3140 CONEY ISLAND AVENUE
BROOKLYN, NEW YORK

SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN REVISION 5

SUBMITTED TO:

New York State Department of Environmental Conservation
Division of Environmental Remediation
Hunters Point Plaza
47-40 21st Street
Long Island City, New York 11101

PREPARED FOR:

3140 Coney Island, LLC
3061 Brighton 6th Street
Brooklyn, New York 11235

PREPARED BY:

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PWGC Project Number: CIR1101

JUNE 22, 2012

P.W. GROSSER CONSULTING PC
PROJECT No. CIR1101

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DRAFT SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN
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CERTIFICATION

I Paul K. Boyce certify that I am currently a [NYS registered professional engineer or Qualified Environmental Professional as defined in 6 NYCRR Part 375] and that this Report [Remedial Design, Remedial Action Work Plan] was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Paul K. Boyce, P.E.
QEP Name

Paul Boyce
QEP Signature

06. 20. 12
Date

1.0 INTRODUCTION

P.W. Grosser Consulting Engineer & Hydrogeologist, PC (PWGC) has prepared the following Supplemental Remedial Investigation Work Plan (SRIWP) to outline procedures and a scope of work intended to delineate subsurface impacted areas of concern at the property located at 3140 Coney Island Avenue in Brooklyn, New York.

The current property owner has been accepted into the New York State Department of Environmental Conservation's (NYSDEC) Brownfield Cleanup Program (BCP) as a Volunteer. As such this is intended to delineate potential areas of concern within the property boundary and evaluate if off-site adjacent properties may be impacted.

1.1 Project Background

The subject site is located at 3140 Coney Island Avenue in Brooklyn, New York and is currently a 0.1 acre vacant lot enclosed with a plywood construction fence. The site was formerly improved with a one-story commercial building with a basement, which was demolished in 2009. The building was used as a dry cleaning facility and was run by Brighton Cleaners. Sanborn maps show operations within the building as cleaning and dyeing from 1950 to 2003. A 1930 Sanborn map shows the building use as a market and according to historic Sanborn maps it was likely a residential or undeveloped area prior to the market.

The subject site was recently purchased by 3140 Coney Island LLC with plans for redevelopment consisting of a 2,672 square foot (footprint) 6 story building to be used for medical offices with three accessory parking spots in the rear.

The site has been accepted into New York State's Brownfield Clean-up Program (BCP), and a Brownfield Clean-up Agreement (BCA) has been executed between NYSDEC and the property owner. BCP number C224157 has been assigned to the site.

A Vicinity Map is included as **Figure 1**; a Site Plan is included as **Figure 2**.

1.2 Previous Investigations

1.2.1 *Phase II ESA (2007)*

A Phase II Environmental Site Assessment (ESA) was reportedly performed at the site in September 2007. Documentation of the Phase II ESA is unavailable, however, the findings of the ESA are summarized in the September 2009 RI Work Plan prepared by Associated Environmental Services, Ltd. (AES). The Phase II ESA reportedly consisted of the collection and analysis of soil and groundwater samples from seven locations throughout the site to assess potential impact related to a dry cleaning operation.

Soil samples collected in the vicinity of an onsite underground storage tank (UST) exhibited evidence of potential petroleum impact (e.g., odors, staining, PID response), and soil sample analysis identified elevated concentrations of semi-volatile organic compounds (SVOCs). Elevated concentrations of volatile organic compounds (VOCs) were detected in each of the groundwater samples collected from beneath the site.

Based on the findings of the Phase II ESA, NYSDEC Spill Number 07-10622 was assigned to the site.

1.2.2 *Remedial Investigation (2010)*

A Remedial Investigation (RI) was performed at the site in 2009 by AES. The scope of work for the RI was detailed in a RI Work Plan dated September 21, 2009, and a RI Work Plan Addendum dated December 10, 2009. Field work for the RI was completed in January 2010, and is documented in a RI Report dated February 12, 2010. The scope of work for the RI consisted of:

- Installation of nine soil borings.
- Installation of eleven groundwater sampling points.
- Collection and analysis of one soil sample from the interval exhibiting the most evidence of impact at each soil boring location.
- Collection and analysis of four groundwater samples from each temporary groundwater sampling point. Groundwater samples were collected from four discreet intervals: 10 to 14 feet below grade, 21 to 25 feet below grade, 33 to 37 feet below grade, and 48 to 52 feet below grade.

