Acrylonitrile	- -	ug/L	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA
Chloromethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/L	ND	**12**	**2.7**	**0.60 J**	ND	ND	**520**	**1,700**	**1,100**	**1,200**	**12**	**30**	**45**	**43**
cis-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	50	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	- -	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	5	ug/L	ND	ND	**3.5**	**0.70 J**	ND	ND	ND	ND	**9.0**	ND	ND	ND	**2.5**	**16**
n-Butylbenzene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
n-Propylbenzene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
o-Xylene	- -	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
sec-Butylbenzene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND

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Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-26-D1 15 - 25 03/09/05	MW-26-D1 15 - 25 08/10/05	MW-26-D2 30 - 40 10/26/04	MW-26-D2 30 - 40 03/09/05	MW-26-D2 30 - 40 08/10/05	MW-26-VD 58 - 68 01/09/07	MW-27-D1 18 - 28 10/27/04	MW-27-D1 18 - 28 03/09/05	MW-27-D1 18 - 28 08/10/05	MW-27-D1 18 - 28 03/15/06	MW-27-D2 33 - 43 10/27/04	MW-27-D2 33 - 43 03/09/05	MW-27-D2 33 - 43 08/10/05	MW-27-D2 33 - 43 03/15/06
Volatile Organics (Cont.)																
Styrene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
Tertiary butyl alcohol	- -	ug/L	**1,500**	**2,100**	**660**	**790**	**680**	ND	**1,800**	**4,600**	**3,100**	**2,900**	**310**	**500**	**630**	**1,000**
Tetrachloroethene	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs	- -	ug/L	**2,100**	**2,800**	**880**	**940**	**800**	**5.3**	**2,500**	**6,600**	**4,600**	**4,500**	**660**	**690**	**860**	**1,200**
trans-1,2-Dichloroethene	5	ug/L	ND	**1.2**	ND	ND	ND	ND	ND	**8.3 J**	**7.3**	**8.1 J**	ND	**2.3**	**1.7**	ND
trans-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	ug/L	**0.50 J**	**2.8**	**80**	**15**	**6.1**	**0.59 J**	**9.4**	**77**	**60**	**8.6 J**	**4.0**	**2.5**	**18**	**8.6**
Trichlorofluoromethane	5	ug/L	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	ug/L	**23**	**75**	ND	ND	ND	ND	ND	ND	**15**	**18**	ND	**2.3**	ND	**18**
Semivolatile Organics																
Naphthalene	10	ug/L	**3.0**	ND	ND	ND	ND	NA	**7.4**	ND	ND	ND	**14**	**1.7 J**	ND	ND
2,4-Dimethylphenol	50	ug/L	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	20	ug/L	**37**	**0.62**	ND	ND	ND	NA	ND	**1.8**	ND	ND	ND	ND	ND	ND
Acenaphthylene	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Anthracene	50	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
Benzo(a)anthracene	0.002	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Benzo(a)pyrene	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Benzo(b)fluoranthene	0.002	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Benzo(g,h,i)perylene	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Benzo(k)fluoranthene	0.002	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
bis(2-Ethylhexyl)phthalate	5	ug/L	**1.7 J**	ND	**3.0**	**3.2**	**3.2**	NA	**2.2**	ND	ND	ND	**1.6**	ND	**1.3**	ND
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Dibenzo(a,h)anthracene	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Di-n-Butylphthalate	50	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Fluoranthene	50	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
Fluorene	50	ug/L	ND	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
Hexachlorocyclopentadiene	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Hexachloroethane	5	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Nitrobenzene	0.4	ug/L	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
PheNAnthrene	50	ug/L	ND	**1.7**	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND
Phenol	1	ug/L	**6.2**	ND	NA	ND	ND	NA	NA	ND	ND	ND	NA	**9.9**	ND	ND
Pyrene	50	ug/L	NA	ND	NA	NA	ND	NA	NA	NA	ND	ND	NA	NA	ND	ND
Total SVOCs	- -	ug/L	**48**	**2.3**	**3.0**	**3.2**	**3.2**	NA	**9.6**	**1.8**	ND	ND	**16**	**12**	**1.3**	ND
General Chemistry																
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-28-D1 17.5 - 27.5 10/27/04	MW-28-D1 17.5 - 27.5 03/10/05	MW-28-D1 17.5 - 27.5 08/10/05	MW-28-D1 17.5 - 27.5 03/15/06	MW-28-D2 32.4 - 42.5 10/27/04	MW-28-D2 32.4 - 42.5 03/10/05	MW-28-D2 32.4 - 42.5 08/10/05	MW-28-D2 32.4 - 42.5 03/15/06	MW-29-D1 17 - 27 10/27/04	MW-29-D1 17 - 27 03/10/05	MW-29-D1 17 - 27 08/10/05	MW-29-D1 17 - 27 08/11/05	MW-29-D1 17 - 27 03/15/06	MW-29-D2 32 - 42 10/27/04
Volatile Organics																
Benzene	1	ug/L	**11**	**8.5**	**15**	NA	**0.60 J**	**0.60 J**	**0.40**	ND	**85**	**42**	**74**	NA	**39**	**5.6**
Toluene	5	ug/L	**4.8**	**8.2**	**1.4**	NA	**0.50 J**	**0.30 J**	**0.20**	ND	**1.1 J**	**0.50**	**1.0**	NA	ND	ND
Ethylbenzene	5	ug/L	**2.6**	**4.0**	**3.2**	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Xylenes (total)	5	ug/L	**5.5**	**8.9**	**6.9**	NA	**0.70 J**	**0.30 J**	ND	ND	**2.2**	**1.6**	**2.0**	NA	ND	ND
Methyl tert-butyl ether	10	ug/L	**150**	**380**	**360**	NA	**15**	**9.7**	**6.2**	**6.5**	**650**	**550**	**560**	NA	**390**	**770**
Naphthalene	10	ug/L	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	NA	NA	NA
Isopropylbenzene	5	ug/L	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	NA	NA	NA
1,1,1-Trichloroethane	5	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND
1,1,2-Trichloroethane	1	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
1,1-Dichloroethane	5	ug/L	**0.40 J**	**0.50 J**	**0.50**	NA	**1.6**	**3.0**	**2.3**	ND	ND	ND	ND	NA	ND	ND
1,1-Dichloroethene	5	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
1,2-Dichlorobenzene	3	ug/L	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND
1,2-Dichloroethane	0.6	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
1,2-Dichloropropane	1	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
1,3,5-Trimethylbenzene	- -	ug/L	ND	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	NA	ND	NA
1,3-Dichlorobenzene	3	ug/L	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND
1,4-Dichlorobenzene	3	ug/L	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND
Acrylonitrile	- -	ug/L	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Chloroform	7	ug/L	NA	NA	NA	NA	NA	**0.40 J**	**2.2**	ND	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA
cis-1,2-Dichloroethene	5	ug/L	**12**	**0.90 J**	**2.6**	NA	**1.3**	**0.90 J**	**0.30**	ND	ND	ND	ND	NA	ND	ND
cis-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Dibromochloromethane	50	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND
m&p-Xylene	- -	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Methylene Chloride	5	ug/L	**0.60 J**	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	**6.0**
n-Butylbenzene	- -	ug/L	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	NA	NA	NA
n-Propylbenzene	- -	ug/L	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	NA	NA	NA
o-Xylene	- -	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
p-Isopropyltoluene	- -	ug/L	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	NA	NA	NA
sec-Butylbenzene	- -	ug/L	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	NA	NA	NA

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Table D-1
Summary of Historical Groundwater Sample Analytical Results
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Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-28-D1 17.5 - 27.5 10/27/04	MW-28-D1 17.5 - 27.5 03/10/05	MW-28-D1 17.5 - 27.5 08/10/05	MW-28-D1 17.5 - 27.5 03/15/06	MW-28-D2 32.4 - 42.5 10/27/04	MW-28-D2 32.4 - 42.5 03/10/05	MW-28-D2 32.4 - 42.5 08/10/05	MW-28-D2 32.4 - 42.5 03/15/06	MW-29-D1 17 - 27 10/27/04	MW-29-D1 17 - 27 03/10/05	MW-29-D1 17 - 27 08/10/05	MW-29-D1 17 - 27 08/11/05	MW-29-D1 17 - 27 03/15/06	MW-29-D2 32 - 42 10/27/04
Volatile Organics (Cont.)																
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	NA	NA	NA
Tertiary butyl alcohol	- -	ug/L	**490**	**1,400**	**1,100**	NA	**96**	**80**	**61**	ND	**400**	**210**	**170**	NA	**120 J**	**420**
Tetrachloroethene	5	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Total VOCs	- -	ug/L	**700**	**1,800**	**1,500**	NA	**120**	**95**	**72**	**6.5**	**490**	**810**	**800**	NA	**550**	**1,200**
trans-1,2-Dichloroethene	5	ug/L	ND	**12**	**8.3**	NA	ND	ND	ND	ND	ND	ND	ND	NA	**3.8 J**	ND
trans-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Trichloroethene	5	ug/L	**14**	**2.0**	**0.60**	NA	**2.0**	**0.80 J**	ND	ND	**1.8**	ND	**1.1**	NA	ND	**1.5 J**
Trichlorofluoromethane	5	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Vinyl Chloride	2	ug/L	ND	**6.7**	**7.5**	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND
Semivolatile Organics																
Naphthalene	10	ug/L	ND	**15**	**4.8**	**1.0 J**	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND
2,4-Dimethylphenol	50	ug/L	**2.8**	**2.5 J**	**2.0**	**1.6 J**	ND	ND	ND	ND	NA	ND	NA	ND	ND	NA
Acenaphthene	20	ug/L	**1.7 J**	**43**	**40**	**3.9 J**	**0.37 J**	ND	ND	ND	**0.69 J**	ND	NA	ND	ND	**0.44 J**
Acenaphthylene	- -	ug/L	NA	NA	**0.73**	ND	NA	NA	ND	ND	ND	ND	NA	ND	ND	ND
Anthracene	50	ug/L	NA	**0.87 J**	**0.79**	**0.30 J**	NA	ND	ND	ND	ND	ND	NA	ND	ND	ND
Benzo(a)anthracene	0.002	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
Benzo(a)pyrene	- -	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	**23**	**3.9**	**1.7**	ND	**4.6**	**2.7**	**3.0**	ND	**23**	**1.7 J**	NA	**1.1**	ND	**4.1**
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
Di-n-Butylphthalate	50	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
Fluoranthene	50	ug/L	NA	**0.93 J**	**1.1**	**1.0 J**	NA	ND	ND	ND	NA	ND	NA	ND	ND	NA
Fluorene	50	ug/L	NA	**4.7**	**2.6**	**0.20 J**	NA	ND	ND	ND	ND	ND	NA	ND	ND	ND
Hexachlorocyclopentadiene	5	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
Hexachloroethane	5	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	ND	ND	NA	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
Nitrobenzene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND
Pentachlorophenol	- -	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
PheNAnthrene	50	ug/L	NA	**11**	**7.1**	**0.40 J**	NA	ND	ND	ND	**0.31 J**	ND	NA	ND	ND	ND
Phenol	1	ug/L	NA	ND	ND	ND	NA	ND	ND	ND	ND	ND	NA	ND	ND	ND
Pyrene	50	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	NA	ND	NA	ND	ND	NA
Total SVOCs	- -	ug/L	**28**	**82**	**60**	**8.4**	**4.6**	**2.7**	**3.0**	ND	**24**	**1.7**	NA	**1.1**	ND	**4.1**
General Chemistry																
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table D-1
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Location ID: Sample Depth(Feet): Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-29-D2 32 - 42 03/10/05	MW-29-D2 32 - 42 08/11/05	MW-29-D2 32 - 42 03/15/06	MW-29-VD 54 - 63 01/09/07	MW-30-D1 18 - 28 10/27/04	MW-30-D1 18 - 28 03/10/05	MW-30-D1 18 - 28 08/11/05	MW-30-D1 18 - 28 03/15/06	MW-30-D2 33 - 43 10/27/04	MW-30-D2 33 - 43 03/10/05	MW-30-D2 33 - 43 08/11/05	MW-30-D2 33 - 43 03/15/06	MW-30-VD 73 - 83 01/08/07	MW-31-D1 17.5 - 27.5 10/27/04
Volatile Organics																
Benzene	1	ug/L	**0.50 J**	**1.2**	ND	ND	**1,600**	**2,100**	**1,500**	**1,800**	**18**	**3.0**	**1.1**	**1.1**	**0.52 J**	**75**
Toluene	5	ug/L	ND	**0.40**	ND	**0.43 J**	**7.9**	**10 J**	**9.6**	ND	**0.80**	**0.20 J**	**0.20**	ND	**1.0**	**11**
Ethylbenzene	5	ug/L	ND	ND	ND	ND	**12**	**16 J**	**13**	**13 J**	**0.70 J**	ND	ND	ND	**0.58 J**	**15**
Xylenes (total)	5	ug/L	ND	ND	ND	ND	**16**	**30**	**21**	ND	**3.3**	**0.30 J**	ND	ND	**1.3**	**20**
Methyl tert-butyl ether	10	ug/L	**530**	**480**	**1,500**	**1.3**	**9,100**	**11,000**	**11,000**	**13,000**	**150**	**69**	**37**	**42**	**9.1**	**160**
Naphthalene	10	ug/L	ND	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Isopropylbenzene	5	ug/L	ND	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
1,1,1-Trichloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ug/L	**0.60 J**	**0.70**	**2.2 J**	ND	ND	ND	ND	ND	**1.5**	**1.4**	**1.3**	ND	**0.93 J**	**3.0**
1,1-Dichloroethene	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ug/L	ND	ND	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND
1,2-Dichloroethane	0.6	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	- -	ug/L	ND	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
1,3-Dichlorobenzene	3	ug/L	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND
1,4-Dichlorobenzene	3	ug/L	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND
2-Butanone	50	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
2-Hexanone	50	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
Acetone	50	ug/L	NA	NA	NA	**14**	NA	NA	NA	NA	NA	NA	NA	NA	**14**	NA
Acrolein	- -	ug/L	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND
Acrylonitrile	- -	ug/L	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND
Bromodichloromethane	50	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
Bromoform	50	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
Bromomethane	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	**9.3**	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
Chlorobenzene	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
Chloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	7	ug/L	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	ND	NA
Chloromethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	ug/L	ND	ND	**2.2 J**	ND	ND	ND	ND	ND	**0.30 J**	ND	ND	ND	ND	**6.4**
cis-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	50	ug/L	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	- -	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	5	ug/L	ND	ND	**2.5 J**	ND	ND	ND	ND	ND	ND	ND	ND	**2.5 J**	ND	ND
n-Butylbenzene	- -	ug/L	ND	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
n-Propylbenzene	- -	ug/L	ND	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
o-Xylene	- -	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	- -	ug/L	ND	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
sec-Butylbenzene	- -	ug/L	ND	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA

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Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-29-D2 32 - 42 03/10/05	MW-29-D2 32 - 42 08/11/05	MW-29-D2 32 - 42 03/15/06	MW-29-VD 54 - 63 01/09/07	MW-30-D1 18 - 28 10/27/04	MW-30-D1 18 - 28 03/10/05	MW-30-D1 18 - 28 08/11/05	MW-30-D1 18 - 28 03/15/06	MW-30-D2 33 - 43 10/27/04	MW-30-D2 33 - 43 03/10/05	MW-30-D2 33 - 43 08/11/05	MW-30-D2 33 - 43 03/15/06	MW-30-VD 73 - 83 01/08/07	MW-31-D1 17.5 - 27.5 10/27/04
Volatile Organics (Cont.)																
Styrene	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA
tert-Butylbenzene	- -	ug/L	ND	ND	ND	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Tertiary butyl alcohol	- -	ug/L	**620**	**610**	**720**	ND	ND	**190 J**	ND	**470 J**	**210**	**330**	ND	**450**	**120**	**420**
Tetrachloroethene	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs	- -	ug/L	**1,100**	**1,100**	**2,300**	**16**	**11,000**	**14,000**	**13,000**	**15,000**	**390**	**410**	**40**	**550**	**23**	**710**
trans-1,2-Dichloroethene	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5	ug/L	**1.1**	**0.70**	**49**	ND	ND	ND	ND	ND	**7.0**	**0.80 J**	ND	**54**	ND	**0.50**
Trichlorofluoromethane	5	ug/L	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND
Vinyl Chloride	2	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organics																
Naphthalene	10	ug/L	ND	ND	NA	NA	**650**	**890**	**900**	ND	**12**	ND	ND	ND	NA	**290**
2,4-Dimethylphenol	50	ug/L	ND	ND	NA	NA	NA	**2.6 J**	ND	ND	NA	ND	ND	ND	NA	NA
Acenaphthene	20	ug/L	ND	ND	NA	NA	**44**	**86**	**80**	**77**	**1.1 J**	ND	ND	ND	NA	**160**
Acenaphthylene	- -	ug/L	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	NA	**1.0**
Anthracene	50	ug/L	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	NA	**2.0**
Benzo(a)anthracene	0.002	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Benzo(a)pyrene	- -	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	**2.4**	**4.1**	NA	NA	**2.4**	**1.5 J**	**3.6**	ND	**2.7**	**1.9 J**	**1.7**	ND	NA	**2.3**
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Dibenzo(a,h)anthracene	- -	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Di-n-Butylphthalate	50	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Fluoranthene	50	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Fluorene	50	ug/L	ND	ND	NA	NA	**6.5**	**15**	**16**	**19 J**	ND	ND	ND	ND	NA	**31**
Hexachlorocyclopentadiene	5	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Hexachloroethane	5	ug/L	ND	ND	NA	NA	ND	ND	ND	ND	**5.3**	ND	ND	ND	NA	ND
Indeno(1,2,3-cd)pyrene	0.002	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Nitrobenzene	0.4	ug/L	ND	ND	NA	NA	ND	ND	ND	**5.2**	ND	ND	ND	ND	NA	ND
Pentachlorophenol	- -	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
PheNAnthrene	50	ug/L	ND	ND	NA	NA	**3.3**	**6.4**	**4.8**	**880**	**0.46 J**	ND	ND	ND	NA	**17**
Phenol	1	ug/L	ND	ND	NA	NA	**6.1**	ND	**1.3**	ND	ND	ND	ND	ND	NA	**1.8**
Pyrene	50	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA
Total SVOCs	- -	ug/L	**2.4**	**4.1**	NA	NA	**720**	**1,000**	**1,000**	**980**	**21**	**1.9**	**1.7**	ND	NA	**500**
General Chemistry																
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-31-D1 17.5 - 27.5 03/10/05	MW-31-D1 17.5 - 27.5 08/10/05	MW-31-D2 32.5 - 42.5 10/27/04	MW-31-D2 32.5 - 42.5 03/10/05	MW-31-D2 32.5 - 42.5 08/10/05	MW-32D 24 - 34 01/08/07	MW-33D 18 - 28 01/09/07	MW-34D 23 - 33 01/08/07	MW-35D 16 - 26 01/08/07	MW-36D 24 - 34 01/09/07	MW-DR 15.05 08/20/02	P-01 5.95 08/20/02	P-02 5.19 08/20/02	P-03 6.15 08/20/02	P-04 5.46 08/20/02	P-05 - - 08/20/02
Volatile Organics																		
Benzene	1	ug/L	**130**	**130**	**8.4**	ND	ND	**11**	ND	**70**	**2.7**	ND	NA	ND	ND	ND	**1.9**	**18**
Toluene	5	ug/L	**24**	**24**	**0.40**	ND	ND	**0.43 J**	**0.44 J**	**2.2**	**0.60 J**	**0.36 J**	NA	ND	ND	ND	ND	**0.87**
Ethylbenzene	5	ug/L	**33**	**33**	**0.60**	ND	ND	**0.28 J**	**0.41 J**	**0.87 J**	**0.31 J**	ND	NA	ND	ND	ND	**9.6**	**2.4**
Xylenes (total)	5	ug/L	**49**	**49**	**1.0**	ND	ND	**0.90 J**	**0.39**	**3.6**	**0.48 J**	ND	NA	ND	ND	ND	**0.62**	**2.0**
Methyl tert-butyl ether	10	ug/L	**180**	**180**	**18**	**0.30 J**	**0.32 J**	**80**	**3.6**	**9.8**	**3.6**	**180**	NA	ND	**0.34**	**0.48**	**0.91**	**8.2**
Naphthalene	10	ug/L	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	5	ug/L	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ug/L	**3.5**	ND	**1.3**	ND	ND	ND	**0.25 J**	ND	ND	ND	NA	ND	ND	ND	ND	ND
1,1-Dichloroethene	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ug/L	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.6	ug/L	ND	ND	ND	ND	ND	**2.1**	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	3	ug/L	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ug/L	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	ND	**2.7 J**	ND	ND	ND	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	ND	**3.0 J**	**3.9 J**	**3.7 J**	**40**	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Acrylonitrile	- -	ug/L	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	**9.9**	**0.69 J**	**0.46 J**	**2.3**	**15**	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	5	ug/L	**14 J**	**14**	**0.40**	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
Dibromochloromethane	50	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
m&p-Xylene	- -	ug/L	ND	ND	ND	ND	ND	ND	ND	**3.0**	**0.48 J**	ND	NA	NA	NA	NA	NA	NA
Methylene Chloride	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
n-Butylbenzene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	ug/L	ND	ND	ND	ND	ND	ND	ND	**0.64 J**	ND	ND	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	MW-31-D1 17.5 - 27.5 03/10/05	MW-31-D1 17.5 - 27.5 08/10/05	MW-31-D2 32.5 - 42.5 10/27/04	MW-31-D2 32.5 - 42.5 03/10/05	MW-31-D2 32.5 - 42.5 08/10/05	MW-32D 24 - 34 01/08/07	MW-33D 18 - 28 01/09/07	MW-34D 23 - 33 01/08/07	MW-35D 16 - 26 01/08/07	MW-36D 24 - 34 01/09/07	MW-DR 15.05 08/20/02	P-01 5.95 08/20/02	P-02 5.19 08/20/02	P-03 6.15 08/20/02	P-04 5.46 08/20/02	P-05 - - 08/20/02
Volatile Organics (Cont.)																		
Styrene	5	ug/L	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	ND	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	ug/L	**470**	**470**	**73**	ND	ND	ND	**160**	ND	ND	**250**	NA	ND	ND	ND	ND	**21**
Tetrachloroethene	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
Total VOCs	- -	ug/L	**900**	**900**	**100**	**1.1**	ND	**110**	**170**	**91**	**14**	**490**	NA	ND	**0.30**	**0.50**	**11**	**52**
trans-1,2-Dichloroethene	5	ug/L	**0.60**	**0.56 J**	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
Trichloroethene	5	ug/L	ND	ND	**0.90**	**0.80 J**	ND	ND	ND	ND	ND	**1.6**	NA	ND	ND	ND	ND	ND
Trichlorofluoromethane	5	ug/L	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND
Vinyl Chloride	2	ug/L	**6.3**	**6.3**	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
Semivolatile Organics																		
Naphthalene	10	ug/L	**97**	NA	**5.2**	ND	NA	NA	NA	NA	NA	NA	**0.56**	ND	ND	ND	**4.7**	ND
2,4-Dimethylphenol	50	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	NA	NA
Acenaphthene	20	ug/L	**410 a**	NA	**1.1**	ND	NA	NA	NA	NA	NA	NA	**2.1**	ND	**1.4**	ND	**5.3**	**2.0**
Acenaphthylene	- -	ug/L	**4.6**	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	50	ug/L	**2.5**	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	**2.1**	ND
Benzo(a)anthracene	0.002	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	**0.80**	ND
Benzo(a)pyrene	- -	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	ND	NA	**10**	**5.4**	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	**0.70**	ND
Dibenzo(a,h)anthracene	- -	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	50	ug/L	**6.2**	NA	NA	ND	NA	NA	NA	NA	NA	NA	**1.1**	ND	ND	NA	NA	NA
Fluoranthene	50	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	**4.1**	**1.1**
Fluorene	50	ug/L	**100**	NA	ND	ND	NA	NA	NA	NA	NA	NA	**1.5**	ND	**0.57**	ND	**6.8**	**2.5**
Hexachlorocyclopentadiene	5	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	0.4	ug/L	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
Pentachlorophenol	- -	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	ND	NA	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	**12**	**2.1**
Phenol	1	ug/L	**51**	NA	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	NA	NA
Pyrene	50	ug/L	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	**3.0**	**0.87**
Total SVOCs	- -	ug/L	**670**	NA	**17**	**5.4**	NA	NA	NA	NA	NA	NA	**5.3**	ND	**2.0**	ND	**39**	**8.6**
General Chemistry																		
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																		
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	P-05R 5.61 03/05/03	P-05R 5.61 06/03/03	P-05R 5.61 02/11/04	P-05R 5.61 05/20/04	P-05R 5.61 10/26/04	P-05R 5.61 03/10/05	P-07 5.4 08/20/02	P-08 6.15 08/20/02	P-09 4.97 04/30/02	P-09 4.97 08/20/02	P-11 5.6 08/20/02	P-11 5.6 03/05/03	P-11 5.6 02/11/04	P-11 5.6 10/26/04	P-11 5.6 03/10/05	P-13 5.45 08/20/02	P-14 5.4 08/20/02
Volatile Organics																			
Benzene	1	ug/L	**190**	**180**	**89**	**180**	**87**	**200**	**27**	**26**	**530**	**190**	**750**	**1,500**	**1,900**	**3,300**	**1,300**	**160**	**240**
Toluene	5	ug/L	**2.6**	**2.3**	**1.6**	**2.6**	**2.5**	**2.5**	ND	**0.88**	**6.6**	**3.3**	**2.6**	**10**	**11**	**19**	**7.5**	**5.7**	**910**
Ethylbenzene	5	ug/L	**35**	**61**	**3.6**	**28**	**6.7**	**21**	ND	**1.5**	**11**	**6.3**	ND	**8.0**	**12**	**15**	**12**	**31**	**610**
Xylenes (total)	5	ug/L	**8.8**	**12**	**4.3**	**5.5**	**4.3**	**5.1**	ND	**3.1**	**22**	**12**	**1.8**	**9.6**	**17**	**22**	**18**	**25**	ND
Methyl tert-butyl ether	10	ug/L	**59**	**40**	**29**	**56**	**70**	**50**	**3.0**	**18**	NA	**80**	**210**	**350**	**310**	**320**	**130**	**94**	ND
Naphthalene	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	5	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
1,1,2-Trichloroethane	1	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
1,1-Dichloroethane	5	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
1,1-Dichloroethene	5	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
1,2-Dichlorobenzene	3	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
1,2-Dichloroethane	0.6	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
1,2-Dichloropropane	1	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	3	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
Acrylonitrile	- -	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	5	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
Dibromochloromethane	50	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
m&p-Xylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	5	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
n-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	P-05R 5.61 03/05/03	P-05R 5.61 06/03/03	P-05R 5.61 02/11/04	P-05R 5.61 05/20/04	P-05R 5.61 10/26/04	P-05R 5.61 03/10/05	P-07 5.4 08/20/02	P-08 6.15 08/20/02	P-09 4.97 04/30/02	P-09 4.97 08/20/02	P-11 5.6 08/20/02	P-11 5.6 03/05/03	P-11 5.6 02/11/04	P-11 5.6 10/26/04	P-11 5.6 03/10/05	P-13 5.45 08/20/02	P-14 5.4 08/20/02
Volatile Organics (Cont.)																			
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	ug/L	ND	ND	ND	**97**	**33**	**26**	ND	**37**	NA	**350**	**120**	ND	ND	ND	ND	**120**	ND
Tetrachloroethene	5	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
Total VOCs	- -	ug/L	**290**	**300**	**130**	**370**	**200**	**310**	**30**	**85**	**570**	**640**	**1,100**	**1,900**	**2,200**	**3,700**	**1,500**	**430**	**1,800**
trans-1,2-Dichloroethene	5	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
Trichloroethene	5	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND
Trichlorofluoromethane	5	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	NA	ND	ND	NA	NA	NA	NA	ND	ND
Vinyl Chloride	2	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND
Semivolatile Organics																			
Naphthalene	10	ug/L	**17**	**15**	**1.9**	**7.9**	ND	ND	ND	ND	NA	**1.2**	ND	ND	**11**	**1.8 J**	**5.3**	**9.9**	**390**
2,4-Dimethylphenol	50	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	ND	ND	NA	NA	**1.1**	ND	**17**
Acenaphthene	20	ug/L	**1.2**	**1.2**	**0.72**	**1.3**	**1.3 J**	**1.4 J**	**5.4**	**13**	NA	**18**	**2.0**	**2.0**	**6.8**	**1.8**	**2.5**	**6.8**	**8.9**
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Anthracene	50	ug/L	NA	NA	ND	NA	ND	ND	ND	**1.4**	NA	ND	ND	NA	**2.5**	**0.58**	**0.56**	**1.0**	ND
Benzo(a)anthracene	0.002	ug/L	NA	ND	ND	NA	NA	ND	ND	ND	NA	ND	NA	NA	**1.9**	NA	ND	NA	NA
Benzo(a)pyrene	- -	ug/L	NA	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	**1.5**	NA	ND	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	**2.1**	NA	ND	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	**1.7**	NA	ND	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	ND	**2.9**	NA	ND	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	ND	ND	ND	NA	NA	ND	ND	ND	NA	ND	NA	**0.63**	**1.7**	NA	ND	NA	NA
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Di-n-Butylphthalate	50	ug/L	**1.5**	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA
Fluoranthene	50	ug/L	ND	ND	ND	NA	NA	ND	**0.76**	**1.9**	NA	**0.66**	**0.96**	**1.8**	**7.6**	NA	**1.0 J**	**1.4**	ND
Fluorene	50	ug/L	**1.5**	**1.3**	**0.64**	**1.1**	ND	**1.3 J**	**3.5**	**7.2**	NA	**6.6**	**3.0**	**8.3**	**11**	**2.4**	**3.6**	**3.9**	**5.8**
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA
Nitrobenzene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	- -	ug/L	NA	NA	**1.2**	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA
PheNAnthrene	50	ug/L	**0.98**	ND	ND	ND	ND	**0.70 J**	**1.1**	**10**	NA	**2.1**	**5.7**	**10**	**21**	**3.2**	**5.1**	**4.3**	**6.0**
Phenol	1	ug/L	ND	**1.7**	ND	**2.5**	**2.1 J**	**2.2 J**	NA	NA	NA	NA	**3.7**	**12**	**9.7**	**11**	**8.2**	ND	ND
Pyrene	50	ug/L	ND	NA	ND	ND	NA	ND	**0.62**	**1.2**	NA	**0.60**	**0.77**	**1.7**	**6.0**	NA	**0.81 J**	**1.0**	ND
Total SVOCs	- -	ug/L	**22**	**20**	**4.5**	**13**	**3.4**	**5.6**	**11**	**35**	NA	**29**	**16**	**36**	**87**	**21**	**28**	**28**	**430**
General Chemistry																			
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																			
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	P-14 5.4 03/05/03	P-14 5.4 06/03/03	P-14 5.4 05/20/04	P-14 5.4 10/26/04	P-14 5.4 03/10/05	P-15 5 08/20/02	P-15 5 03/05/03	P-15 5 06/03/03	P-15 5 05/20/04	P-15 5 10/26/04	P-15 5 03/10/05	P-17 - - 08/20/02	P-18 5 04/30/02	P-18 5 08/20/02	P-18 5 03/05/03	P-18 5 06/03/03	P-18 5 02/11/04
Volatile Organics																			
Benzene	1	ug/L	**38**	**34**	**50**	**120**	**43**	**1,100**	**300**	**230**	**30**	**24**	**13**	ND	**1,400**	**740**	**470**	**360**	**120**
Toluene	5	ug/L	**99**	**110**	**79**	**330**	**350**	**1,900**	**220**	**84**	**14**	**6.1**	**0.38 J**	ND	**380**	**380**	**140**	**44**	**9.9**
Ethylbenzene	5	ug/L	**130**	**130**	**150**	**240**	**110**	**300**	**160**	**98**	**7.7**	**2.2**	ND	ND	**390**	**470**	**420**	**210**	**80**
Xylenes (total)	5	ug/L	**390**	**390**	**280**	**420**	**210**	**770**	**1,000**	ND	**22**	**3.1**	**0.23 J**	ND	**460**	**1,500**	**730**	**350**	**27**
Methyl tert-butyl ether	10	ug/L	**29**	**13**	**32**	**33**	**15**	**210**	**420**	**130**	**88**	**41**	**6.5**	ND	NA	**790**	**290**	**270**	**72**
Naphthalene	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**45**	NA	NA	NA	NA
Isopropylbenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	5	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
1,1-Dichloroethane	5	ug/L	NA	NA	ND	NA	**9.3**	NA	**4.7**	NA	ND	NA	NA	ND	NA	ND	**4.7**	NA	NA
1,1-Dichloroethene	5	ug/L	**6.0**	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
1,2-Dichlorobenzene	3	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
1,2-Dichloropropane	1	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	3	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
Acrylonitrile	- -	ug/L	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	5	ug/L	**3,400**	**95**	**350**	**2,200**	**3,800**	**34,000**	**1,800**	**190**	**290**	**200**	**5.6**	ND	ND	**13,000**	**4,500**	**140**	NA
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
Dibromochloromethane	50	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
m&p-Xylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	5	ug/L	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
n-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	P-14 5.4 03/05/03	P-14 5.4 06/03/03	P-14 5.4 05/20/04	P-14 5.4 10/26/04	P-14 5.4 03/10/05	P-15 5 08/20/02	P-15 5 03/05/03	P-15 5 06/03/03	P-15 5 05/20/04	P-15 5 10/26/04	P-15 5 03/10/05	P-17 - - 08/20/02	P-18 5 04/30/02	P-18 5 08/20/02	P-18 5 03/05/03	P-18 5 06/03/03	P-18 5 02/11/04
Volatile Organics (Cont.)																			
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	ug/L	ND	NA	ND	ND	ND	ND	ND	**270**	**120**	**85**	**31**	ND	NA	ND	ND	**180**	**60**
Tetrachloroethene	5	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
Total VOCs	- -	ug/L	**5,200**	**930**	**650**	**4,400**	**4,800**	**57,000**	**4,900**	**1,100**	**10,000**	**610**	**90**	ND	**2,700**	**26,000**	**8,900**	**1,800**	**370**
trans-1,2-Dichloroethene	5	ug/L	**24**	**7.8**	**3.1**	NA	NA	NA	NA	NA	ND	**0.78**	NA	ND	ND	ND	**11**	**11**	NA
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
Trichloroethene	5	ug/L	**210**	NA	**52**	NA	**11**	**9,400**	NA	NA	**9,400**	NA	NA	ND	ND	ND	**4.7**	**90**	NA
Trichlorofluoromethane	5	ug/L	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	NA
Vinyl Chloride	2	ug/L	**890**	**150**	**400**	**1,100**	**210**	**8,700**	**1,000**	**140**	**250**	**250**	**34**	ND	ND	**9,900**	**2,300**	**200**	NA
Semivolatile Organics																			
Naphthalene	10	ug/L	**52**	**53**	**50**	**68**	**22**	**130**	**30**	**20**	ND	ND	ND	**1.9**	NA	**140**	**67**	**42**	**13**
2,4-Dimethylphenol	50	ug/L	**17**	NA	NA	NA	ND	**2.3**	ND	NA	NA	NA	ND	ND	NA	**5.1**	**2.5**	NA	NA
Acenaphthene	20	ug/L	**5.5**	**6.0**	**8.4**	**8.0**	**4.7**	**20**	**3.3**	**4.4**	**3.7**	**2.9**	**2.5**	ND	NA	**8.9**	**2.3**	**2.3**	**0.55**
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
Anthracene	50	ug/L	NA	NA	NA	**0.59 J**	ND	ND	NA	NA	NA	ND	ND	ND	NA	ND	NA	NA	ND
Benzo(a)anthracene	0.002	ug/L	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	**0.96**	ND
Benzo(a)pyrene	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	**0.98**	ND
Benzo(b)fluoranthene	0.002	ug/L	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	**1.5**	ND
Benzo(g,h,i)perylene	- -	ug/L	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	**0.69**	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	**0.77**	ND
bis(2-Ethylhexyl)phthalate	5	ug/L	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	NA	NA	**2.0**	NA	**1.5**
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	**1.4**	ND
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	50	ug/L	NA	NA	ND	NA	ND	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	ND	ND	NA	NA	ND	ND	ND	ND	NA	NA	ND	ND	NA	ND	**0.86**	**3.6**	ND
Fluorene	50	ug/L	**1.7**	**1.9**	**3.0**	**4.2**	**1.7 J**	**5.6**	**1.1**	**1.3**	**1.5**	ND	ND	**8.9**	NA	**6.5**	**1.3**	**1.6**	ND
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
Nitrobenzene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	ND
PheNAnthrene	50	ug/L	**1.3**	ND	**0.96**	**2.6**	**0.67 J**	ND	ND	ND	ND	ND	ND	**1.5**	NA	**1.0**	**0.90**	**2.7**	ND
Phenol	1	ug/L	ND	ND	ND	ND	ND	ND	ND	**1.4**	ND	ND	ND	ND	NA	ND	ND	**15**	ND
Pyrene	50	ug/L	ND	NA	ND	NA	ND	ND	ND	NA	ND	NA	ND	ND	NA	ND	**0.58**	NA	ND
Total SVOCs	- -	ug/L	**77**	**61**	**62**	**83**	**29**	**160**	**34**	**27**	**5.2**	**2.9**	**2.5**	**12**	NA	**160**	**78**	**73**	**15**
General Chemistry																			
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																			
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	P-18 5 05/20/04	P-18 5 10/26/04	P-18 5 03/09/05	P-18 5 08/10/05	P-19 4.03 04/30/02	P-19 4.03 08/20/02	P-19 4.03 03/19/03	P-19 4.03 06/03/03	P-19 4.03 02/11/04	P-19 4.03 05/20/04	P-19 4.03 10/26/04	P-19 4.03 03/09/05	P-19 4.03 03/10/05	P-20 5 08/20/02	P-21 4 08/20/02	P-22 4.5 08/20/02	P-23 5.15 08/20/02
Volatile Organics																			
Benzene	1	ug/L	**110**	**200**	**170**	**180**	**15**	**220**	**260**	**420**	**150**	**170**	**170**	NA	**140**	**57**	**46**	**45**	**50**
Toluene	5	ug/L	**14**	**16**	**22**	**26**	**150**	**220**	**220**	**450**	**14**	**13**	**82**	NA	**44**	**220**	**220**	**12**	**2.0**
Ethylbenzene	5	ug/L	**26**	**23**	**34**	**18**	**390**	**76**	**55**	**120**	**86**	**54**	**53**	NA	**10**	ND	ND	**2.5**	ND
Xylenes (total)	5	ug/L	**22**	**17**	**32**	**20**	**70**	**140**	**68**	**230**	**24**	**54**	**34**	NA	**27**	**140**	**140**	**6.3**	**1.8**
Methyl tert-butyl ether	10	ug/L	**88**	**120**	**230 a**	**140**	NA	**990**	**1,200**	**4,900**	**110**	**62**	**900**	NA	**410 a**	**61**	**120**	**150**	**150**
Naphthalene	10	ug/L	NA	NA	NA	NA	**8.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	5	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
1,1-Dichloroethane	5	ug/L	ND	NA	**0.64 J**	**0.59**	NA	ND	NA	**68**	NA	ND	NA	NA	NA	ND	ND	ND	ND
1,1-Dichloroethene	5	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
1,2-Dichloroethane	0.6	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
1,2-Dichloropropane	1	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	3	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND
Acrylonitrile	- -	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA	ND	ND
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	5	ug/L	**2.5**	NA	**7.0**	**5.7**	ND	**11,000**	**20,000**	**79,000**	**7.2**	**1.9**	**3,300**	NA	**170**	**2.0**	**1.2**	**0.66**	**170**
cis-1,3-Dichloropropene	0.4	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
Dibromochloromethane	50	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
m&p-Xylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	5	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
n-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table D-1
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Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	P-18 5 05/20/04	P-18 5 10/26/04	P-18 5 03/09/05	P-18 5 08/10/05	P-19 4.03 04/30/02	P-19 4.03 08/20/02	P-19 4.03 03/19/03	P-19 4.03 06/03/03	P-19 4.03 02/11/04	P-19 4.03 05/20/04	P-19 4.03 10/26/04	P-19 4.03 03/09/05	P-19 4.03 03/10/05	P-20 5 08/20/02	P-21 4 08/20/02	P-22 4.5 08/20/02	P-23 5.15 08/20/02
Volatile Organics (Cont.)																			
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	ug/L	**120**	**110**	**200**	**130**	NA	ND	**1,300**	**2,600**	**80**	**64**	**700**	NA	**1,400 a**	**1,600 a**	**430**	**500**	**260**
Tetrachloroethene	5	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
Total VOCs	- -	ug/L	**390**	**480**	**500**	**610**	**7,900**	**20,000**	**27,000**	**110,000**	**480**	**420**	**7,800**	NA	**2,500**	**490**	**970**	**710**	**630**
trans-1,2-Dichloroethene	5	ug/L	**0.42**	**0.74**	**2.9**	**3.1**	**7,200**	ND	NA	**100**	**1.8**	**0.96**	**9.8 J**	NA	**1.5**	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.4	ug/L	ND	NA	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
Trichloroethene	5	ug/L	ND	NA	**1.5**	NA	ND	ND	**780**	NA	NA	ND	NA	NA	NA	ND	ND	ND	ND
Trichlorofluoromethane	5	ug/L	ND	NA	NA	NA	NA	ND	NA	**69**	NA	ND	NA	NA	NA	ND	ND	ND	ND
Vinyl Chloride	2	ug/L	**7.4**	NA	**31**	**89**	ND	**8,100**	**3,500**	**21,000**	**15**	**3.5**	**2,600**	NA	**330 a**	**2.0**	**4.8**	**1.1**	**260 a**
Semivolatile Organics																			
Naphthalene	10	ug/L	**7.4**	ND	ND	ND	NA	**29**	**21**	**18**	**4.3**	**4.3**	ND	ND	NA	ND	ND	**0.83**	ND
2,4-Dimethylphenol	50	ug/L	NA	NA	ND	ND	NA	NA	ND	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Acenaphthene	20	ug/L	**2.0**	**1.6**	**1.3**	**2.1**	NA	**18**	**10**	**12**	**6.6**	**7.0**	**5.1**	**4.3**	NA	**6.7**	**28**	**33**	**1.4**
Acenaphthylene	- -	ug/L	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Anthracene	50	ug/L	NA	ND	ND	ND	NA	ND	NA	NA	ND	NA	ND	ND	NA	ND	**0.61**	**1.4**	ND
Benzo(a)anthracene	0.002	ug/L	NA	NA	ND	ND	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA
Benzo(a)pyrene	- -	ug/L	NA	NA	ND	ND	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	ND	ND	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	ND	ND	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	ND	ND	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	ND	ND	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	NA	ND	ND	NA	NA	NA	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Di-n-Butylphthalate	50	ug/L	ND	NA	ND	ND	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	NA	NA	ND	ND	NA	NA	ND	ND	ND	NA	NA	ND	NA	NA	NA	NA	NA
Fluorene	50	ug/L	**2.0**	**1.9**	**1.3 J**	**2.5**	NA	**9.1**	**4.5**	**5.7**	**3.2**	**2.5**	**2.9**	**2.0**	NA	**2.6**	**13**	**13**	ND
Hexachlorocyclopentadiene	5	ug/L	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Nitrobenzene	0.4	ug/L	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Pentachlorophenol	- -	ug/L	NA	NA	ND	ND	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	ND	ND	ND	ND	NA	NA	ND	ND	**0.74**	ND	ND	ND	NA	NA	NA	NA	NA
Phenol	1	ug/L	ND	ND	ND	ND	NA	ND	ND	**4.3**	ND	ND	ND	ND	NA	**3.5**	ND	ND	ND
Pyrene	50	ug/L	ND	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA	ND	NA	ND	ND	**0.65**	ND
Total SVOCs	- -	ug/L	**11**	**3.5**	**2.6**	**4.6**	NA	**56**	**36**	**41**	**15**	**14**	**8.0**	ND	NA	**13**	**41**	**49**	**1.4**
General Chemistry																			
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																			
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	P-24 3.2 03/19/03	P-26 5.63 08/20/02	P-26 5.63 03/19/03	P-26 5.63 06/03/03	P-26 5.63 05/20/04	P-26 5.63 10/26/04	P-26 5.63 08/10/05	P-28 5.58 08/20/02	TP-01 - - 09/10/96	TP-01 - - 09/13/96	TP-01 - - 04/26/97	TP-01 - - 01/27/98	TP-01 - - 04/09/98	TP-01 - - 11/02/01	TP-04 4.8 09/10/96	TP-04 4.8 04/26/97	TP-04 4.8 01/27/98
Volatile Organics																			
Benzene	1	ug/L	**12**	**860**	NA	**640**	NA	**110**	**150**	**6.1**	NA	**3.4**	**4.6**	NA	**1.5**	ND	NA	**10 [8.8]**	NA
Toluene	5	ug/L	**1.8**	**210**	NA	**20**	NA	**2.7**	**19**	**0.62**	NA	ND	ND	NA	ND	ND	ND	ND [ND]	NA
Ethylbenzene	5	ug/L	**0.58**	ND	NA	**34**	NA	**56**	**27**	ND	NA	**1.2**	**2.8**	NA	**0.20 J**	ND	**1.6**	**1.2 [1.1]**	NA
Xylenes (total)	5	ug/L	**1.7**	**810**	NA	**37**	NA	**12**	**15**	**1.2**	NA	**3.4**	ND	NA	**0.80 J**	ND	**4.6**	**7.1 [5.7]**	NA
Methyl tert-butyl ether	10	ug/L	**300**	**630**	NA	**210**	NA	**100**	**150**	**25**	NA	**16**	**2.1**	NA	**0.70 J**	ND	**13**	**5.0 [5.1]**	NA
Naphthalene	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.3**	**5.7**	NA	**1.3**	ND	ND	ND [ND]	NA
Isopropylbenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	**1.8**	NA	**0.30 J**	NA	ND	ND [ND]	NA
1,1,1-Trichloroethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	5	ug/L	NA	ND	NA	NA	NA	NA	**0.63**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	1	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	NA	ND	ND [ND]	NA
1,3-Dichlorobenzene	3	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	- -	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	5	ug/L	**110**	**130**	NA	**20**	NA	NA	**33**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	0.4	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	50	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.4**	ND	NA	ND	ND	**4.6**	**7.1 [5.7]**	NA
Methylene Chloride	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	NA	ND	ND [ND]	NA
n-Propylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	**2.3**	NA	**0.20 J**	NA	ND	ND [ND]	NA
o-Xylene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	**0.80 J**	ND	ND	ND [ND]	NA
p-Isopropyltoluene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	NA	ND	ND [ND]	NA
sec-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	**0.30 J**	NA	ND	ND [ND]	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	P-24 3.2 03/19/03	P-26 5.63 08/20/02	P-26 5.63 03/19/03	P-26 5.63 06/03/03	P-26 5.63 05/20/04	P-26 5.63 10/26/04	P-26 5.63 08/10/05	P-28 5.58 08/20/02	TP-01 - - 09/10/96	TP-01 - - 09/13/96	TP-01 - - 04/26/97	TP-01 - - 01/27/98	TP-01 - - 04/09/98	TP-01 - - 11/02/01	TP-04 4.8 09/10/96	TP-04 4.8 04/26/97	TP-04 4.8 01/27/98
Volatile Organics (Cont.)																			
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	NA	ND	ND [ND]	NA
Tertiary butyl alcohol	- -	ug/L	**380**	**480**	NA	**450**	NA	**130**	**120**	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA
Tetrachloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total VOCs	- -	ug/L	**920**	**3,400**	NA	**1,400**	NA	**410**	**610**	**33**	NA	**30**	**19**	NA	**5.3**	0	**19**	**23 [21]**	NA
trans-1,2-Dichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	**2.7**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	0.4	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5	ug/L	NA	ND	NA	NA	NA	NA	**0.63**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	5	ug/L	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2	ug/L	**120**	**300**	NA	NA	NA	NA	**94**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics																			
Naphthalene	10	ug/L	ND	**77**	**10**	**3.1**	**7.7**	**9.9**	ND	NA	ND	NA	NA	ND	NA	NA	ND	NA	ND
2,4-Dimethylphenol	50	ug/L	ND	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	ug/L	ND	**26**	**15**	**20**	**9.0**	**9.7**	**12**	**14**	ND	NA	NA	ND	NA	NA	ND	NA	ND
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	ND	NA	NA
Anthracene	50	ug/L	NA	ND	NA	NA	NA	ND	ND	**1.8**	ND	NA	NA	ND	NA	NA	ND	NA	ND
Benzo(a)anthracene	0.002	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	**1.0 J**	NA	NA	ND	NA	**1.0 J**
Benzo(a)pyrene	- -	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	**2.0 J**	NA	NA	ND	NA	**2.0 J**
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	**3.0 J**	NA	NA	ND	NA	**3.0 J**
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	**2.0 J**	NA	NA	ND	NA	**2.0 J**
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	NA	ND	NA	NA	ND	NA	ND	NA	NA	**1.0 J**	NA	NA	ND	NA	ND
bis(2-Ethylhexyl)phthalate	5	ug/L	ND	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	**3.0 J**	NA	NA	ND	NA	**2.0 J**
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	NA	NA	ND	NA	ND	NA	NA	ND	NA	NA	ND	NA	ND
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	**2.4**	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	ND	NA	ND	ND	NA	NA	ND	**1.8**	ND	NA	NA	**4.0 J**	NA	NA	ND	NA	**3.0 J**
Fluorene	50	ug/L	ND	**9.2**	**3.5**	**5.0**	**1.1**	**1.1**	ND	**11**	ND	NA	NA	ND	NA	NA	ND	NA	ND
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	NA	**2.0 J**	NA	NA	NA	NA	ND
Nitrobenzene	0.4	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	NA	NA	ND	NA	ND
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	ND	NA	ND	ND	ND	ND	ND	**4.6**	ND	NA	NA	ND	NA	NA	ND	NA	ND
Phenol	1	ug/L	ND	ND	**6.7**	**2.2**	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	50	ug/L	ND	ND	ND	NA	**0.61**	NA	ND	**1.1**	ND	NA	NA	**4.0 J**	NA	NA	ND	NA	**3.0 J**
Total SVOCs	- -	ug/L	ND	**110**	**35**	**30**	**21**	**21**	**12**	**35**	ND	NA	NA	**22**	NA	NA	ND	NA	**16**
General Chemistry																			
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																			
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	**590**	NA	NA	**7,400**	NA	NA	ND	NA	**2,600**