Nine soil borings were installed at the site; six in the vicinity of a former metal shed, two in the vicinity of a fuel oil UST, and one in the vicinity of a former dry cleaning machine. Soil sample results identified elevated concentrations of the dry cleaning fluid tetrachloroethene (PCE) at concentrations exceeding its NYSDEC Unrestricted Use Soil Cleanup Objective (UUSCO) of 1,300 parts per billion (ppb) in samples collected from five boring locations. Additional VOCs, including degradation products of PCE such as trichloroethene (TCE) and dichloroethene (DCE), were also detected in these soil boring locations. The highest PCE concentration detected was 3,200,000 ppb; PCE concentrations were highest near the rear of the property (western property boundary).

A total of eleven temporary groundwater sampling points were installed; six onsite, three at the adjacent property to the south, and two approximately 600 feet south of the site along Brighton Beach Avenue. PCE was detected at concentrations exceeding its NYSDEC Ambient Water Quality Standard (AWQS) of 5 ppb in the shallow sampling interval at five of the six onsite groundwater sampling points. PCE was also detected at concentrations exceeding its NYSDEC AWQS in each of the three deeper sampling intervals at three of the onsite groundwater sampling points. PCE concentrations were measured as high as 20,000 ppb in shallow groundwater samples, and 220 ppb in deep groundwater samples.

With the exception of one location, PCE and its degradation products were not detected above their respective NYSDEC AWQS in offsite groundwater samples. At one location, an elevated concentration of vinyl chloride was detected in the shallow sampling interval.

The RI concluded that contaminant impacts in both soil and groundwater appeared to be focused around the former location of a metal storage shed in the southwestern portion of the site, extending northward toward the UST location. Groundwater impact appeared to be limited to the subject site with minimal exceedances detected off site.

RI sample locations and significant results in excess of standards are illustrated in **Figure 3**.

1.2.3 *Supplemental Remedial Investigation (2011)*

A Supplemental RI was performed at the site in 2011 by AES. The scope of work for the Supplemental RI was detailed in a Supplemental RI Work Plan Addendum dated October 30, 2010. Field work for the Supplemental RI was completed in April 2011, and is documented in a Supplemental RI Report dated September 14, 2011. The scope of work for the Supplemental RI consisted of:

- Installation of three monitoring wells.
- Installation of two soil borings.
- Collection of soil and groundwater samples from each boring location.
- Collection of groundwater samples from each monitoring well.

Three monitoring wells were installed at the subject property in the former area of a metal shed, adjacent to the out of service UST, and on the southeastern portion of the property. Groundwater was measured at approximately 10 feet below grade. Well screens were set with two feet of screen above the water table and eight (8) feet of screen below the water table. Water level measurements and well survey data indicated a site specific groundwater flow to the east-northeast. This flow direction does not match regional groundwater flow patterns. Groundwater elevation in this area may be tidally influenced. Regional groundwater flow direction is identified on **Figure 5**.

Groundwater samples collected from the monitoring wells were impacted with PCE and its degradation products at concentrations exceeding their respective NYSDEC AWQS. PCE concentrations ranged from 320 ppb to 42,000 ppb, with the highest concentrations detected in the vicinity of the former metal shed.

Two borings were installed on an angle to the west to a depth of twelve feet below grade at the western property boundary to assess potential migration of contaminants; one soil sample was collected from each boring. PCE and/or its degradation products were detected at concentrations exceeding UUSCOs in each soil sample.

Groundwater samples were also collected at the two soil boring locations at depths of 10 to 12 feet below grade, 23 to 25 feet below grade, 35 to 37 feet below grade, and 50 to 52 feet below grade at each boring location. PCE and/or its degradation products were detected in the 10 to 12 foot and 23 to 25 foot intervals in samples collected from the boring located at the southwestern corner of the property (OSB-1); and in each of the four sample intervals at the boring location located near the central portion of the western property boundary (OSB-2).

Supplemental RI sample locations and results are illustrated in **Figure 3**.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Site Description

The subject site is located at 3140 Coney Island Avenue in the City of New York, New York. The site is located within the Borough of Brooklyn (Kings County). The site is situated on the west side of Coney Island Avenue, between Ocean View Avenue and Brighton Beach Avenue. The property is identified as Block: 8678 Lot: 64 by the New York City Department of Assessment. The site is approximately 4,000 square feet (0.1 acre) and is currently vacant and unoccupied. A Vicinity Map is included as **Figure 1**; a Site Plan is included as **Figure 2**.