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

ARCADIS Design & Consultancy for natural and built assets

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	TP-04 4.8 04/09/98	TP-04 4.8 11/02/01	TP-04 4.8 04/30/02	TP-04 4.8 08/20/02	TP-07 - - 04/26/97	TP-09 - - 09/09/96	TP-09 - - 04/26/97	TP-10 - - 09/09/96	TP-10 - - 04/26/97	TP-11 - - 09/09/96	TP-12 - - 04/26/97	TP-13 - - 04/26/97	TP-14 - - 09/09/96	TP-15 - - 04/26/97	TW-01 - - 03/15/04	TW-02 - - 03/15/04
Volatile Organics																		
Benzene	1	ug/L	ND	ND [ND]	ND	ND	**13**	NA	**71**	NA	**30**	NA	**3,500**	**3,000**	NA	**530**	**7.9 J**	**2.8 J [2.9 J]**
Toluene	5	ug/L	ND	**5.4** [ND]	ND	ND	ND	**13**	**5.9**	**7.6**	**5.6**	**22**	**76**	**220**	**440**	ND	**9.3**	ND [ND]
Ethylbenzene	5	ug/L	ND	ND [ND]	ND	ND	**9.1**	**160**	**60**	**78**	**83**	**120**	**510**	**1,400**	**1,300**	42 U	**4.1 J**	**4.8 [4.8 J]**
Xylenes (total)	5	ug/L	ND	ND [ND]	ND	ND	**7.8**	**19**	ND	**17**	**15**	**25**	**3,400**	**4,200**	**5,200**	ND	**13**	**5.9 [6.0 J]**
Methyl tert-butyl ether	10	ug/L	**2.0**	ND **[32]**	NA	ND	**10**	**47**	**28**	**120**	**38**	**670**	**290**	**14,000**	**25,000**	**640**	**960**	**840 [830]**
Naphthalene	10	ug/L	**0.40 J**	ND [ND]	ND	NA	**17**	**170**	**35**	**90**	**76**	**33**	**330**	**960**	**690**	**41**	NA	NA
Isopropylbenzene	5	ug/L	ND	NA	NA	NA	**4.1**	**24**	**7.3**	**7.9**	**4.8**	**8.8**	ND	**160**	ND	ND	NA	NA
1,1,1-Trichloroethane	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND [ND]
1,1-Dichloroethene	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**17**	ND [ND]
1,2-Dichlorobenzene	3	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	1	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	ND	NA	NA	NA	**1.7**	**4.7**	ND	ND	ND	**290**	**440**	**870**	**300**	ND	NA	NA
1,3-Dichlorobenzene	3	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	- -	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3,300**	**1,300 [1,300]**
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	50	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	ug/L	ND	ND [ND]	ND	ND	**7.8**	**15**	**5.6**	**11**	**10**	**19**	**3,400**	**4,200**	**4,500**	ND	NA	NA
Methylene Chloride	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**32**	ND [ND]
n-Butylbenzene	- -	ug/L	ND	NA	NA	NA	**4.8**	**29**	ND	**4.0**	ND	**12**	**210**	**1,000**	ND	**11**	NA	NA
n-Propylbenzene	- -	ug/L	ND	NA	NA	NA	**7.4**	**47**	**17**	**13**	**5.6**	**13**	ND	**340**	ND	ND	NA	NA
o-Xylene	- -	ug/L	ND	ND [ND]	ND	ND	ND	**4.4**	ND	**6.4**	**5.2**	**6.2**	ND	ND	**720**	ND	NA	NA
p-Isopropyltoluene	- -	ug/L	ND	NA	NA	NA	ND	**1.8**	ND	ND	ND	**1.8**	ND	ND	ND	ND	NA	NA
sec-Butylbenzene	- -	ug/L	ND	NA	NA	NA	**1.1**	**7.2**	**4.0**	**3.6**	ND	**2.7**	ND	ND	ND	ND	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: / Sample Depth(Feet): / Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	TP-04 4.8 04/09/98	TP-04 4.8 11/02/01	TP-04 4.8 04/30/02	TP-04 4.8 08/20/02	TP-07 - - 04/26/97	TP-09 - - 09/09/96	TP-09 - - 04/26/97	TP-10 - - 09/09/96	TP-10 - - 04/26/97	TP-11 - - 09/09/96	TP-12 - - 04/26/97	TP-13 - - 04/26/97	TP-14 - - 09/09/96	TP-15 - - 04/26/97	TW-01 - - 03/15/04	TW-02 - - 03/15/04
Volatile Organics (Cont.)																		
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	ND	NA	NA	NA	ND	**1.6**	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA
Tertiary butyl alcohol	- -	ug/L	NA	ND [ND]	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,400**	**820 [810]**
Tetrachloroethene	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND [ND]
Total VOCs	- -	ug/L	**2.4**	**5.4 [32]**	0	0	**76**	**520**	**230**	**340**	**260**	**1,200**	**8,800**	**26,000**	**33,000**	**1,200**	**9,600**	**3,100 [3,100]**
trans-1,2-Dichloroethene	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**30**	**16 [15]**
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3,500**	**24 [25]**
Trichlorofluoromethane	5	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2	ug/L	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**370**	**110 [120]**
Semivolatile Organics																		
Naphthalene	10	ug/L	NA	NA	NA	NA	NA	**83**	NA	**51**	NA	**11**	NA	NA	**390**	NA	NA	NA
2,4-Dimethylphenol	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	20	ug/L	NA	NA	NA	ND	NA	ND	NA	**6.2**	NA	ND	NA	NA	ND	NA	NA	NA
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Anthracene	50	ug/L	NA	NA	NA	ND	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Benzo(a)anthracene	0.002	ug/L	NA	NA	NA	**2.1**	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Benzo(a)pyrene	- -	ug/L	NA	NA	NA	**2.5**	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	NA	**3.4**	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	NA	NA	**3.9**	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	NA	NA	NA	**6.5**	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Fluorene	50	ug/L	NA	NA	NA	ND	NA	ND	NA	**5.9**	NA	ND	NA	NA	ND	NA	NA	NA
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	**1.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	0.4	ug/L	NA	NA	NA	ND	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	NA	NA	NA	**2.5**	NA	ND	NA	**6.5**	NA	ND	NA	NA	ND	NA	NA	NA
Phenol	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	50	ug/L	NA	NA	NA	**5.2**	NA	ND	NA	ND	NA	ND	NA	NA	ND	NA	NA	NA
Total SVOCs	- -	ug/L	NA	NA	NA	**28**	NA	**83**	NA	**70**	NA	**11**	NA	NA	**390**	NA	NA	NA
General Chemistry																		
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH																		
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	**1,200**	NA	**1,300**	NA	**4,300**	NA	NA	**11,000**	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Sample Depth(Feet): Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	TW-03 - - 03/16/04	TW-04 - - 03/15/04	TW-05 - - 03/16/04	TW-06 - - 03/15/04	TW-07 - - 03/16/04	TW-08 - - 03/16/04
Volatile Organics								
Benzene	1	ug/L	**9.9**	**12**	**5.0**	**22**	**0.83**	ND
Toluene	5	ug/L	**8.9**	ND	**0.49 J**	**12**	**0.44 J**	ND
Ethylbenzene	5	ug/L	**3.8**	**3.5 J**	**1.9**	**8.6 J**	ND	ND
Xylenes (total)	5	ug/L	**9.0**	ND	**0.91 J**	**20**	ND	ND
Methyl tert-butyl ether	10	ug/L	**450**	**490**	**850**	**2,800**	**55**	**20**
Naphthalene	10	ug/L	NA	NA	NA	NA	NA	NA
Isopropylbenzene	5	ug/L	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	5	ug/L	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	1	ug/L	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	5	ug/L	ND	NA	ND	ND	**1.7**	**2.9**
1,1-Dichloroethene	5	ug/L	ND	**13**	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.6	ug/L	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	1	ug/L	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA
2-Butanone	50	ug/L	NA	NA	NA	NA	NA	NA
2-Hexanone	50	ug/L	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	- -	ug/L	NA	NA	NA	NA	NA	NA
Acetone	50	ug/L	NA	NA	NA	NA	NA	NA
Acrolein	- -	ug/L	NA	NA	NA	NA	NA	NA
Acrylonitrile	- -	ug/L	NA	NA	NA	NA	NA	NA
Bromodichloromethane	50	ug/L	NA	NA	NA	NA	NA	NA
Bromoform	50	ug/L	NA	NA	NA	NA	NA	NA
Bromomethane	5	ug/L	NA	NA	NA	NA	NA	NA
Carbon Disulfide	60	ug/L	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	5	ug/L	NA	NA	NA	NA	NA	NA
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA
Chloroethane	5	ug/L	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	NA	NA	NA	NA	NA	NA
Chloromethane	5	ug/L	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	5	ug/L	**13**	**6,200**	**28**	**1,200**	ND	ND
cis-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	NA
Dibromochloromethane	50	ug/L	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	ug/L	NA	NA	NA	NA	NA	NA
Methylene Chloride	5	ug/L	ND	ND	ND	**5.1 J**	ND	ND
n-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA
n-Propylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA
o-Xylene	- -	ug/L	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	- -	ug/L	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA

See Notes on Page 47.

Table D-1
Summary of Historical Groundwater Sample Analytical Results
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Township of Hempstead, NY

Location ID: Sample Depth(Feet): Date Collected:	NYSDEC TOGS 1.1.1 Water Guidance Values	Units	TW-03 - - 03/16/04	TW-04 - - 03/15/04	TW-05 - - 03/16/04	TW-06 - - 03/15/04	TW-07 - - 03/16/04	TW-08 - - 03/16/04
Volatile Organics (Cont.)								
Styrene	5	ug/L	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	- -	ug/L	NA	NA	NA	NA	NA	NA
Tertiary butyl alcohol	- -	ug/L	**870**	**1,400**	**1,100**	**4,600**	**580**	**450**
Tetrachloroethene	5	ug/L	ND	ND	ND	ND	ND	ND
Total VOCs	- -	ug/L	**1,400**	**8,100**	**2,100**	**17,000**	**640**	**470**
trans-1,2-Dichloroethene	5	ug/L	**0.86 J**	**38**	**1.7**	**25**	ND	ND
trans-1,3-Dichloropropene	0.4	ug/L	NA	NA	NA	NA	NA	NA
Trichloroethene	5	ug/L	ND	**6.4 J**	**21**	**7,800**	ND	ND
Trichlorofluoromethane	5	ug/L	NA	NA	NA	NA	NA	NA
Vinyl Chloride	2	ug/L	**46**	**33**	**81**	**71**	ND	ND
Semivolatile Organics								
Naphthalene	10	ug/L	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	50	ug/L	NA	NA	NA	NA	NA	NA
Acenaphthene	20	ug/L	NA	NA	NA	NA	NA	NA
Acenaphthylene	- -	ug/L	NA	NA	NA	NA	NA	NA
Anthracene	50	ug/L	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.002	ug/L	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	- -	ug/L	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	- -	ug/L	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.002	ug/L	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	5	ug/L	NA	NA	NA	NA	NA	NA
Chloride	250,000	ug/L	NA	NA	NA	NA	NA	NA
Chrysene	0.002	ug/L	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	- -	ug/L	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	50	ug/L	NA	NA	NA	NA	NA	NA
Fluoranthene	50	ug/L	NA	NA	NA	NA	NA	NA
Fluorene	50	ug/L	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	5	ug/L	NA	NA	NA	NA	NA	NA
Hexachloroethane	5	ug/L	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.002	ug/L	NA	NA	NA	NA	NA	NA
Nitrobenzene	0.4	ug/L	NA	NA	NA	NA	NA	NA
Pentachlorophenol	- -	ug/L	NA	NA	NA	NA	NA	NA
PheNAnthrene	50	ug/L	NA	NA	NA	NA	NA	NA
Phenol	1	ug/L	NA	NA	NA	NA	NA	NA
Pyrene	50	ug/L	NA	NA	NA	NA	NA	NA
Total SVOCs	- -	ug/L	NA	NA	NA	NA	NA	NA
General Chemistry								
Chloride	250	mg/L	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	- -	mg/L	NA	NA	NA	NA	NA	NA
TPH								
Total Petroleum Hydrocarbons	- -	ug/L	NA	NA	NA	NA	NA	NA

See Notes on Page 47.