2.2 Site History

The site was formerly improved with a one-story commercial building with a basement, which was demolished in 2009. The building was used as a dry cleaning facility run by Brighton Cleaners. Sanborn maps show operations within the building as cleaning and dyeing from 1950 to 2003. A 1930 Sanborn map shows the building use as a market and according to historic Sanborn maps it was likely a residential or undeveloped area prior to the market.

2.3 Regional Geology/Hydrogeology

The geologic setting of Long Island is well documented and consists of crystalline bedrock composed of schist and gneiss overlain by layers of unconsolidated deposits. Immediately overlying the bedrock is the Raritan Formation, consisting of the Lloyd sand confined by the Raritan Clay Member. The Lloyd sand is an aquifer and consists of discontinuous layers of gravel, sand, sandy and silty clay, and solid clay. The Raritan Clay is a solid and silty clay with few lenses of sand and gravel; abundant lignite and pyrite; and gray, red or white in color.

Above the Raritan Clay lies the Magothy Formation. The Magothy Aquifer consists of layers of fine to coarse sand of moderate to high permeability, with inter-bedded lenses of silt and clay of low permeability resulting in areas of preferential horizontal flow. Therefore, this aquifer generally becomes more confined with depth. The Magothy Aquifer is overlain by the Jameco and Upper Glacial Aquifer systems. The Upper Glacial Aquifer is the water table aquifer at this location and is comprised of medium to coarse sand and gravel with occasional thin lenses of fine sand and brown clay. This aquifer extends from the land surface to the top of the Magothy and, therefore, is hydraulically connected to the Magothy Aquifer.

2.4 Site Geology/Hydrogeology

The subject property is located on the peninsula of Coney Island, which was once a barrier island but has been connected to the mainland of Brooklyn by landfill. The property is located within the Pavement & buildings-Hooksan-Verrazano complex, 0 to 8 percent slopes, which is described as "nearly level to gently sloping urbanized areas of sandy sediments that have been substantially cut and filled mostly for residential use; a mixture of sandy soils and loamy-capped anthropogenic soils, with up to 80 percent impervious pavement and buildings covering the surface; located along the southern shorelines of Brooklyn and Queens.

The subject property is located over the Long Island aquifer system, which underlies all of Nassau, Suffolk, Kings (Brooklyn), and Queens Counties. The unconsolidated aquifer formations form a southward-dipping wedge that attains a maximum thickness in Kings County about eight-hundred (800) feet in southeast area of Brooklyn. Overlying bedrock in the area is the Lloyd, Magothy, Jameco, and Upper Glacial aquifer systems. The Upper Glacial aquifer, overlie all underlying units and are found at the surface in nearly all of Kings and Queens Counties. Portions of the Upper Glacial aquifer, which contain a generally thin soil mantle of Holocene age make up most of the Rockaway Peninsula and Coney Island.

The site overlies an interconnected aquifer system consisting of the upper glacial deposits and the underlying Magothy Formation. Depth to groundwater in the underlying glacial aquifer is approximately 10 feet below land surface (bls). The lithologic description of the sediments from soil borings installed during previous investigations at the site identifies the materials as fill material to approximately five feet below grade underlain by layers of fine to medium silty sands and silt.

Groundwater elevation data, obtained as part of the 2011 AES Supplemental RI determined groundwater flow to be toward the east-northeast. Based on the site's close proximity to the Atlantic Ocean, it is likely that groundwater elevation and flow beneath the site may be tidally influenced.

2.5 Site Features

The project site elevation is approximately 10 feet above mean sea level, and is generally level. The previously existing structure at the site has been demolished, and the site is currently vacant. Ground cover at the site is minimal and consists primarily of grass and weeds. The nearest surface water body is the Atlantic Ocean located approximately 0.4-mile south of the site.

2.6 Current and Future Site Use

The site is currently vacant and unoccupied. Proposed future plans for the site include construction of a six-story commercial building with a partial basement to be used as medical offices. The partial basement will be constructed approximately 5.5 feet below sidewalk level. Proposed development plans call for the entirety of the property to be capped by the planned structure and asphalt paved parking areas.

2.6.1 *Surrounding Land Use*

The site is situated in a mixed residential and commercial area of Brooklyn. The adjacent land uses, as shown in **Figure 4,** include multi-family and single family residential homes.

3.0 STANDARDS, CRITERIA, AND GUIDANCE (SCGS)

Based on previous investigations at the site, the primary chemical of potential concern (COPC) to be encountered at the site is tetrachloroethene (PCE) and its degradation products: trichloroethene (TCE), cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride.

NYSDEC 6 NYCRR Part 375 provides soil cleanup objectives based upon future site use. In addition, Track 3 (restricted use with modified soil cleanup objectives) and Track 4 (restricted use with site-specific cleanup objectives) cleanup options can include complete removal of contaminated soils using site specific soil objectives, partial removal with surface capping, in situ treatment, and Institutional Controls and/or Engineering Controls to prevent exposure.

Groundwater sample results will be compared to the NYSDEC Class GA Ambient Water Quality Standards (AWQS) as specified in the Technical Operation and Guidance Series (TOGS 1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.

4.0 OBJECTIVES, SCOPE AND RATIONALE

The primary objectives of the additional work detailed in this plan will be to collect the information and field data necessary to address data gaps pertaining to on-site issues. The Scope of Work includes the following tasks:

1. Evaluation of site specific groundwater flow direction(s)
2. Delineation of groundwater impact
3. Delineation of soil impact
4. Characterization of on and off site soil vapor quality

4.1 Evaluation of Groundwater Flow

In order to obtain the site specific groundwater flow direction, and determine whether groundwater at the site is tidally influenced, four additional monitoring wells (MW-4 through MW-7) will be installed. Proposed locations of the monitoring wells are illustrated in **Figure 5**.

A rotary drill rig and/or Geoprobe® (or equivalent) direct push drill rig outfitted for rotary drilling will be used to install the wells with hollow-stem augers using standard drilling methods. The wells will be constructed of two-inch diameter, schedule 40 PVC casing and screen with 0.010 inch slot. The wells will be constructed with a 10 foot screen section and riser to grade unless precluded by hydrogeologic conditions. The well annulus will be filled

with #2 morie sand, or equivalent, to two feet above the well screen. The screen will be set with seven (7) feet into and three (3) feet above the water table at the time of installation. A two-foot fine sand layer will be installed above the screen followed by a two-foot bentonite seal. Above the bentonite layer, the annulus around the well will be filled with a cement/bentonite grout. A concrete surface pad (2 feet by 2 feet by 6-inch) will be installed. The wells will be finished with flush mount curb boxes. Monitoring well construction diagrams will be developed for each of the monitoring wells.

4.1.1 Monitoring Well Development

No less than 48-hours after installation, the newly installed monitoring wells will be developed by over-pumping to restore the hydraulic properties of the aquifer. Well development will continue until the turbidity of the groundwater is less than or equal to 50 Nephelometric Turbidity Units (NTUs), or when pH, temperature, and conductivity measurements stabilize. Stabilization is considered achieved when three consecutive readings of these field parameters are within five percent of each other over a period of 15 minutes. Monitoring well development water will be containerized for off site disposal.

4.1.2 Groundwater Flow Evaluation

New monitoring wells along with existing wells will be surveyed relative to an arbitrary on-site datum. The measuring points on each well casing will be marked for future measurements. In situ level loggers will be installed in at least three of the wells for a period of 48 hours, at minimum. Level loggers will be used to record groundwater elevation data which will be used to generate groundwater contour maps for several intervals throughout the day through a complete the daily tidal cycle. Groundwater contour maps will be used to determine a site specific groundwater flow direction and evaluate whether groundwater at the site is tidally influenced.

4.2 Delineation of Groundwater Impact

Based on previous investigations at the site, it appears that PCE impact extends laterally throughout the site, and vertically to depths of at least 52 feet below grade in places. To evaluate groundwater quality beneath the site, a minimum of two temporary vertical profile wells (VP-1 & VP-2) will be installed at the site. Upon receipt of analytical data, additional step-out vertical profile wells may be installed and sampled to further delineate impact to the property boundary, if needed, following discussions with NYSDEC. Proposed temporary vertical profile well locations are illustrated in **Figure 6** and were placed in areas where the greatest concentrations of VOCs were detected in past investigations.

4.2.1 *Sampling Protocol*

Vertical profile wells will be installed using a Geoprobe® direct push drill rig (or equivalent) fitted with a drop-down sampling screen. Dual tube sampling procedures will be followed during the investigation. The drive rods, casing, and sample screen will be advanced down to the initial sample depth approximately 10 feet below existing grade. Upon reaching the sample depth, a two foot long stainless steel drop-out well screen will be driven past

the outer casing into undisturbed material. Initial sample collection will be performed at 10 feet below grade; additional samples will be collected at 10 foot intervals below the initial depth by advancing the dual tube sampling equipment to a terminal depth of 100 feet below grade. The inner rods and sampling screen will be decontaminated between each sampling interval. Once the sampling is completed, the borehole will be backfilled with a portland/bentonite grout mixture, which will be poured down the casing as it is removed to prevent further DNAPL migration into the subsurface.