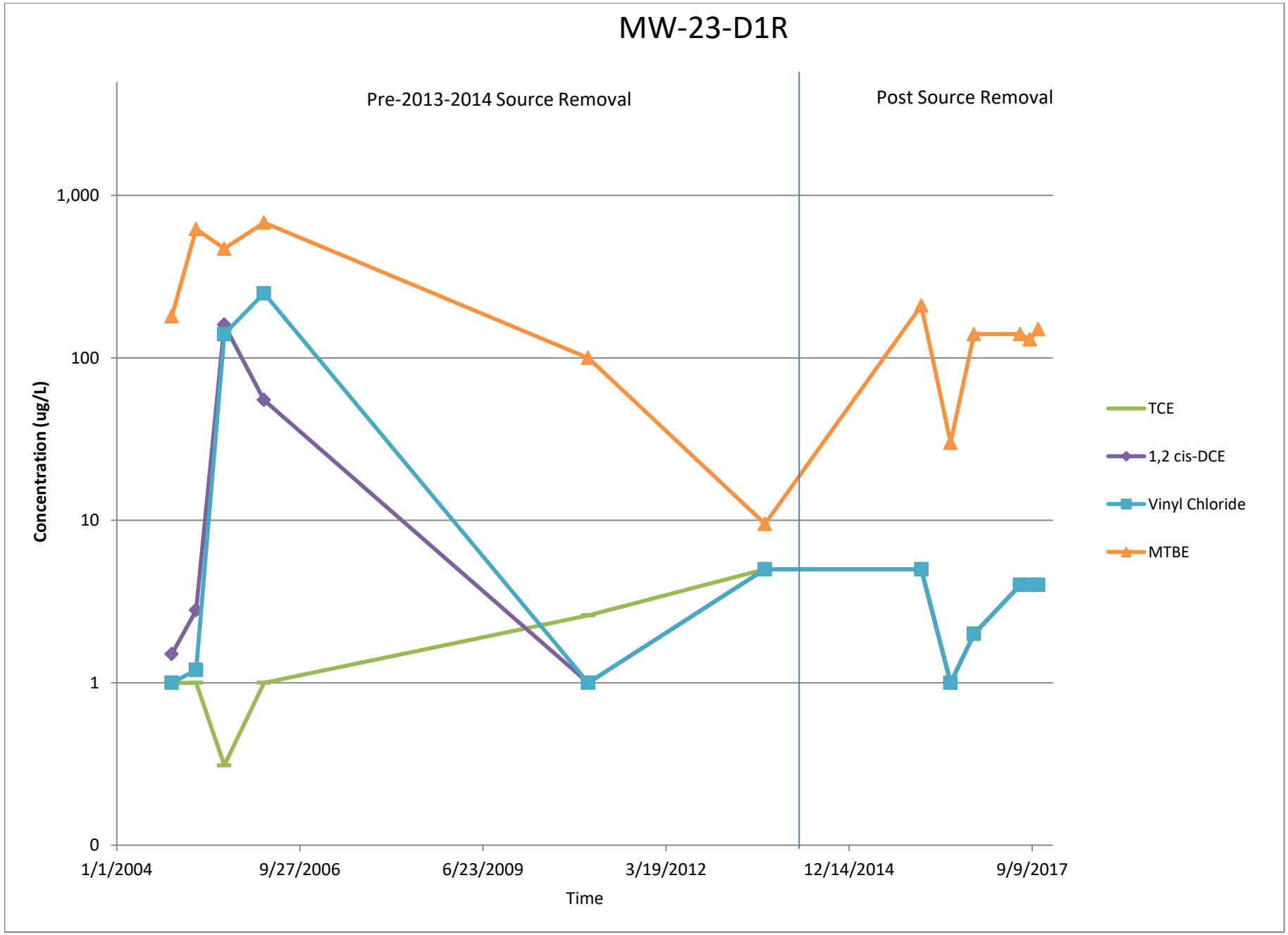
Table D-1
Summary of Groundwater Sample Analytical Results

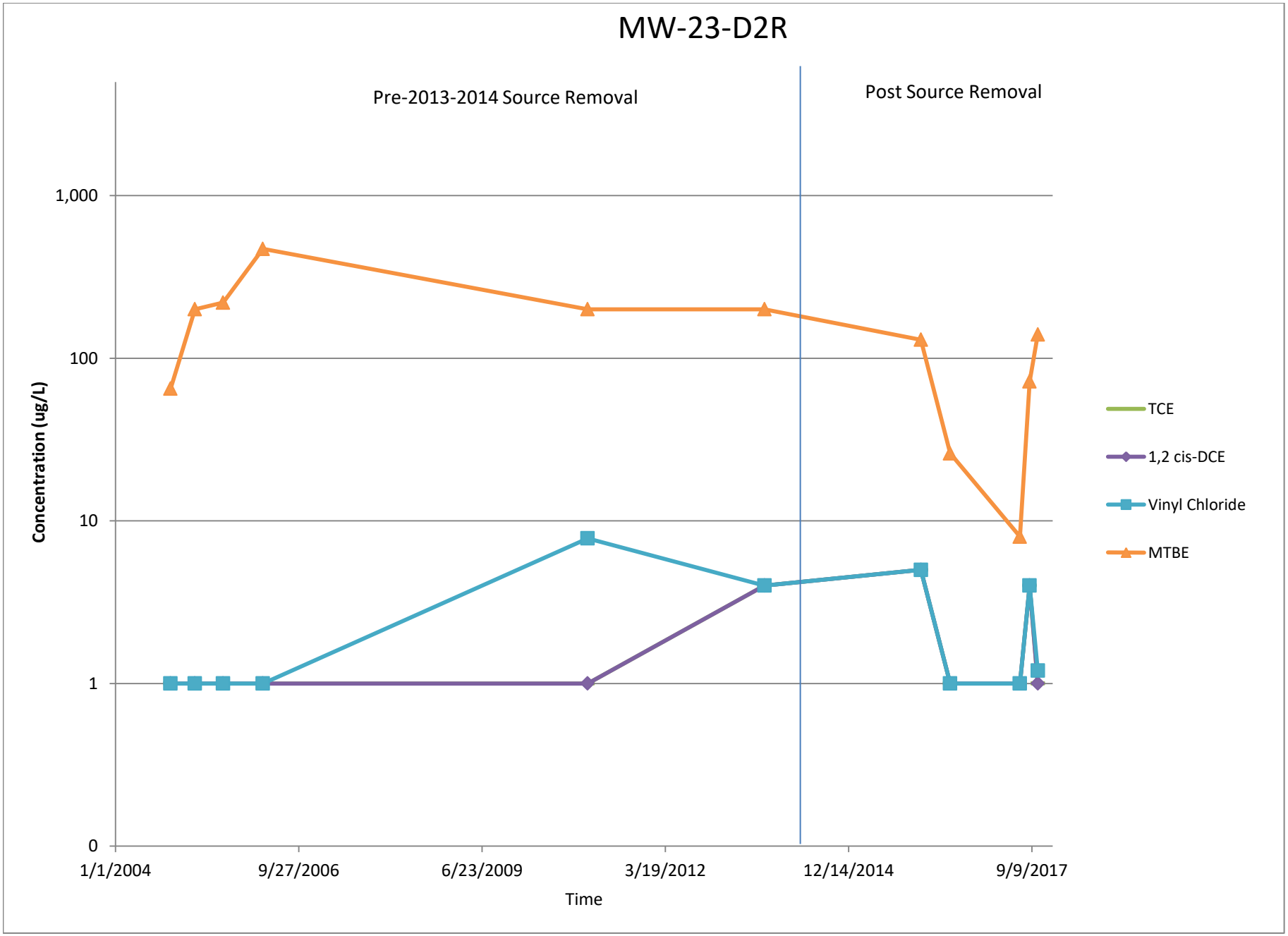
Remedial Investigation Report
Former Gulf Oil Terminal
Oceanside, Town of Hempstead, NY

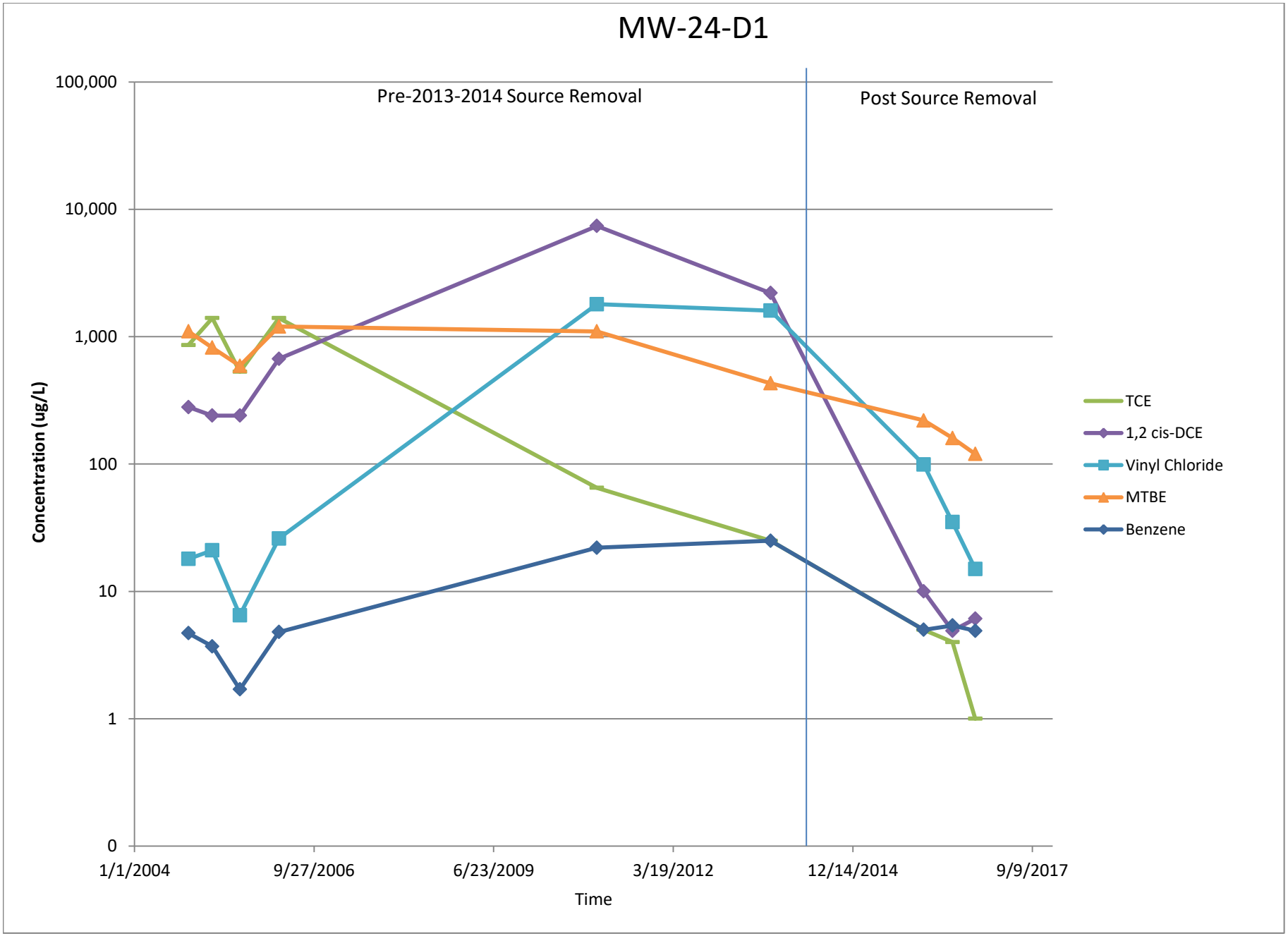
Notes:

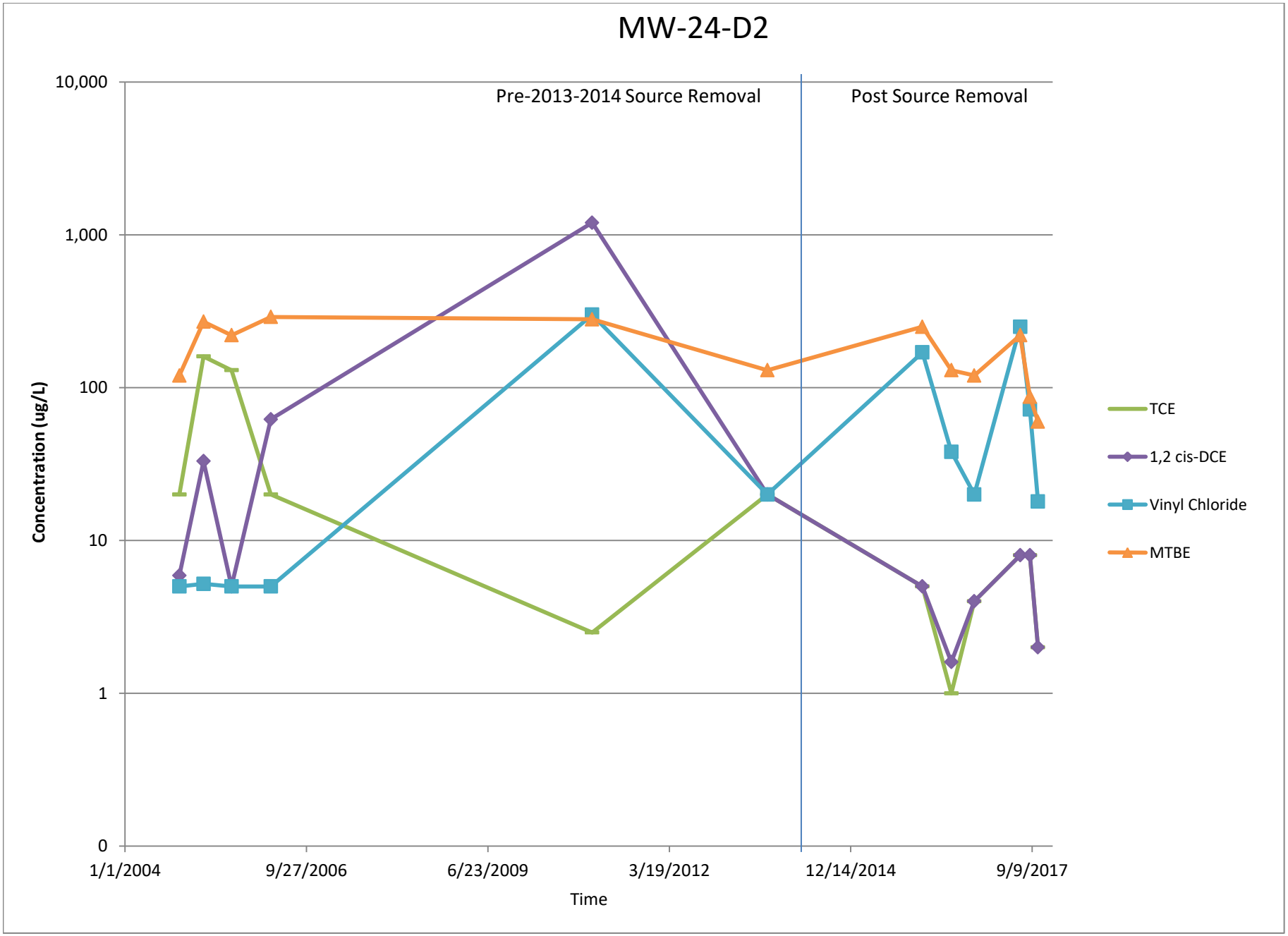
1. Results compared to NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance Values.
2. Field duplicate sample results are presented in brackets, [ ].
3. Designations:
   Gray font = not detected. Bold font = detected. Bold font with Gray shading = Result detected above NYSDEC TOGS 1.1.1.
4. Abbreviations:
   - - = NYSDEC TOGS 1.1.1 not available.
   ug/L = micrograms per Liter.
   NA = Not analyzed.
   ND = Not detected.
   NYSDEC = New York State Department of Environmental Conservation.
   TOGS 1.1.1 = NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1, Ambient Water Quality Standards and Guidance Values.
   USEPA = United States Environmental Protection Agency.
   VOC = Volatile Organic Compounds.
   SVOC = Semi-Volatile Organic Compounds.
5. Qualifier Definitions:
   J = Estimated value. Result is greater than the RL but less than the MDL.
   U = Analyte not detected at listed reporting detection limit.

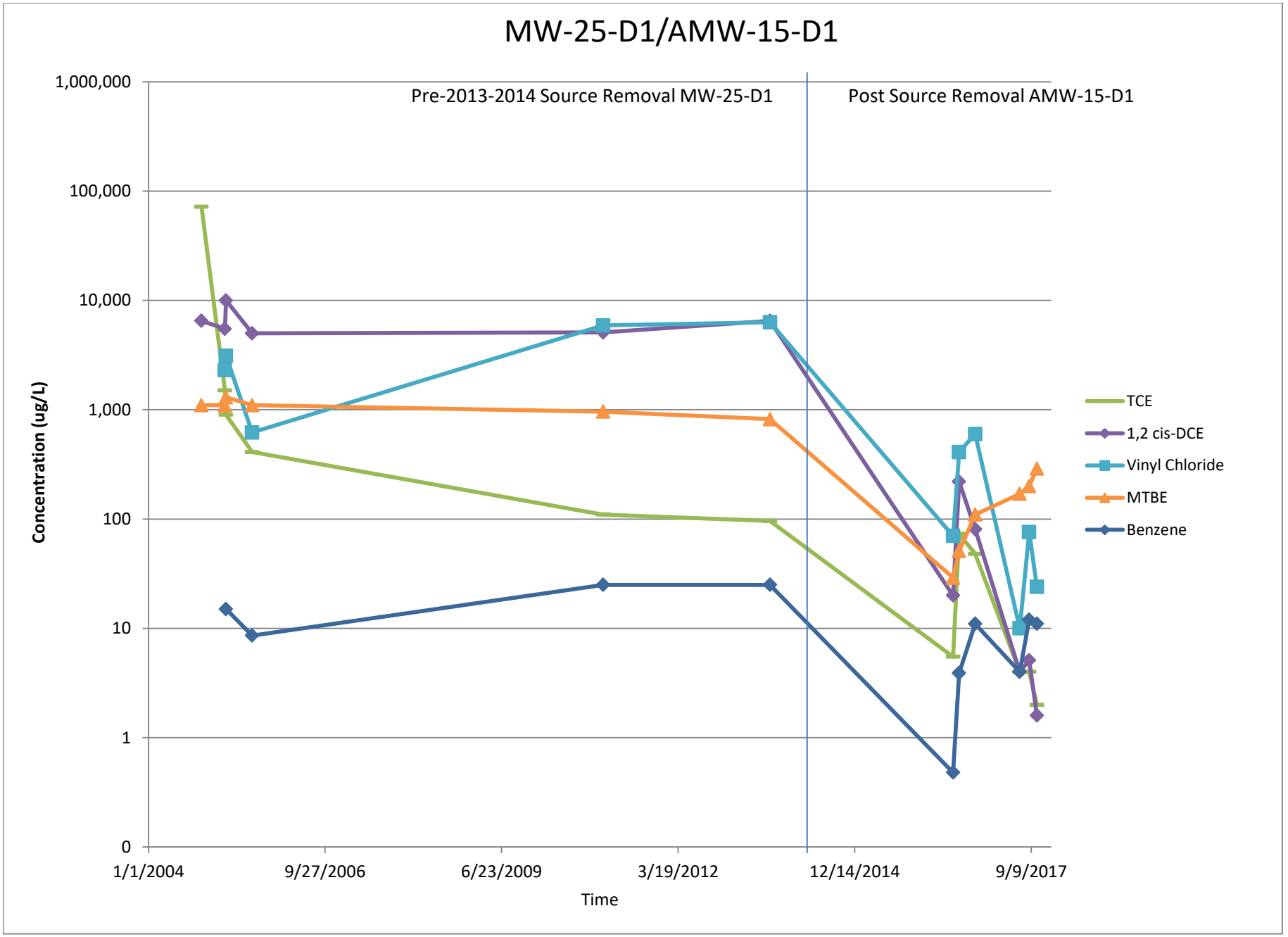
Appendix E:
Concentration vs. Groundwater Elevation Hydrographs (Select Wells)

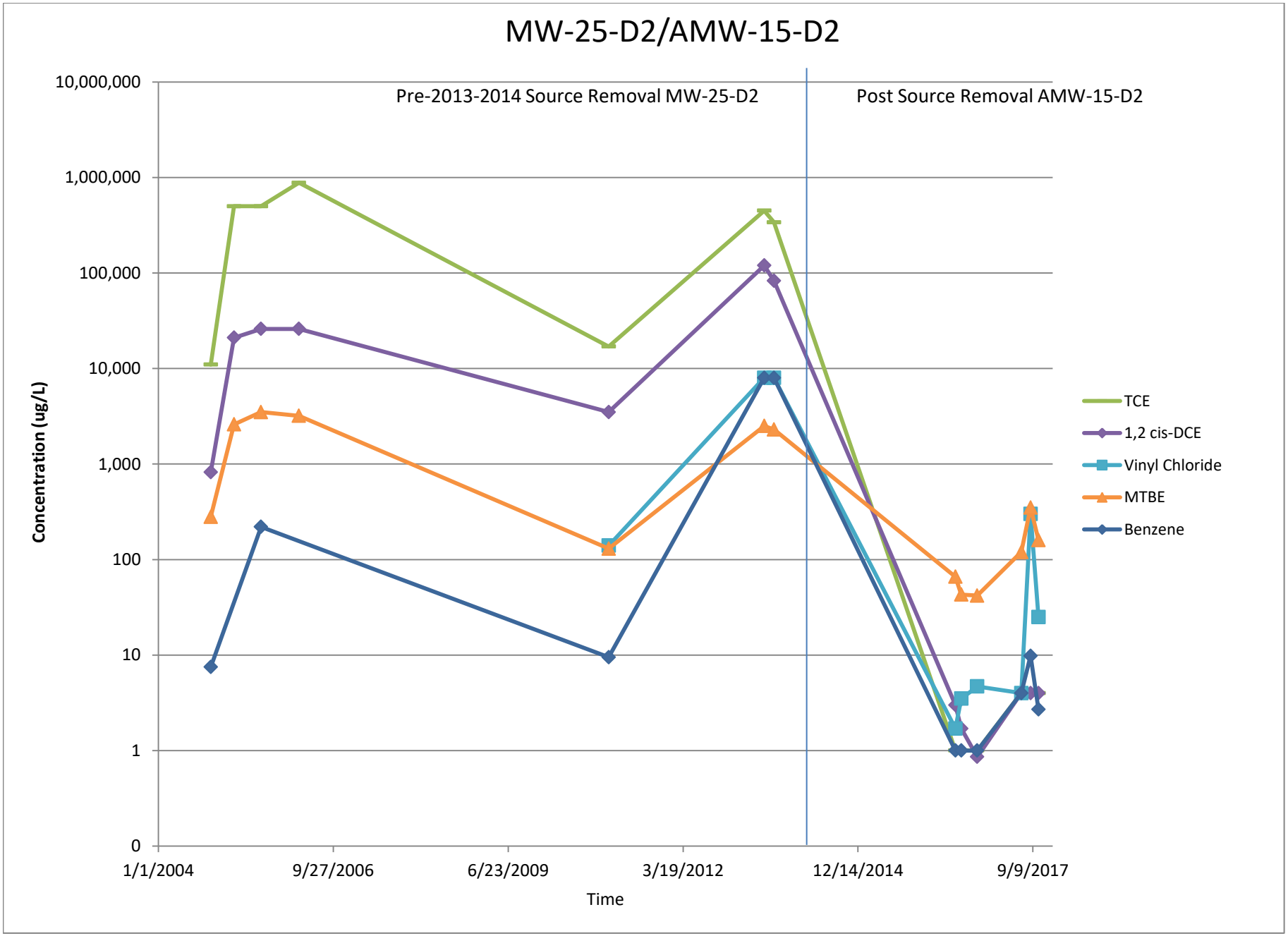

MW-23-D1R
Pre-2013-2014 Source Removal
Post Source Removal
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE

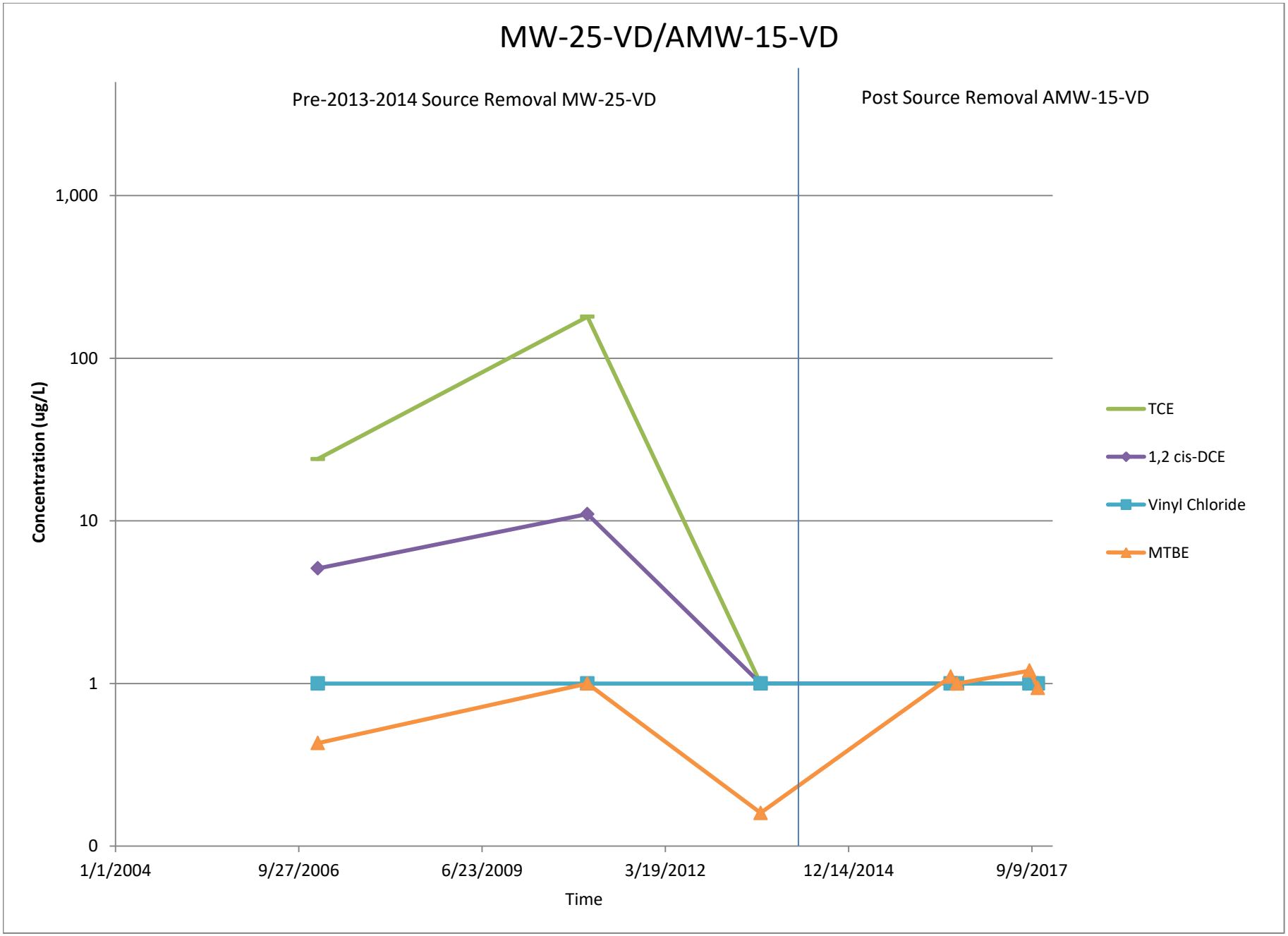

MW-23-D2R
Pre-2013-2014 Source Removal
Post Source Removal
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE

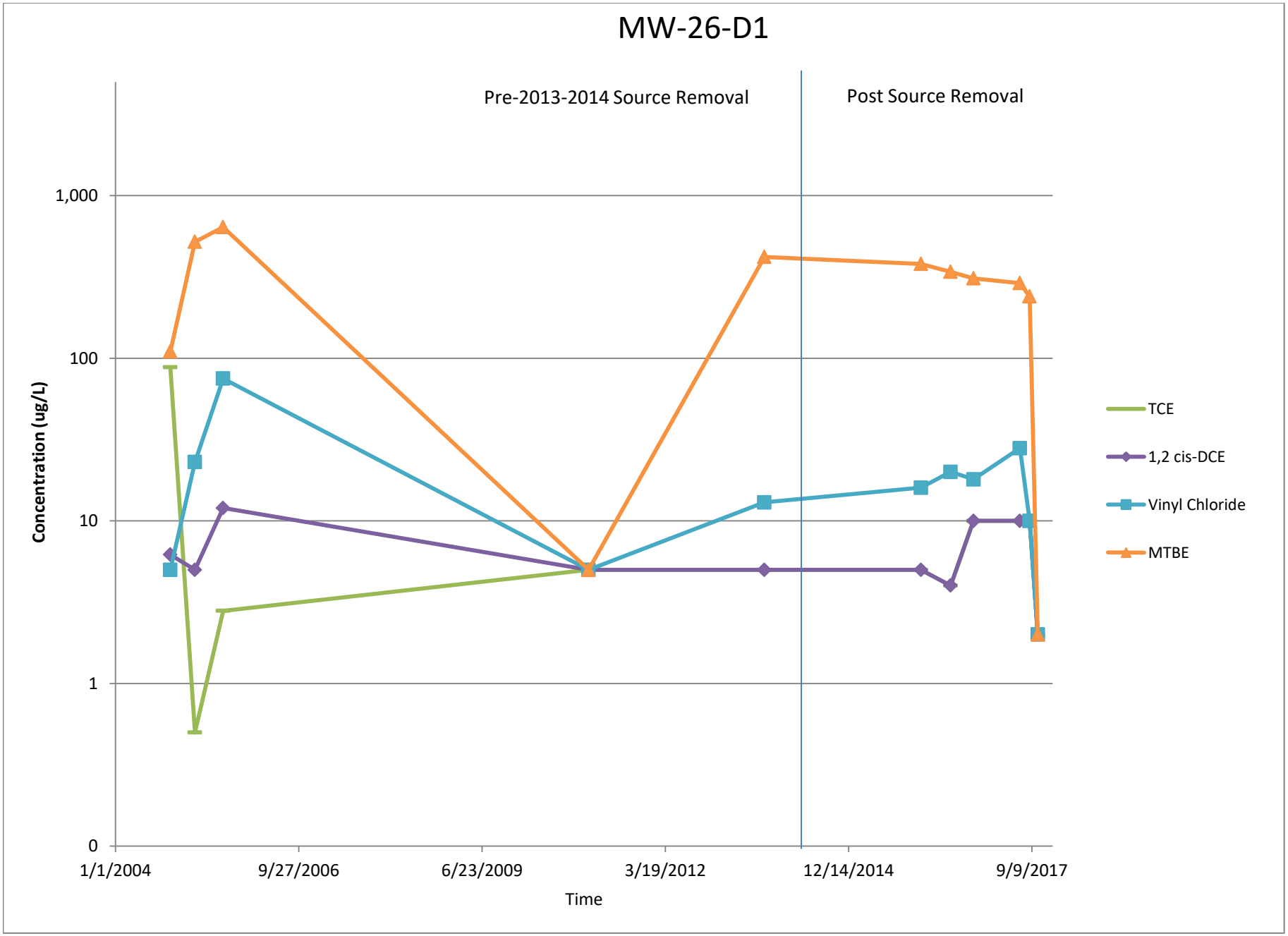

MW-24-D1
Pre-2013-2014 Source Removal
Post Source Removal
100,000
10,000
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE
Benzene

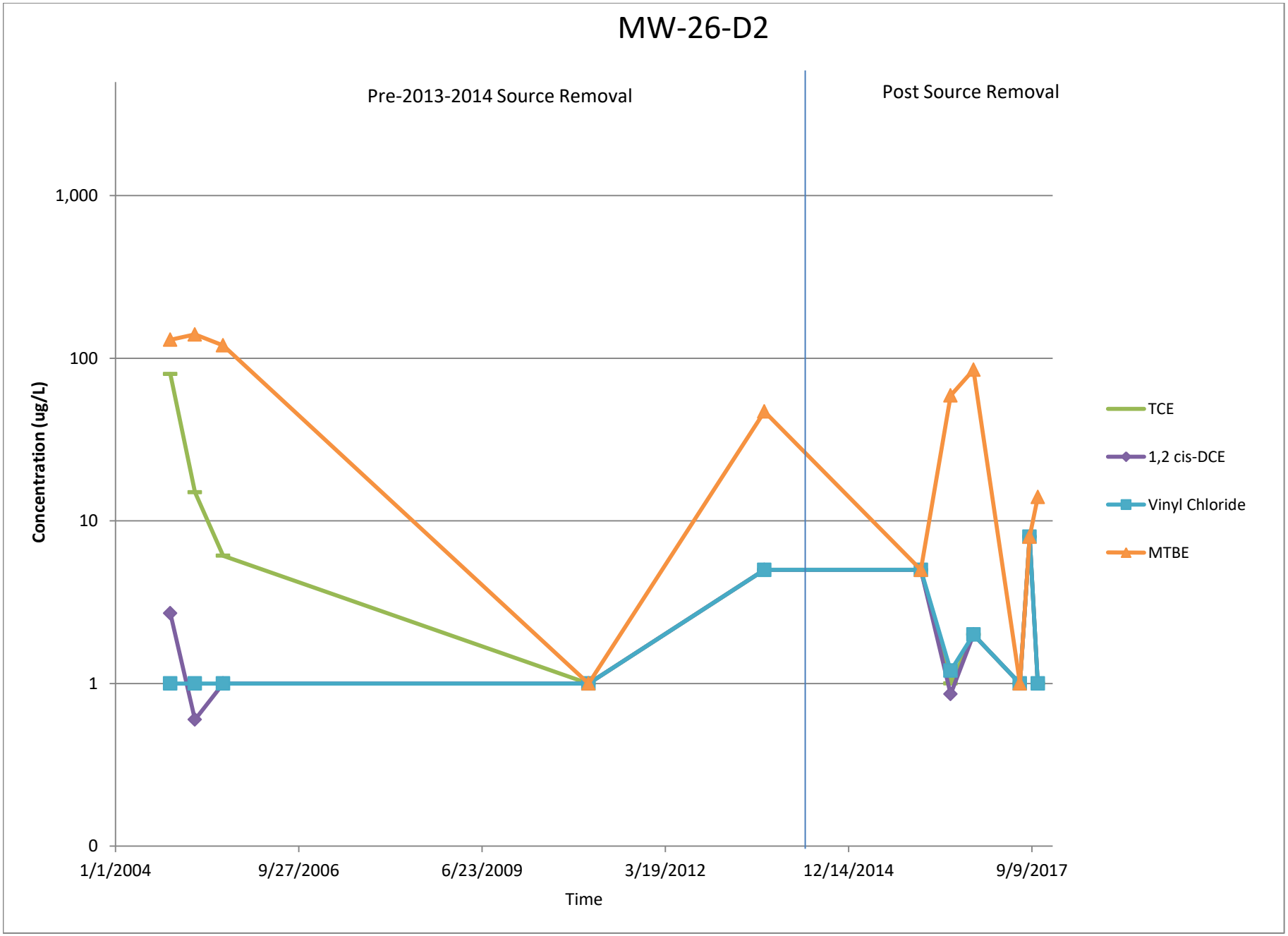

MW-24-D2
Pre-2013-2014 Source Removal
Post Source Removal
10,000
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE

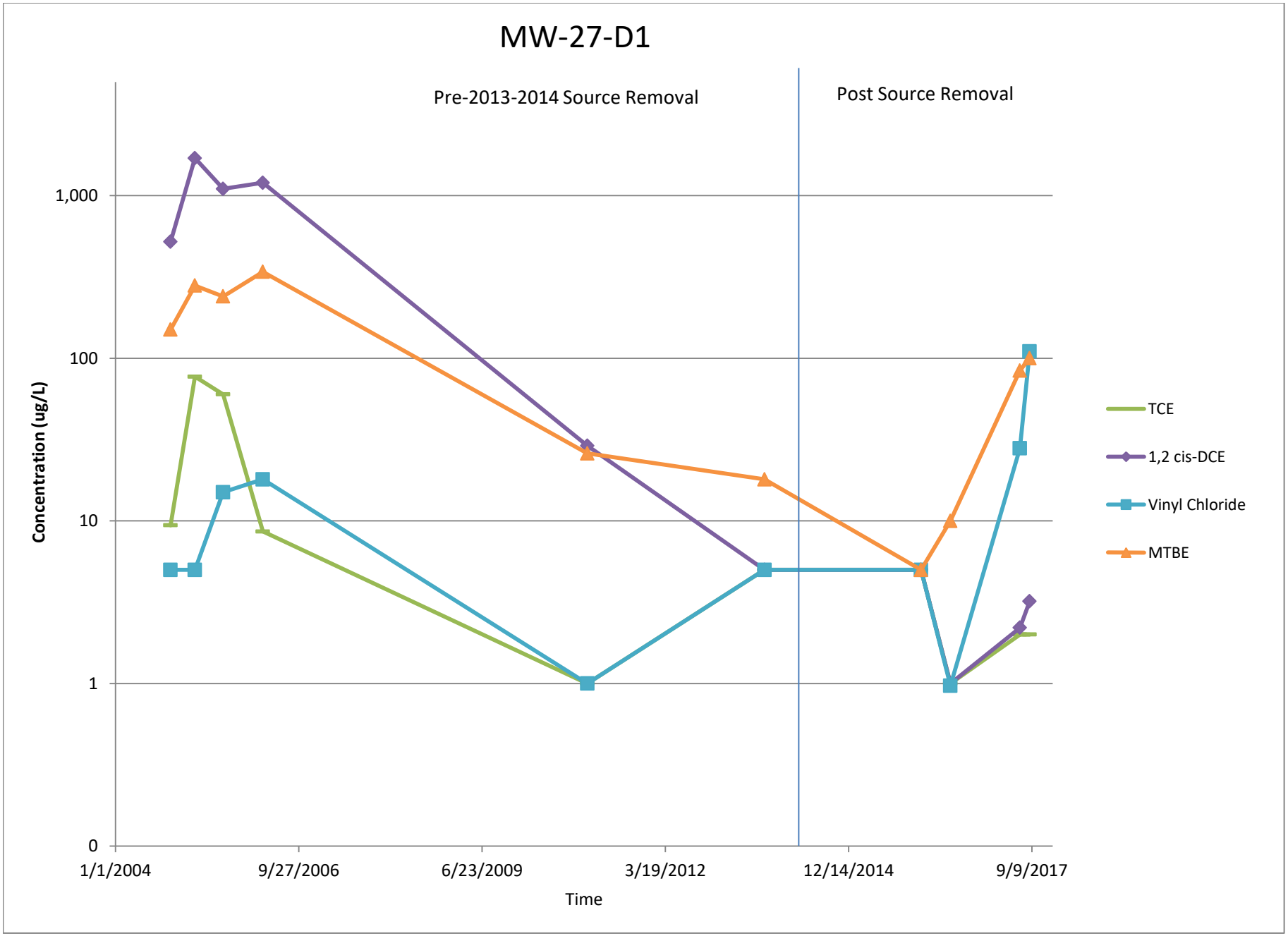

MW-25-D1/AMW-15-D1
Pre-2013-2014 Source Removal MW-25-D1
Post Source Removal AMW-15-D1
1,000,000
100,000
10,000
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE
Benzene

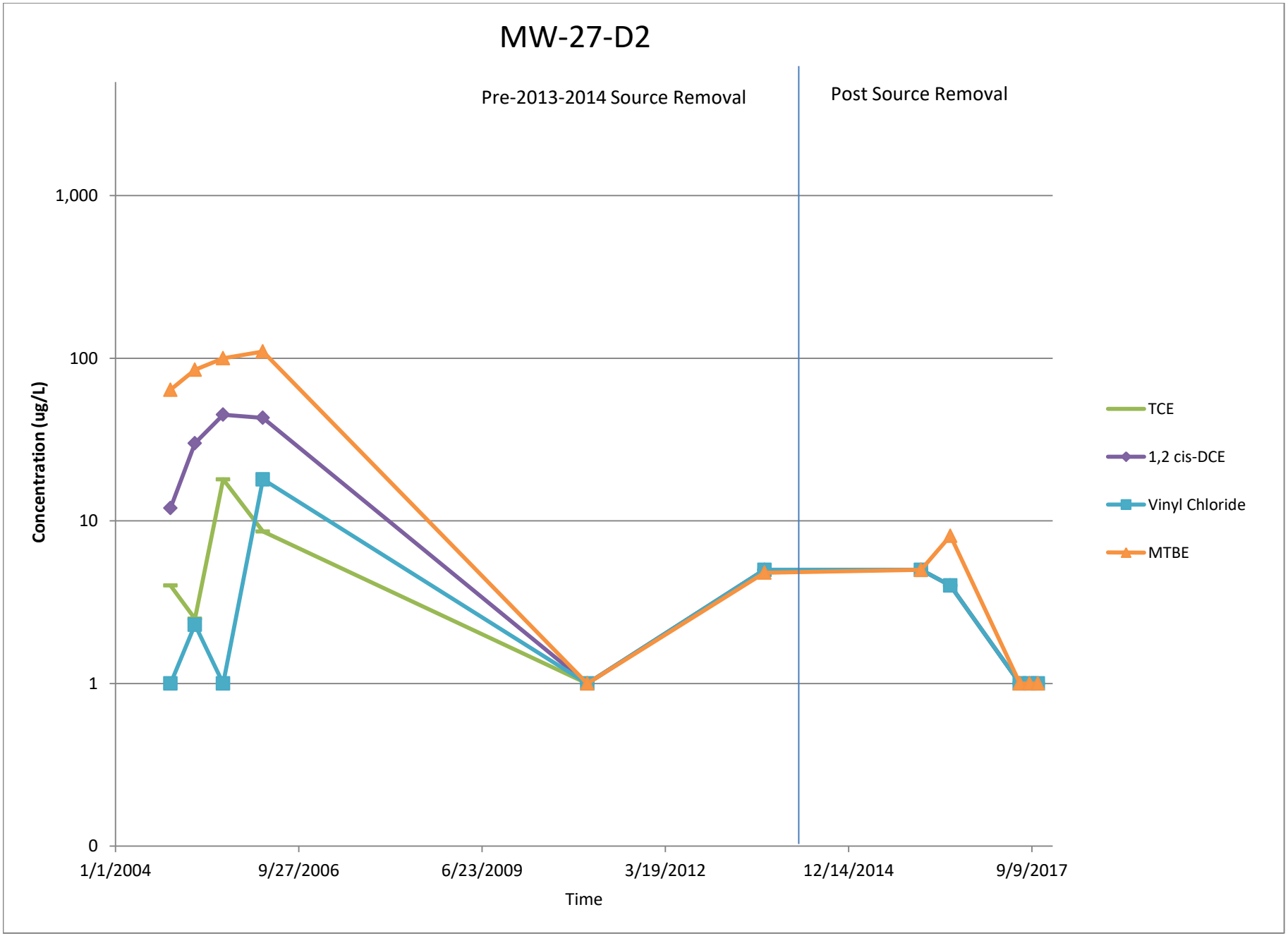

MW-25-D2/AMW-15-D2
Pre-2013-2014 Source Removal MW-25-D2
Post Source Removal AMW-15-D2
10,000,000
1,000,000
100,000
10,000
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE
Benzene

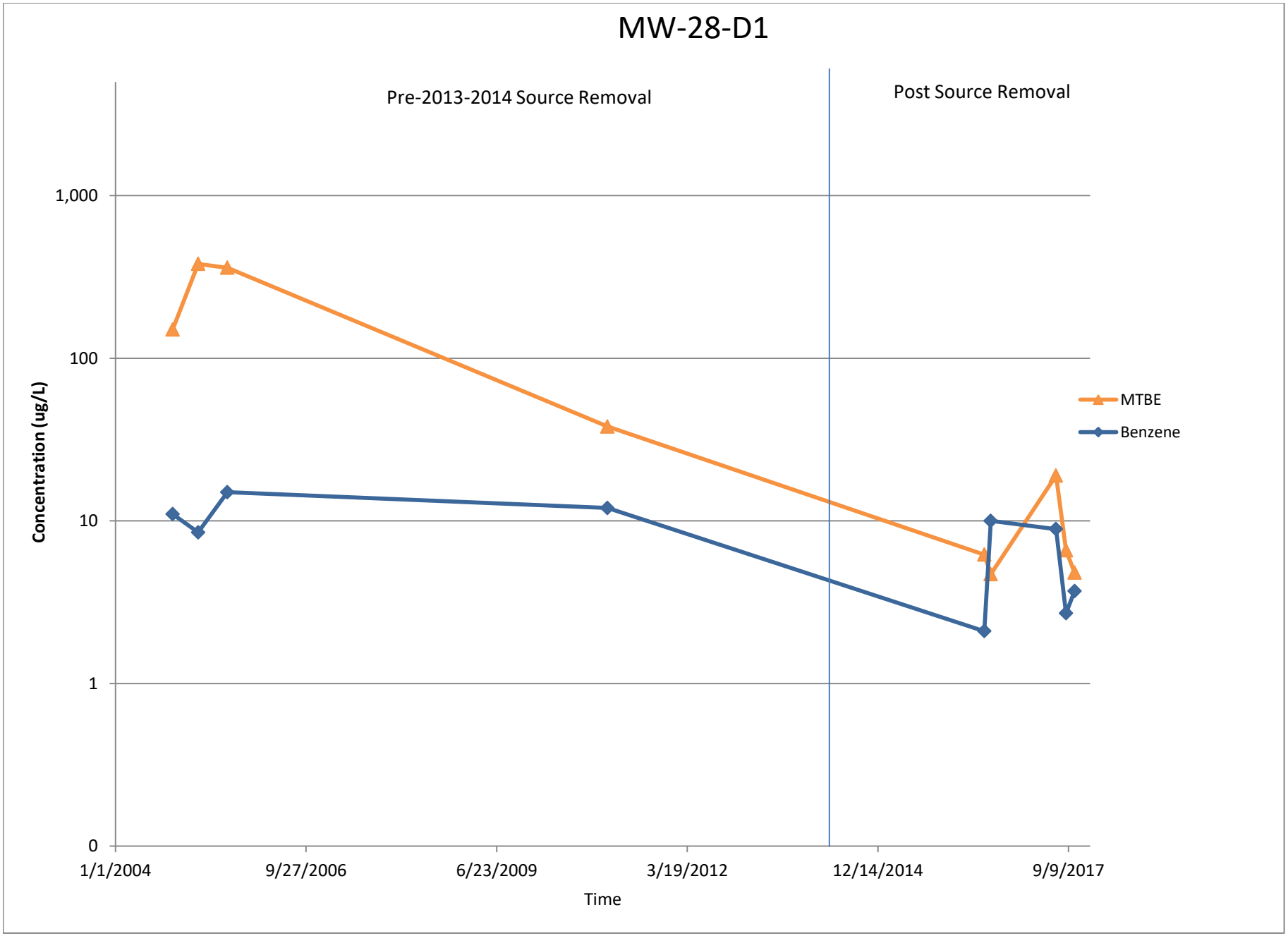

MW-25-VD/AMW-15-VD
Pre-2013-2014 Source Removal MW-25-VD
Post Source Removal AMW-15-VD
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE

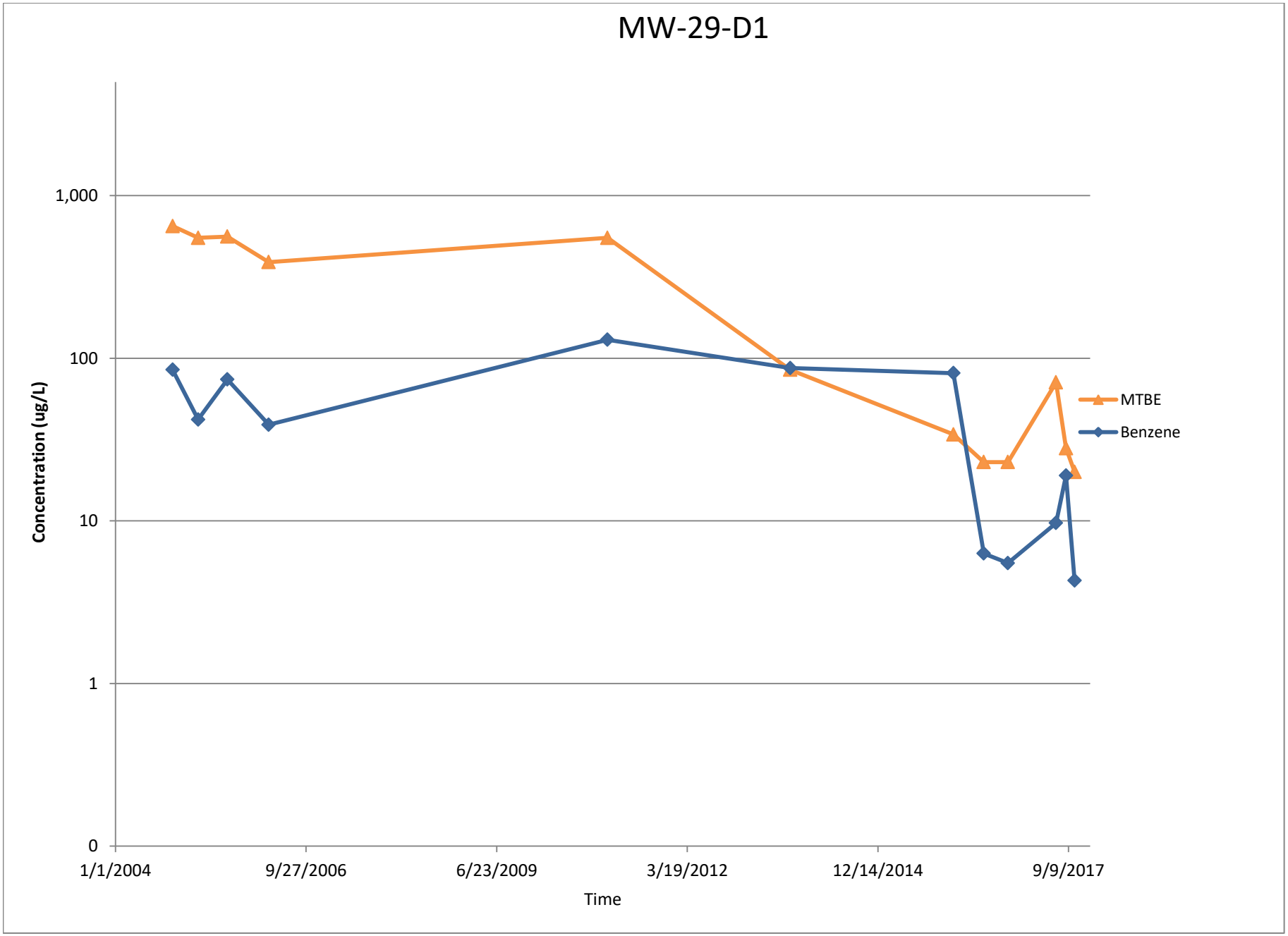

MW-26-D1
Pre-2013-2014 Source Removal
Post Source Removal
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE

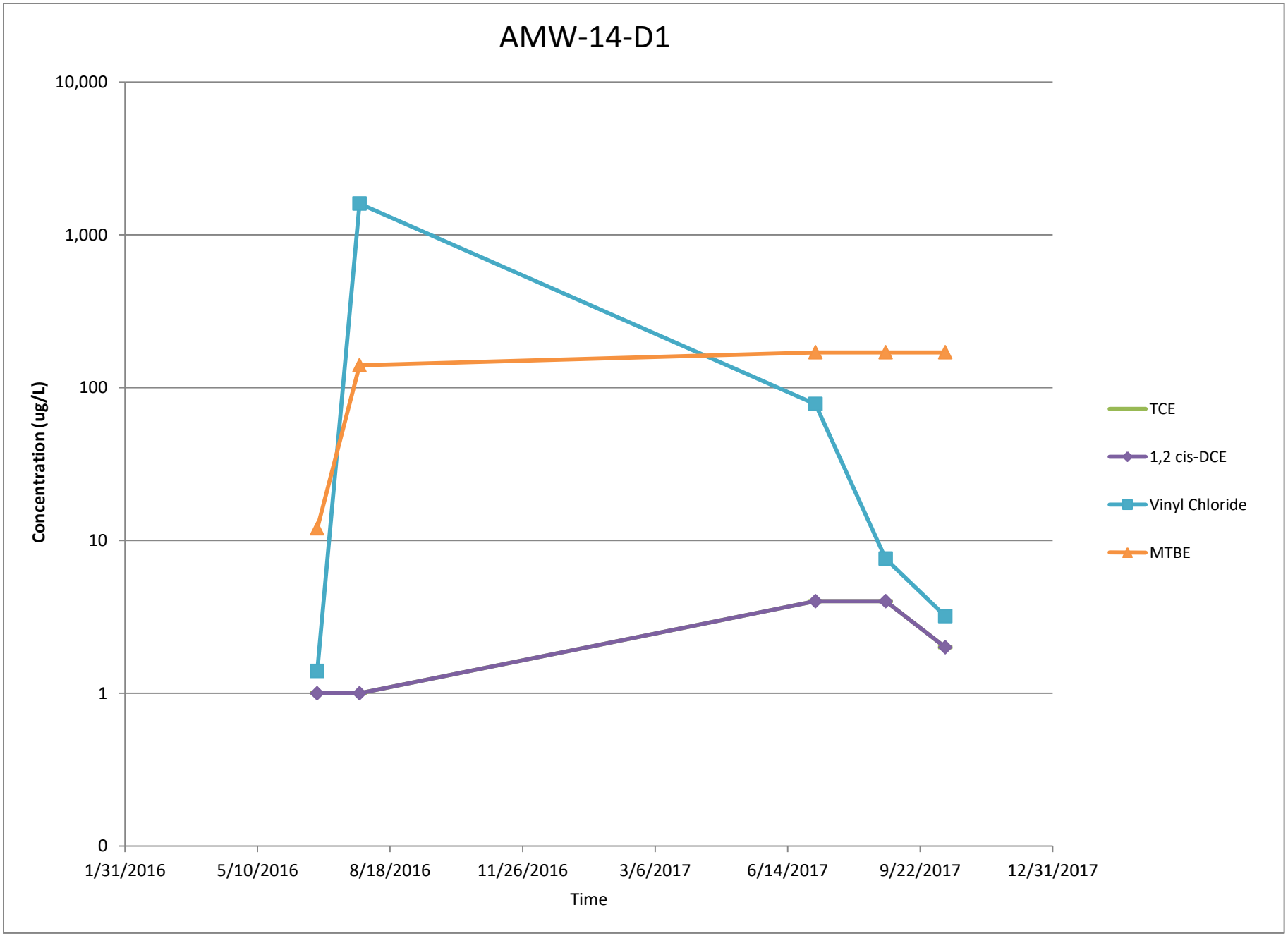

MW-26-D2
Pre-2013-2014 Source Removal
Post Source Removal
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE

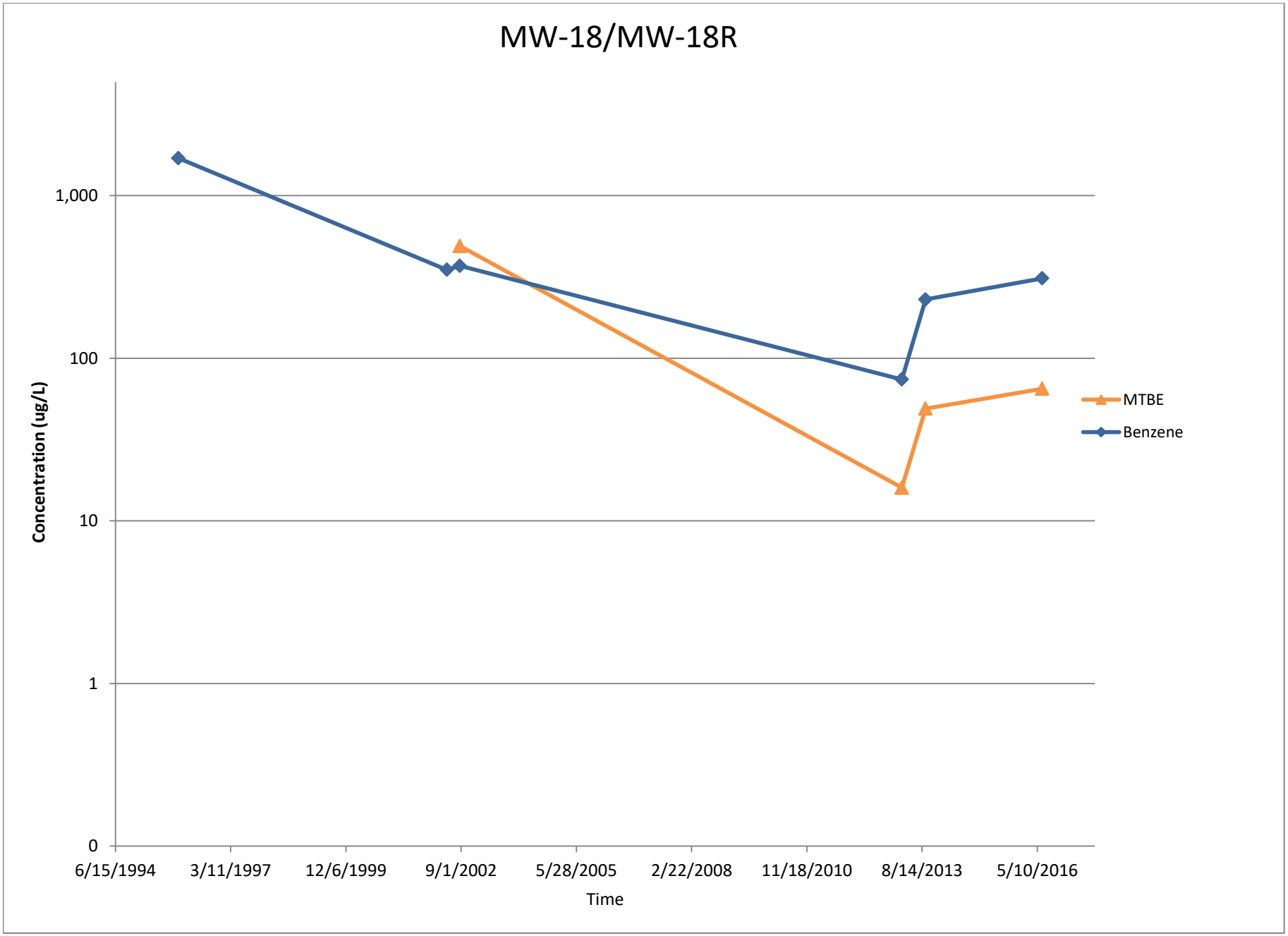

MW-27-D1
Pre-2013-2014 Source Removal
Post Source Removal
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE


MW-27-D2
Pre-2013-2014 Source Removal
Post Source Removal
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE

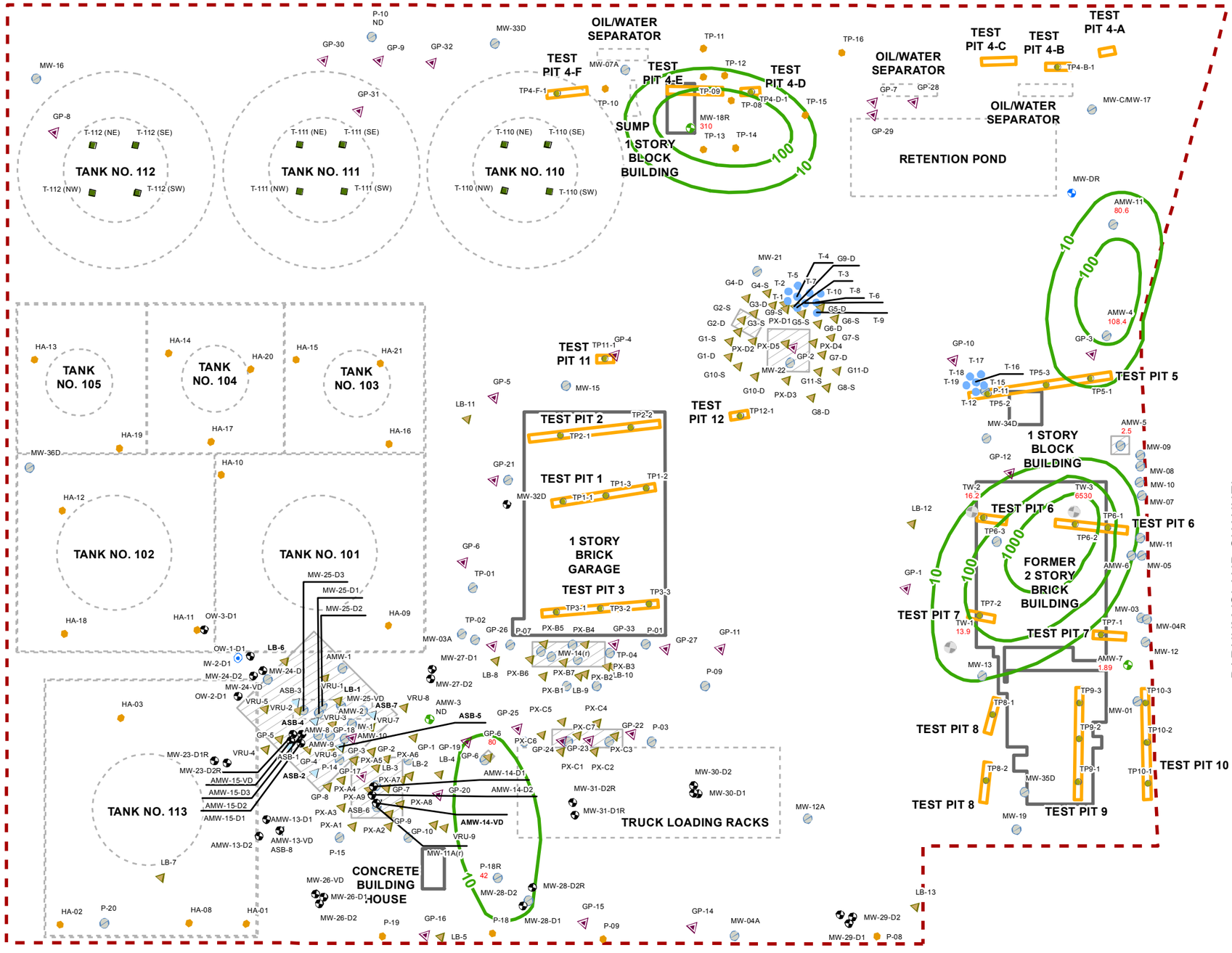

MW-28-D1
Pre-2013-2014 Source Removal
Post Source Removal
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
MTBE
Benzene


MW-29-D1
1,000
100
10
1
0
Concentration (ug/L)
1/1/2004
9/27/2006
6/23/2009
3/19/2012
12/14/2014
9/9/2017
Time
MTBE
Benzene


AMW-14-D1
10,000
1,000
100
10
1
0
Concentration (ug/L)
1/31/2016
5/10/2016
8/18/2016
11/26/2016
3/6/2017
6/14/2017
9/22/2017
12/31/2017
Time
TCE
1,2 cis-DCE
Vinyl Chloride
MTBE


MW-18/MW-18R
1,000
100
10
1
0
Concentration (ug/L)
6/15/1994
3/11/1997
12/6/1999
9/1/2002
5/28/2005
2/22/2008
11/18/2010
8/14/2013
5/10/2016
Time
MTBE
Benzene

Appendix F:
Groundwater Isoconcentration Maps

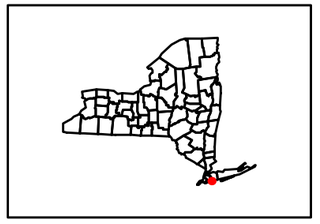


Legend

- Lower Sand Unit Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Injection Well
- SP Water Table Well
- Cedar Creek Temporary Well
- Decommissioned/Destroyed Monitoring Well
- Temporary Well
- Piezometer
- LGB Geoprobe Soil Boring Location
- Test Pit Soil Sample Location
- LBG Soil Sample Tank Location
- BBL Soil Boring Location
- Soil Boring 2016
- BTEX Isoconcentration
- Soil Test Pit Area
- Excavation Area
- Former Building
- Site Feature
- Property Boundary

Values in micrograms per liter (µg/l). Isoconcentration based on latest sampling results for a well.

ND = Non-Detect



0 30 60 120 Feet

1 inch = 61 feet

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

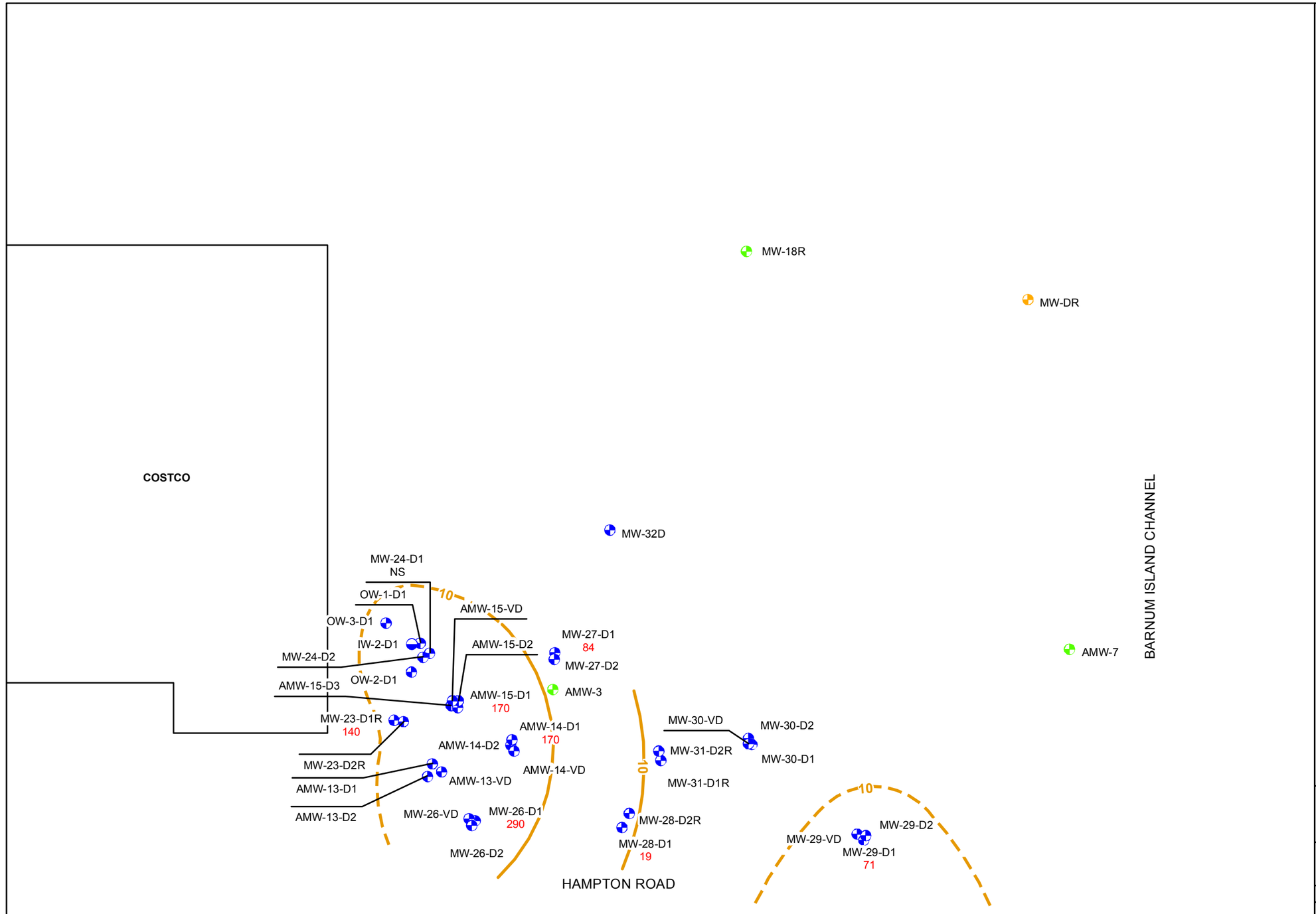
Shallow Fill Unit BTEX Isoconcentration Map

drawn JAL	checked	approved	figure no. 1
date 12/15/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. BTEX_Isoconc_2017

initials	date	revision

leidos

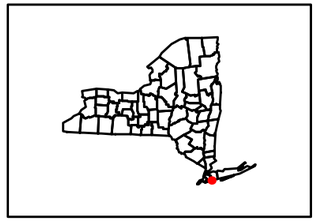
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- MTBE Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

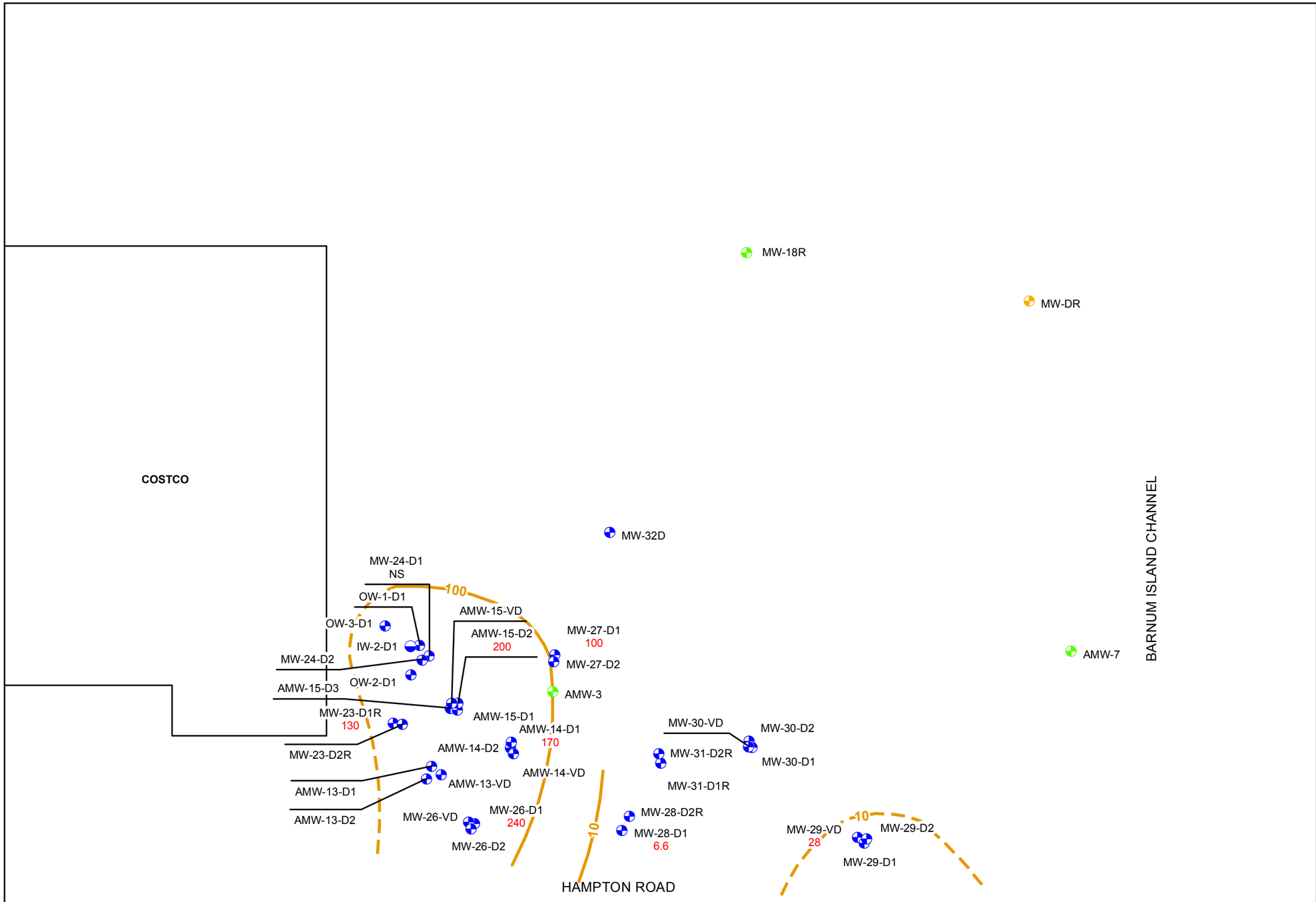
D1 Horizon MTBE Isoconcentration Map
July 2017

drawn TAY	checked	approved	figure no. 2
date 12/15/2017	date	date	
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initials	date	revision

leidos

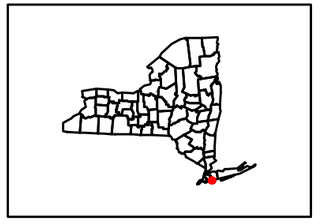
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- MTBE Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

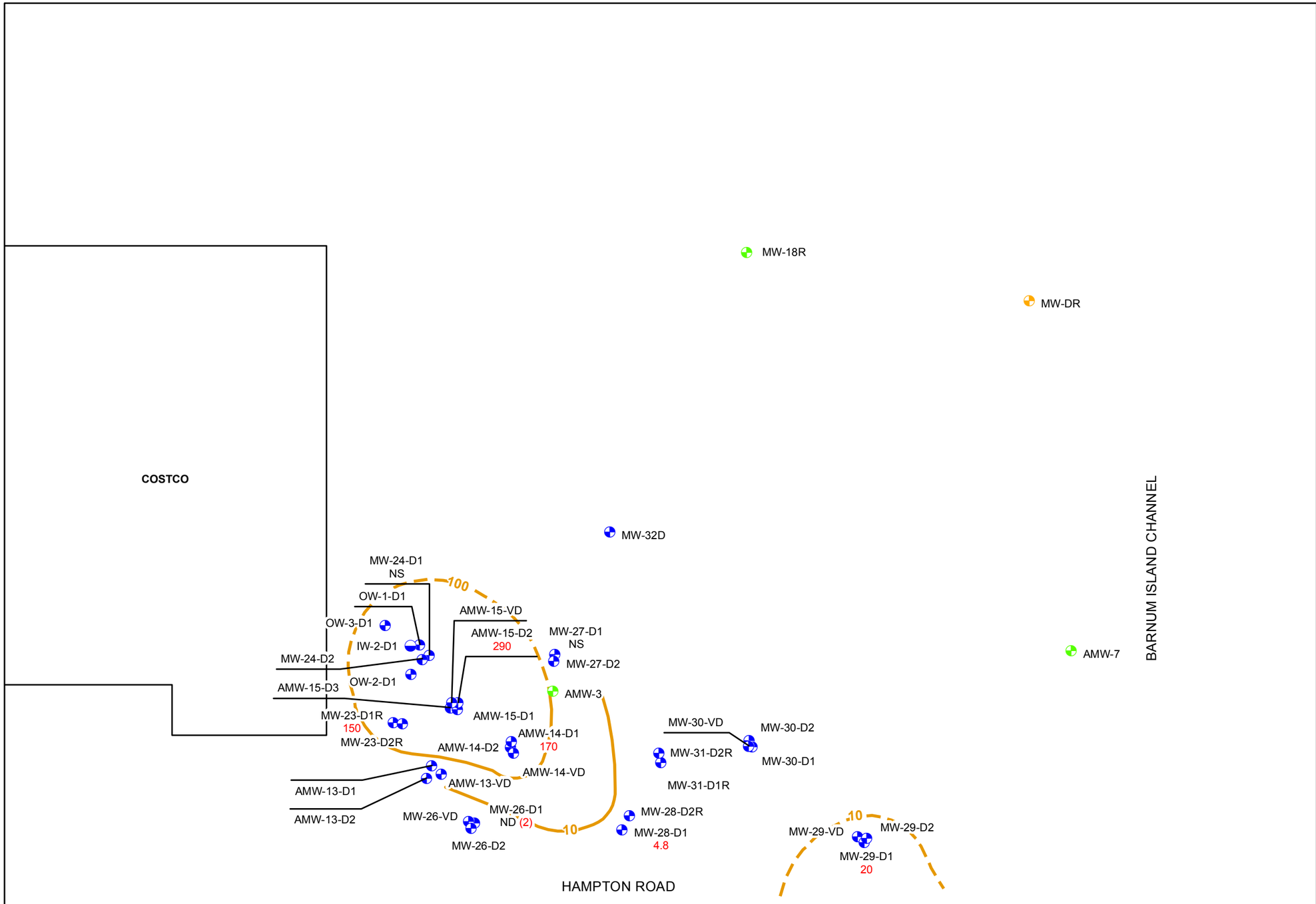
D1 Horizon MTBE Isoconcentration Map
August 2017

drawn TAY	checked	approved	figure no. 3
date 12/13/2017	date	date	
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initials	date	revision

leidos

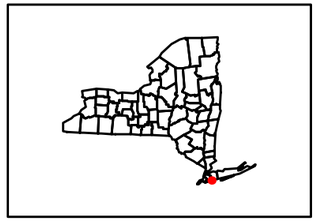
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- MTBE Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

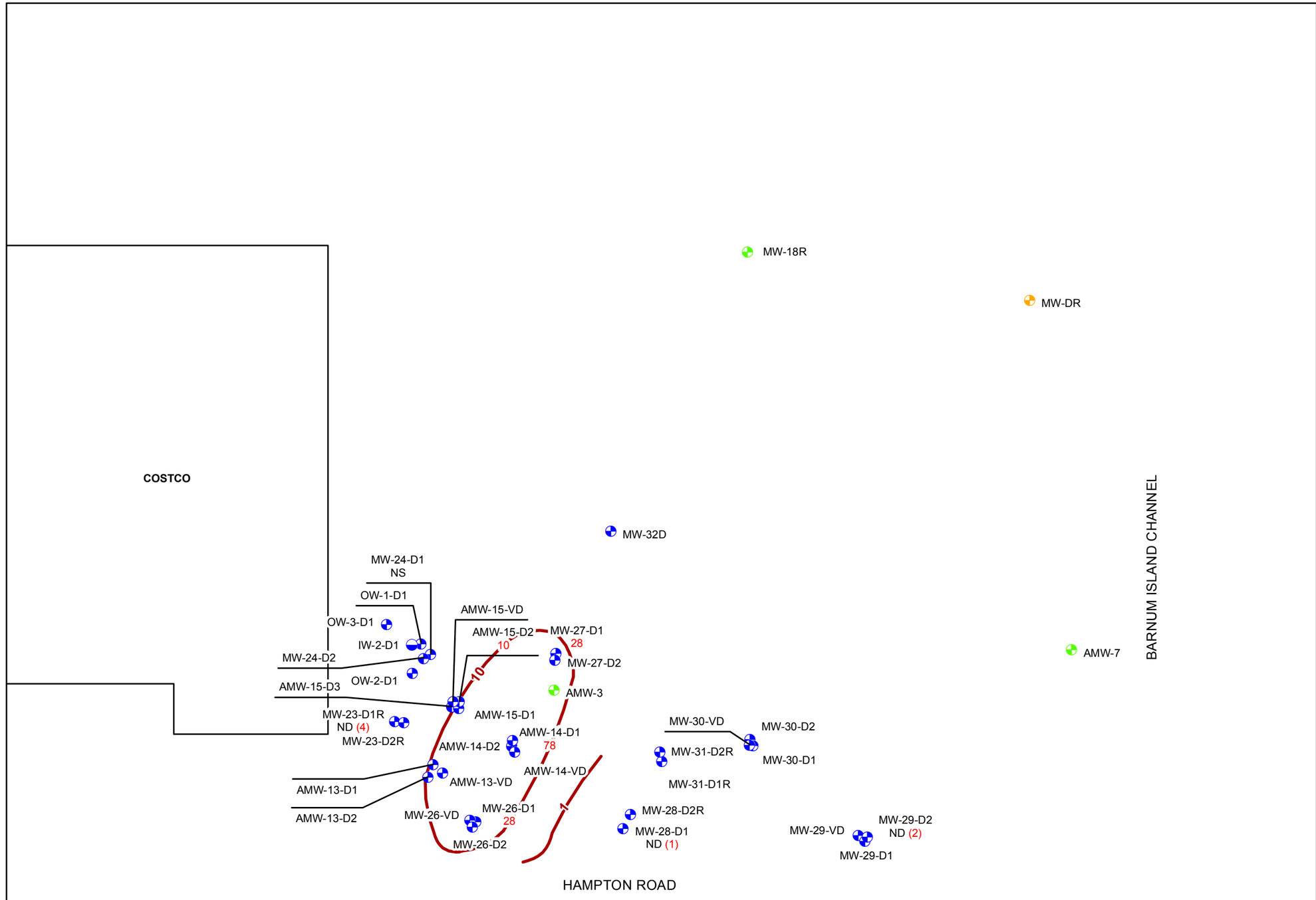
D1 Horizon MTBE Isoconcentration Map
October 2017

drawn TAY	checked	approved	figure no. 4
date 12/13/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. MTBE_Oct_2017

initials	date	revision

leidos

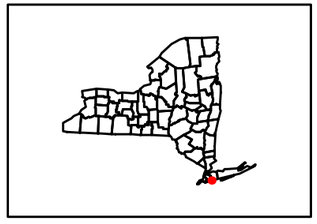
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- Vinyl Chloride Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

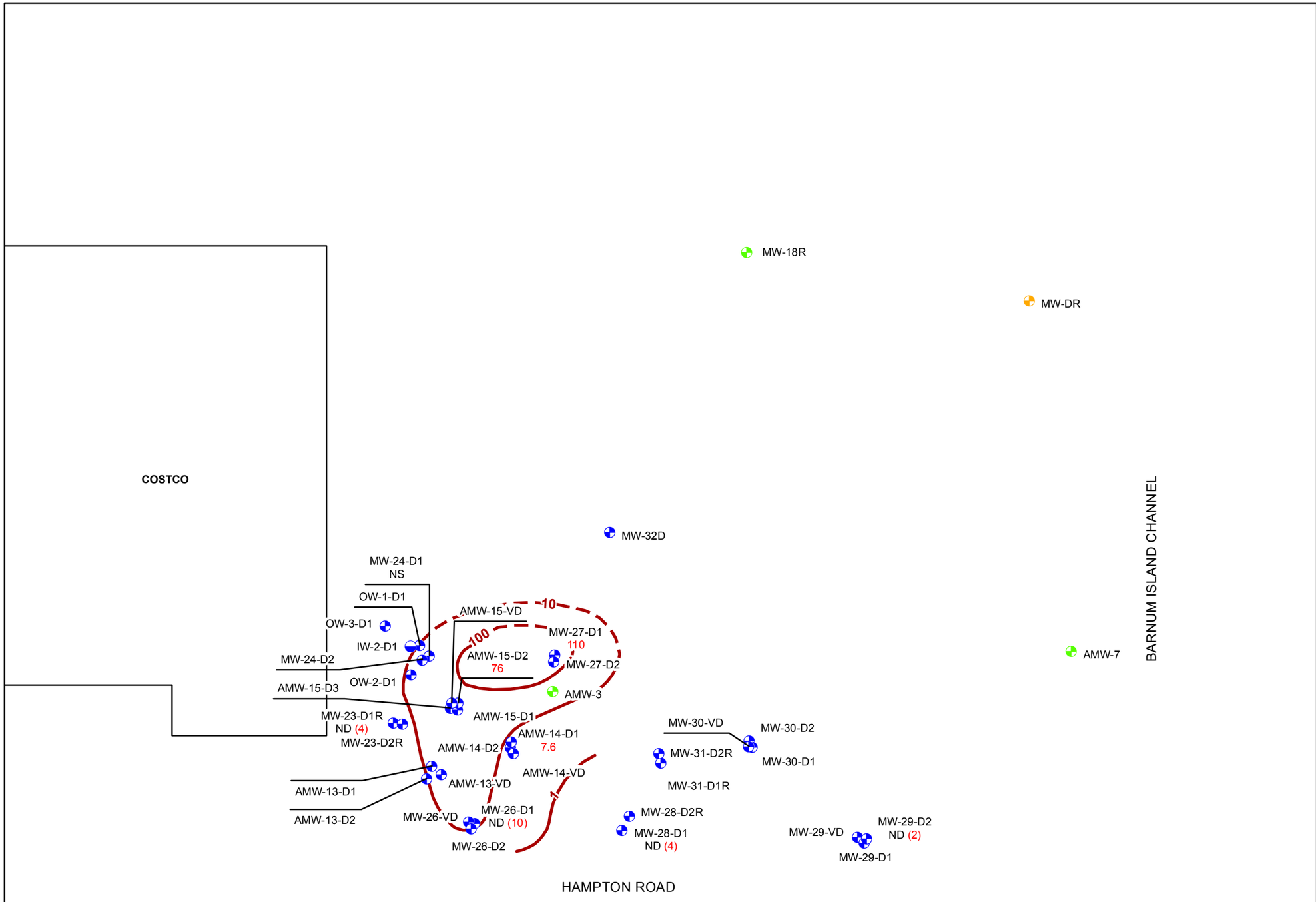
D1 Horizon Vinyl Chloride Isoconcentration
Map July 2017

drawn TAY	checked	approved	figure no.
date 12/13/2017	date	date	5
job no. 319926.00.16.A.695A.0202.0100		file no. VC_Jul_2017	

initials	date	revision

leidos

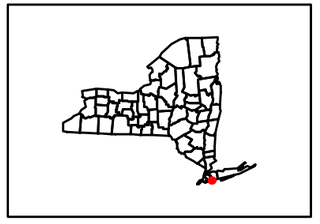
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- Vinyl Chloride Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

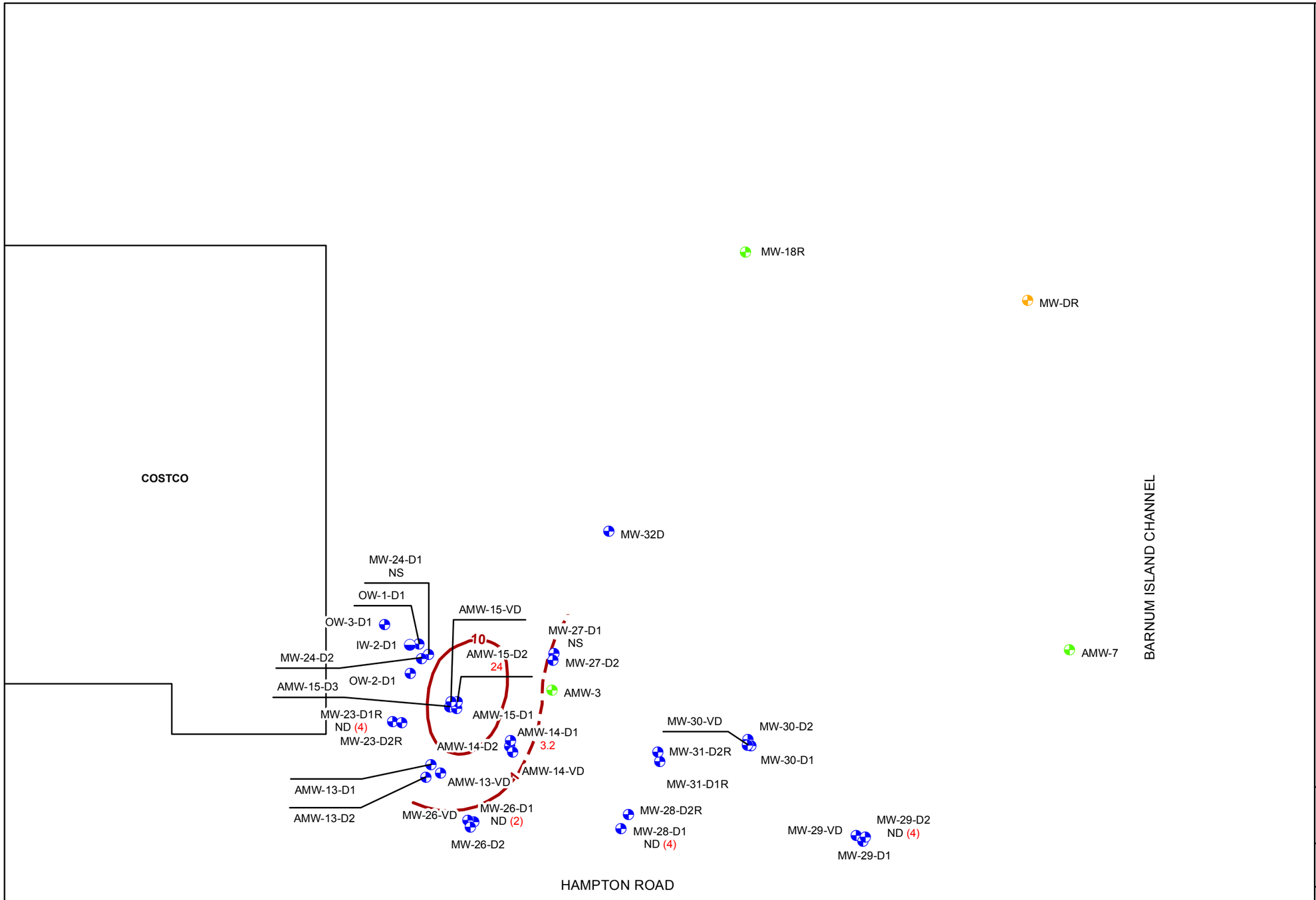
D1 Horizon Vinyl Chloride Isoconcentration
Map August 2017

drawn TAY	checked	approved	figure no.
date 12/13/2017	date	date	6
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initials	date	revision

leidos

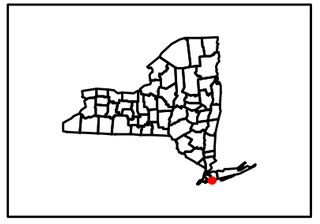
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- Vinyl Chloride Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