At each sampling interval dedicated, polyethylene tubing and a dedicated stainless-steel check valve will be inserted to the appropriate depth. The sampling interval will be purged using a mechanical actuator pump. Sample intervals will be purged of three to five casing volumes of water prior to sample collection. Field indicator parameters (temperature, conductivity and pH) will be monitored during purging using a multi-parameter water quality meter. Field indicator parameters will be recorded after each casing volume. Non-dedicated sampling equipment will be decontaminated with a laboratory grade detergent and distilled water rinse between sample locations. Samples will be collected in pre-cleaned laboratory supplied glassware, stored in a cooler on ice and transported to the laboratory under proper chain-of-custody procedures. Purge water will be containerized onsite and handled in accordance with the procedures outlined in Section 5.9.

4.3 Soil Delineation

To further delineate the extent of PCE impacted soils, soil borings will be installed throughout the property to quantify the horizontal extent of subsurface impact. A minimum of eight borings (SB-01 through SB-08) will be installed throughout the site. Boring locations will be focused on areas in which impact was detected during previous investigations, where samples were not previously collected. Proposed soil boring locations are illustrated in **Figure 7**.

Soil borings will be installed utilizing a Geoprobe® direct-push drill rig outfitted with a macro-core sampler and dedicated acetate liners. Soils will be collected continuously from ground surface to approximately 20 feet below grade. Soils will be field screened for the presence of VOCs using a PID. The terminal boring depth at each location will be determined based upon PID response and field observations in order to fully delineate soil contamination vertically.

Two soil samples will be collected at each boring location. Samples will be collected from the interval exhibiting the highest PID response, and the two foot interval immediately above the water table (estimated at ten feet below grade). If no PID response above background concentrations is observed, only one sample will be collected from the boring; the sample will be collected from the two-foot interval immediately above the water table interface.

In the event that field observations and PID responses identify the presence of impacted soils, step-out borings may be installed approximately 10 feet outward (with respect to the approximate source area location) or to the

property boundary, from the boring in which impacted soil was identified. Additional step-out borings shall be installed, as necessary following consultation with NYSDEC, until field observations indicate that the horizontal extent of subsurface impact has been adequately delineated, or to the property boundary.

Waste Characterization Sampling

In addition to the site wide remedial investigation soil samples detailed above, an additional nine waste characterization soil borings (WC-01 through WC-09) will be installed through the rear of the property to characterize potential soils to be excavated as part of the proposed Interim Remedial Measure effort. The proposed excavation area was gridded into nine grid boxes for future excavation planning and the proposed soil boring locations are illustrated in **Figure 7**.

Soil borings will be installed utilizing a Geoprobe® direct-push drill rig outfitted with a macro-core sampler and dedicated acetate liners. Soils will be collected continuously from ground surface to approximately 10 feet below grade at locations WC-01 through 06 and five feet below grade at locations WC-07 through WC-09. The shallower sample depths at locations WC-07 through WC-09 are because previous sampling in these areas has indicated that soils at these depths should not need to be removed during the proposed IRM soil excavation. Soils will be field screened for the presence of VOCs using a PID.

A soil sample from the 0-5 feet below and 5-10 feet below grade will be collected for waste characterization analysis at each gridded boring location.

4.4 Soil Vapor Evaluation

To determine whether soil vapor intrusion may be a potential concern for the proposed redevelopment of the property, and/or adjacent off site properties, a total of six soil vapor sampling points will be installed. Two soil vapor sampling points (SG-01 & SG-02) will be installed at the subject property; and access permitting, four soil vapor sampling points will be installed at adjoining properties (SG-03 through SG-06). In the event that access agreements for adjoining properties cannot be obtained, contingency soil vapor sampling points will be installed at the property boundaries to determine the soil gas concentrations leaving the site. Proposed soil vapor sampling points are illustrated in **Figure 8**.

Soil vapor sampling point installation and sample collection will be performed in accordance with New York State Department of Health (NYSDOH) *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (October 2006), and United States Environmental Protection Agency (USEPA) Standard Operating Procedure (SOP) 2042, *Soil Gas Sampling*.

Sampling points will be installed using a Geoprobe® direct-push drill rig or manually driven rods to a depth of approximately six feet below existing grade to correspond to the planned depth of the partial basement of the

proposed building and to a minimum of eight feet below existing grade at off site sampling locations. Sampling points will be constructed of a dedicated stainless steel screen fitted with inert tubing (e.g. polyethylene or Teflon®) to grade. Porous, inert backfill material (e.g., glass beads, washed #1 crushed stone, etc...) will be added to create a sampling zone 1 to 2 feet in length. The sampling point will be sealed above the sampling zone with bentonite slurry for a minimum distance of 3 feet to prevent outdoor air infiltration and the remainder of the borehole will be backfilled with clean material.

Prior to sampling approximately two to three probe volumes will be purged at a flow rate less than 0.2 liters per minute. VOC concentrations will be recorded during purging utilizing a PID. As part of the vapor intrusion evaluation, a tracer gas will be used in accordance with NYSDOH protocols to serve as a quality assurance/quality control (QA/QC) device to verify the integrity of the soil vapor probe seal. Helium will be used as the tracer gas and a box will serve to keep it in contact with the probe during testing. A portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to sampling. If the tracer sample results show a significant presence of the tracer, the probe seals will be adjusted to prevent infiltration. At the conclusion of the sampling round, tracer monitoring will be performed a second time to confirm the integrity of the probe seals.

Soil vapor samples will be collected using one liter SUMMA® canisters fitted with a pre-set flow regulator (approximately 8.3 mL/min). The laboratory will provide certified-clean canisters with an initial vacuum of approximately 26 inches of mercury (in. of Hg) for sample collection and flow regulators pre-set to provide uniform sample collection over an approximate 2-hour sampling period. Sample collection will be ceased (i.e., the valve on the canister closed) when approximately 2 in. of Hg vacuum remains in the canister, leaving a vacuum in the canister as a means for the laboratory to verify the canister did not leak while in transit.

Figure 9 identifies all the sampling locations from the previous investigations and all the proposed sampling locations.

5.0 QUALITY ASSURANCE PROJECT PLAN

This quality assurance project plan (QAPP) presents the objectives, functional activities, methods, and quality assurance / quality control (QA/QC) requirements associated with sample collection and laboratory analysis for characterization activities. The QAPP follows requirements detailed in DER-10, Section 2.

5.1 Project Organization

The investigative efforts defined in this RI work plan will be coordinated by PWGC on behalf of 3140 Coney Island, LLC. The following identifies the responsibilities of various organizations supporting the RI:

- The NYSDEC Project Manager (Jane O'Connell & Bryan Wong) will be responsible for reviewing and approving this work plan, coordinating approval of requested modifications, and providing guidance on regulatory requirements.
- The PWGC Program Manager (James Rhodes and Paul Boyce) will provide technical expertise for review of the project plans, reports and ongoing field activities. The program manager will be responsible for the coordination of the overall BCP with the NYSDEC. The Program Manager will act as the project's Quality Assurance Manager.
- PWGC Project Manager (Kris Almskog) will be responsible for the day to day project management, task leadership, and project engineering support and for the planning and implementation of RI activities. The Project Manager is responsible for ensuring that the requirements of this RI work plan are implemented. The project manager will also act as the site Health and Safety Manager (HSM).
- PWGC Field Team Leader (Thomas Melia) will be responsible for sample collection, oversight of subcontractor personnel, and coordination of daily field activities. Mr. Melia will act as the Site Health and Safety Officer ensuring implementation of the Site Health and Safety Plan.
- A NYSDOH Environmental Laboratory Accreditation Program (ELAP) certified laboratory (to be determined) will be contracted to perform required analyses and reporting, including Analytical Services Protocol (ASP) Category B Deliverables, which will allow for data validation.
- Subcontractors will perform surveying, drilling, and/or sampling at the direction of the Field Team Leader in accordance with this work plan.

Qualifications of the principal personnel participating in the investigation are included in **Appendix A**.

5.2 Laboratory Analysis

Requirements for sample analysis are described below. All samples will be submitted to a NYSDOH ELAP certified laboratory (to be determined) for analysis. Analytical methods, preservation, container requirements, and holding times are summarized in **Table 1**.

5.2.1 *Groundwater Samples*

Groundwater samples will be collected as described in Section 4.2. Groundwater samples will analyzed for TCL VOCs by USEPA Method 8260. Analysis will conform to NYSDEC Analytical Services Protocol (ASP); Category B data deliverables will be submitted.