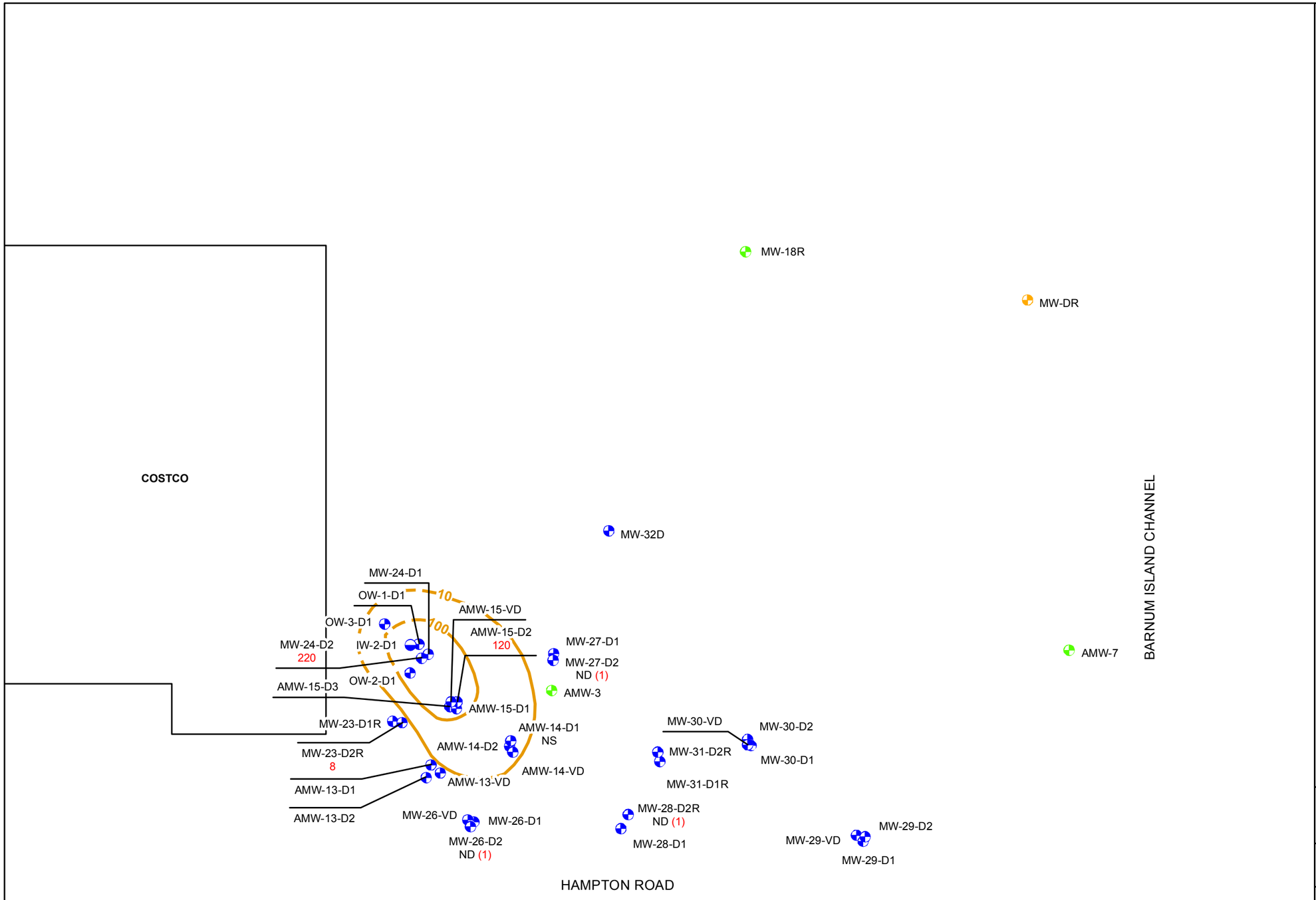
D1 Horizon Vinyl Chloride Isoconcentration
Map Oct 2017

drawn TAY	checked	approved	figure no. 7
date 12/13/2017	date	date	
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initials	date	revision

leidos

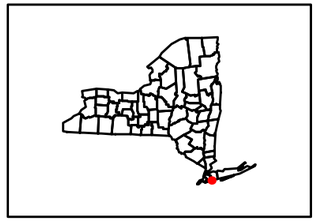
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- MTBE Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 75 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

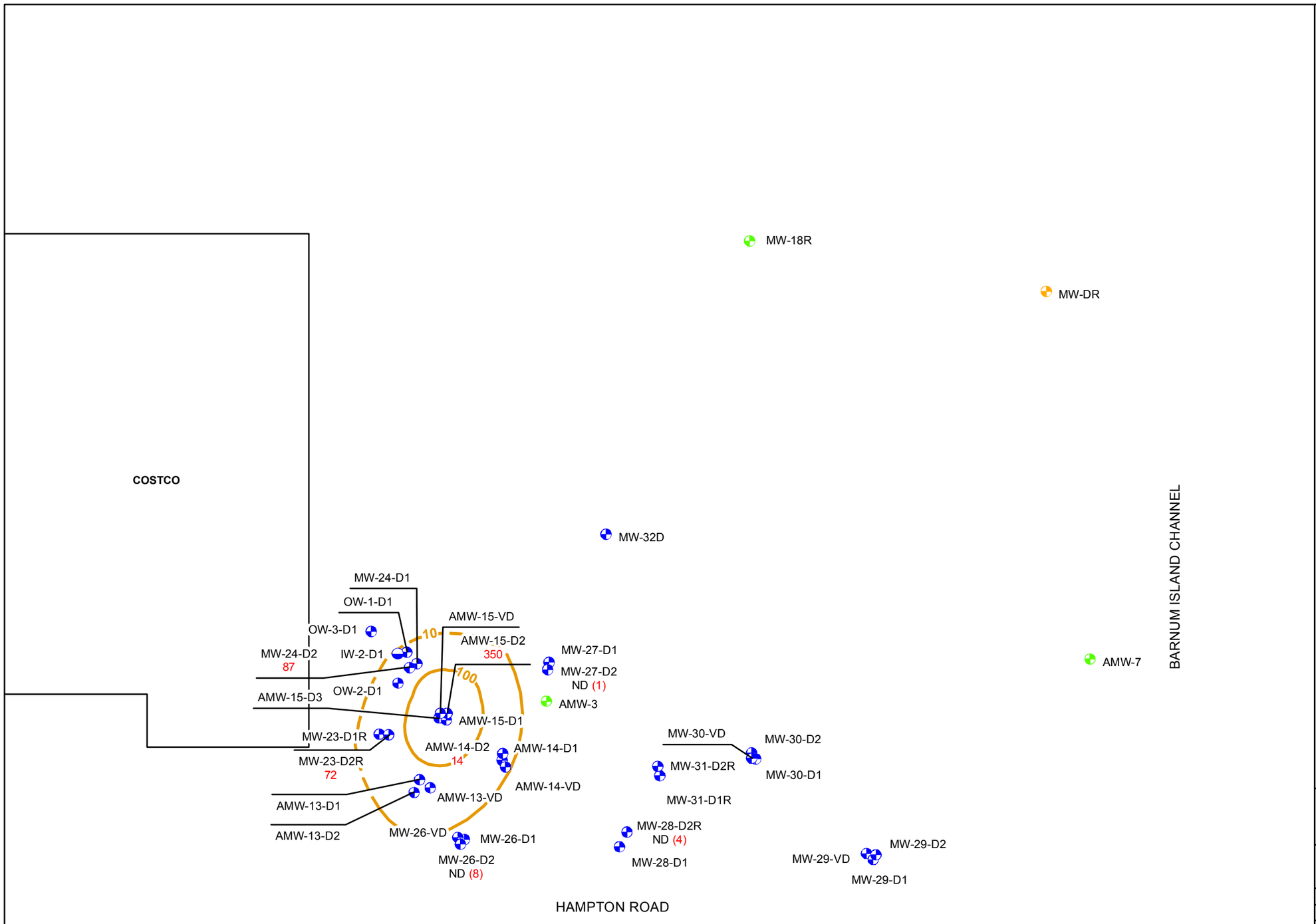
D2 Horizon MTBE Isoconcentration Map
July 2017

drawn TAY	checked	approved	figure no. 8
date 12/14/2017	date	date	
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initials	date	revision

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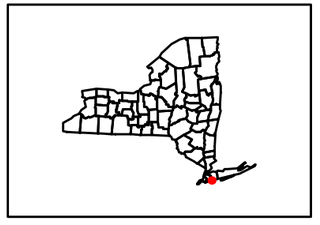
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- MTBE Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 71 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

D2 Horizon MTBE Isoconcentration Map
August 2017

drawn TAY	checked	approved	figure no. 9
date 12/14/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. MTBE_D2_August_2017

initials	date	revision

leidos

Path: D:\Harrisburg\GISData\CVX\Oceanside, NY 6518040\Projects\2017\MTBE_D2_August_2017.mxd

COSTCO

MW-18R

MW-DR

MW-32D

AMW-7

BARNUM ISLAND CHANNEL

MW-24-D1

OW-1-D1

OW-3-D1

AMW-15-VD

AMW-15-D2
160

MW-24-D2
60

IW-2-D1

10

MW-27-D1

MW-27-D2
ND (1)

AMW-3

OW-2-D1

AMW-15-D3

100

AMW-15-D1

MW-23-D1R

MW-23-D2R
140

AMW-14-D2
48

AMW-14-D1

AMW-14-VD

AMW-13-VD

AMW-13-D1

AMW-13-D2

MW-26-VD

MW-26-D1

MW-26-D2
14

MW-30-VD

MW-30-D2

MW-31-D2R

MW-30-D1

MW-31-D1R

MW-28-D2R
ND (1)

MW-28-D1

MW-29-VD

MW-29-D2

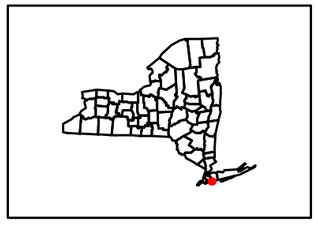
MW-29-D1

HAMPTON ROAD

Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- MTBE Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 71 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

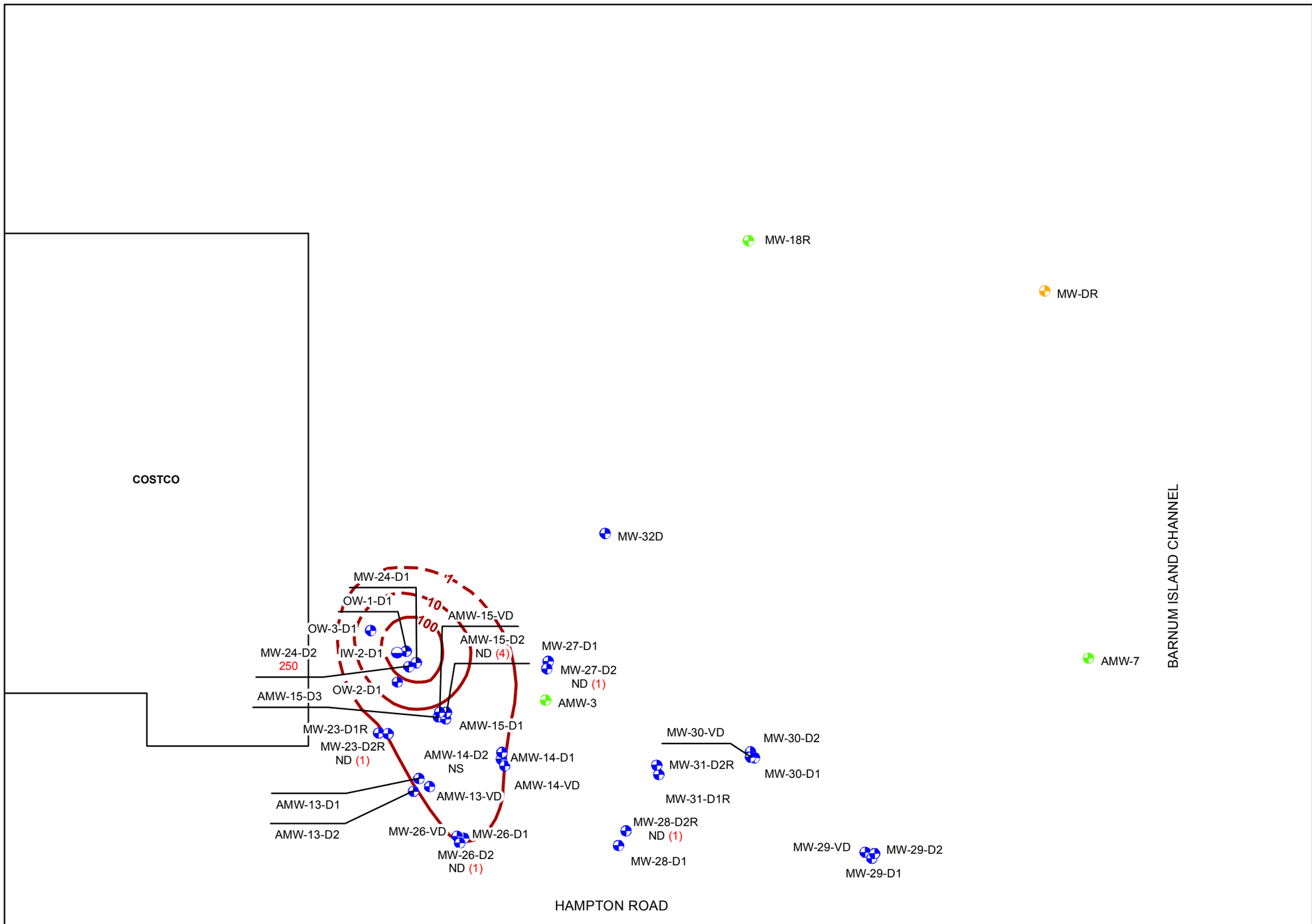
D2 Horizon MTBE Isoconcentration Map
October 2017

drawn TAY	checked	approved	figure no. **10**
date 12/15/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. MTBE_D2_October_2017

initials	date	revision

leidos

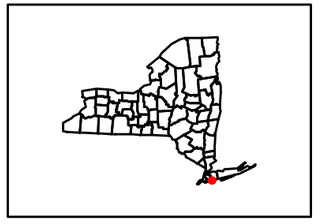
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- Vinyl Chloride Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 71 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

D2 Horizon Vinyl Chloride Isoconcentration
Map July 2017

drawn TAY	checked	approved	figure no. 11
date 12/15/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. VC_D2_Jul_2017

initials	date	revision

leidos

Path: D:\Harrisburg\GISData\CVX\Oceanside, NY 6518040\Projects\2017\VC_D2_Jul_2017.mxd

COSTCO

MW-18R

MW-DR

MW-32D

MW-24-D1
NS

OW-1-D1

OW-3-D1

MW-24-D2
72

IW-2-D1

OW-2-D1

AMW-15-D3

MW-23-D1R

MW-23-D2R
ND (4)

AMW-13-D1

AMW-13-D2

-1

-10

-100

AMW-15-VD

AMW-15-D2
300

AMW-15-D1

MW-27-D1

MW-27-D2
ND (1)

AMW-3

AMW-14-D2
ND (1)

AMW-14-D1

AMW-14-VD

AMW-13-VD

MW-26-VD

MW-26-D1

MW-26-D2
ND (8)

MW-30-VD

MW-30-D2

MW-31-D2R

MW-30-D1

MW-31-D1R

MW-28-D2R
ND (4)

MW-28-D1

MW-29-VD

MW-29-D2

MW-29-D1

AMW-7

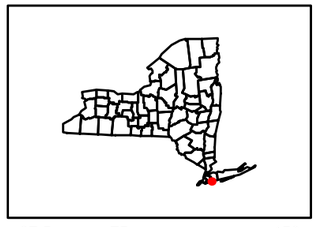
BARNUM ISLAND CHANNEL

HAMPTON ROAD

Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 68 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

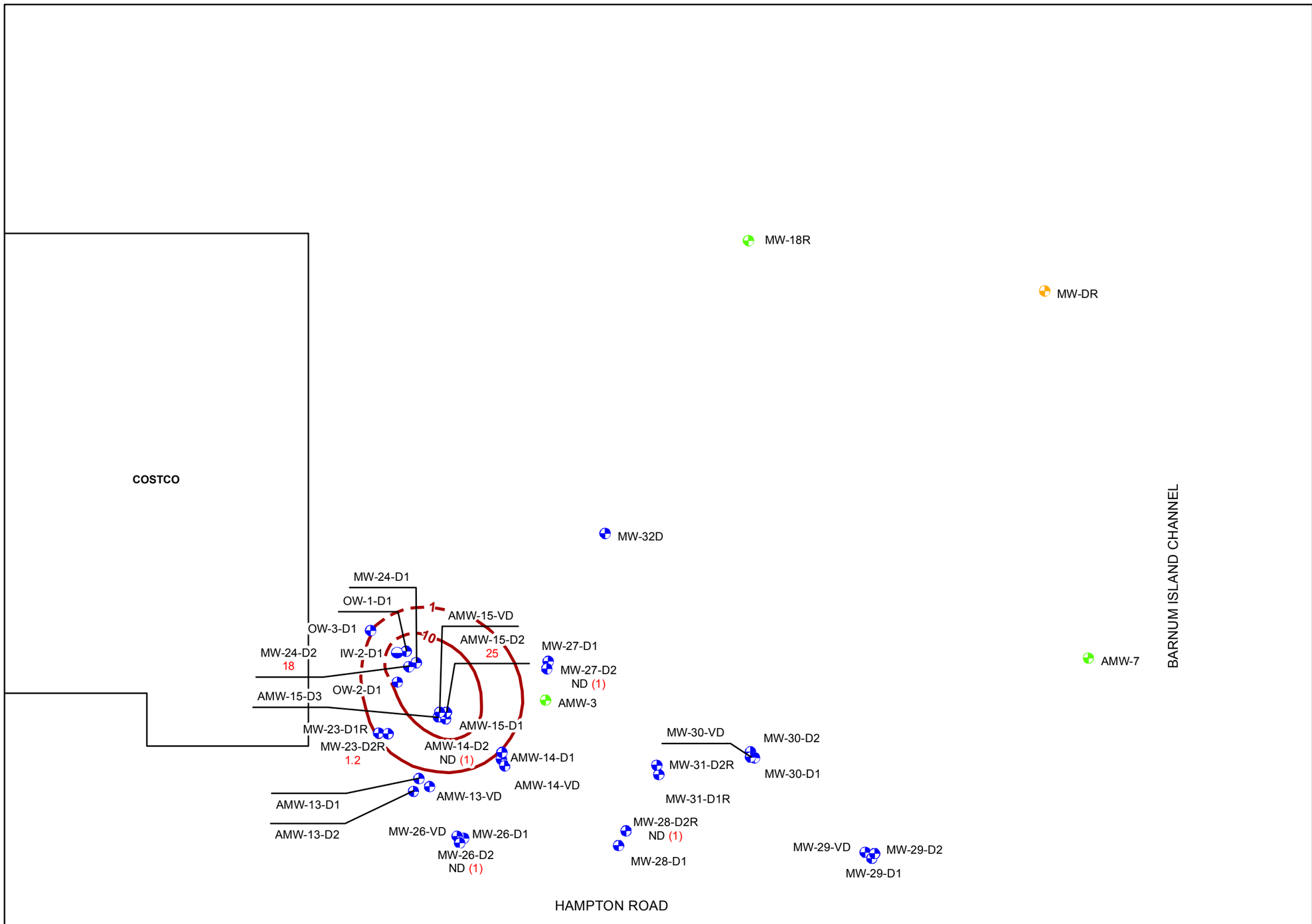
D2 Horizon Vinyl Chloride Isoconcentration
Map August 2017

drawn TAY	checked	approved	figure no.
date 12/13/2017	date	date	12
job no. 319926.00.16.A.695A.0202.0100		file no. VC_D2_Aug_2017	

initials	date	revision

leidos

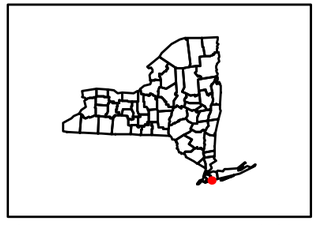
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Legend

- Water Table Monitoring Well
- Meadow Mat Monitoring Well
- Lower Sand Unit Monitoring Well
- Lower Sand Unit Injection Well
- Site Feature
- Vinyl Chloride Isoconcentration

Concentration in micrograms per liter (µg/l)
NS - Not Sampled



0 37.5 75 150 Feet

1 inch = 71 feet

N

Map Coordinate System:
NAD 1983 StatePlane New York Long Island FIPS 3104 Feet

Chevron Facility 6518040
3705 Hampton Rd
Oceanside, NY

D2 Horizon Vinyl Chloride Isoconcentration
Map October 2017

drawn TAY	checked	approved	figure no. 13
date 12/13/2017	date	date	
job no. 319926.00.16.A.695A.0202.0100			file no. VC_D2_Oct_2017

initials	date	revision

leidos

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