5.2.2 *Soil Samples*

Soil samples will be collected as described in Section 4.3. Soil samples will be analyzed for TCL VOCs by USEPA Method 8260. Analysis will conform to NYSDEC Analytical Services Protocol (ASP); Category B data deliverables will be submitted.

Waste Characterization Soil Samples

In order to satisfy multiple disposal facilities waste acceptance criteria, soil samples collected for waste acceptance criteria purposes will be analyzed for the following analysis:

- TPH (8015) – one grab sample from each grid and depth (total of 15 samples)
- VOCs (8260) – one grab sample from each grid and depth (total of 15 samples)
- Total Metals (1311/6010) – one composite from shallow grids, one composite from deep grids (total of 2 samples)
- PAHs (8270) - one composite from shallow grids, one composite from deep grids (total of 2 samples)
- Paint Filter (9095) – one composite from each grid and depth (total of 1 sample)
- TCLP VOCs (8260) - one grab from grid WC-03 0-5 feet below grade, one grab from grid WC-06 5-10 feet (total of 2 samples)
- TCLP SVOCs (8270) - one composite from shallow grids, one composite from deep grids (total of 2 samples)
- TCLP Metals (6010) - one composite from each grid and depth (total of 1 sample)
- TCLP Pest/Herbicides/PCBs (8080) - one composite from each grid and depth (total of 1 sample)
- pH, ignitability, reactivity, total cyanide - one composite from each grid and depth (total of 1 sample)

5.2.3 *Soil Vapor Samples*

Soil vapor samples will be collected as described in Section 4.4. Soil Vapor samples will be analyzed for VOCs by USEPA Method TO-15. Analysis will conform to NYSDEC Analytical Services Protocol (ASP); Category B data deliverables will be submitted.

5.3 Field/Laboratory Data Control Requirements

Quality Control (QC) procedures will be followed in the field and at the laboratory to facilitate that reliable data are obtained. When performing field sampling, care shall be taken to prevent the cross-contamination of sampling equipment, sample bottles, and other equipment that could compromise sample integrity. QC samples, including blind duplicates, equipment blanks, trip blanks, method blanks, matrix spike and matrix spike duplicates, and their frequency to be collected in the field are summarized in **Table 2**.

5.4 Sample Identification

Each sample will be identified with a set of information relating individual sample characteristics. Required information consists of Sample Designation, Depth, Date, Time, and Matrix. Examples of sample IDs are shown below.

- PWG-SG-05 (soil vapor sample, location #5)
- PWG-VP-02 @ 95 to 100' (groundwater sample, vertical profile well #2, screen depth 95 to 100 feet)
- PWG-SB-11 @ 8-10' (subsurface soil sample, soil boring #11 from 8 to 10 feet)
- MW-4 (groundwater sample from monitoring well #4)

Sample frequency, locations, depths, and nomenclature may change subject to field decisions and professional judgment. Estimated number of samples to be collected is summarized in **Table 3.**

5.5 Chain-of-Custody, Sample Packaging and Shipment

Each day that samples are collected, a chain-of-custody/request for analysis form will be completed and submitted to the laboratory with samples to be analyzed. A copy of the chain-of-custody will be retained by the Project Manager. The chain-of-custody will include the project name, sampler's signature, sample IDs, date and time of sample collection, and analysis requested.

Samples will be packaged and shipped in a manner that maintains sample preservation requirements during transport (i.e., ice to keep samples cool until receipt at the laboratory), ensures that sample holding times can be achieved by the laboratory, and prevents samples from being tampered with.

If a commercial carrier ships samples, a bill of lading (waybill) will be used as documentation of sample custody. Receipts for bills of lading and other documentation of shipment shall be maintained as part of the permanent custody documentation. Commercial carriers are not required to sign the chain-of-custody as long as it is enclosed in the shipping container and evidence tape (custody seal) remains in place on the shipping container.

5.6 Data Usability and Validation

The main purpose of the data is for use in defining the extent of contamination at the site, to aid in evaluation of potential human health and ecological exposure assessments, and to support remedial action decisions. Based upon this, data usability and validation will be performed as described below. Complete data packages will be archived in the project files, and if deemed necessary additional validation can be performed using procedures in the following sections.

5.6.1 *Data Usability and Validation Requirements*

Data usability and validation are performed on analytical data sets, primarily to confirm that sampling and chain-of-custody documentation are complete, sample IDs can be tied to specific sampling locations, samples were analyzed within the required holding times, and analyses are reported in conformance to NYSDEC ASP, Category 2 data deliverable requirements as applicable to the method utilized.

5.6.2 *Data Usability and Validation Methods*

A designee of the PWGC Project Manager will complete a data usability evaluation for the data collected during the RI and a data usability summary report (DUSR) will be prepared. The DUSR will be prepared in accordance with NYSDEC DER-10, Appendix 2B.

Independent third party data validation will be performed on 5% of the sample data, or on one sample from each sample delivery group (SDG), whichever is greater. Data validation will be performed by a qualified subcontractor independent of the project.

5.7 Field Equipment Calibration

Equipment will be inspected and approved by the Field Team Leader before being used. Equipment will be calibrated to factory specifications, if required. Monitoring equipment will be calibrated following manufacturers recommended schedules. Daily field response checks and calibrations will be performed as necessary (i.e. PID calibrations) following manufacturers standard operating procedures. Equipment calibrations will be documented in a designated field logbook.

5.8 Equipment Decontamination

In order to minimize the potential for cross-contamination, non-dedicated drilling and sampling equipment shall be properly decontaminated prior to and between sampling/drilling locations.

5.8.1 *General Procedures*

Drilling equipment will be decontaminated in a designated area. Sampling equipment and probes will be decontaminated in an area covered with plastic sheeting near the sampling location. Waste material generated during decontamination activities will be containerized, stored and disposed of in accordance with the procedures detailed in Section 5.9. Decontamination of sampling equipment shall be kept to a minimum, and wherever possible, dedicated sampling equipment shall be used. Personnel directly involved in equipment decontamination shall wear appropriate personal protective equipment (PPE).

5.8.2 *Drilling Equipment*

Drilling equipment shall be decontaminated by steam cleaning prior to performance of the first boring/excavation and between all subsequent borings/excavations. This shall include hand tools, casing, augers, drill rods, temporary well material and other related tools and equipment. Water used during drilling and/or steam cleaning operations shall be from a potable source.

5.8.3 *Sampling Equipment*

Sampling equipment (i.e., trowels, knives, split-spoons, bowls, hand augers, etc...) will be decontaminated prior to each use as follows:

- Laboratory-grade glassware detergent and tap water scrub to remove visual contamination
- Generous tap water rinse
- Distilled water rinse

5.8.4 *Meters and Probes*

All meters and probes that are used in the field (other than those used solely for air monitoring purposes, e.g., PID meters) will be decontaminated between uses as follows:

- Laboratory-grade detergent and tap water solution wash
- Tap water rinse
- Distilled water rinse (triple rinse)

5.9 Management of Investigation Derived Waste

Waste materials generated from the field operations may consist of soil cuttings, purge water, and miscellaneous solid materials such as personal protective equipment (PPE) and supplies. Investigative derived waste (IDW) generated during field operations will be disposed of in accordance with applicable regulations.

Soil cuttings generated from soil boring and vertical profile well installation activities will be stored in 55-gallon drums. Drums will be labeled to indicate the source of the soil and will be stored in a designated area onsite. Soil cores and soil cuttings will be field screened using a PID, while performing drilling operations. Drummed soils will be sampled to determine if spreading on-site is appropriate or off-site disposal is required. Following receipt of the analytical results, recommendations for disposition of the drummed soil will be provided to the NYSDEC.

Development and purge water generated during the field activities will be stored in a portable holding tank and/or 55-gallon drums. Drums will be labeled to indicate the source of the fluid and will be stored in a designated area onsite. Drummed groundwater will be sampled to determine if discharge to the surface of the site is appropriate or off-site disposal is required. Following receipt of the groundwater sampling results, recommendations for disposition of the water will be provided to NYSDEC.

In addition, PWGC will collect In-situ soil samples across the western portion of the site during the remedial investigation in order to determine whether soils generated during the Interim Remedial Measure (IRM) will be disposed as hazardous or non-hazardous wastes. Soils will be collected from grade to the bottom of the excavation depth at 15 locations and analyzed for total VOCs via EPA method 8260 and TCLP VOCs via EPA method 1311 in order to determine whether or not they will be disposed of as hazardous waste. A map showing the sample locations is located on **Figure 7**.

Based upon correspondence with NYSDEC Division of Solid and Hazardous Materials, investigation and remedial derived wastes will be disposed of as hazardous or non-hazardous waste based upon their characteristic qualities. Non-hazardous waste streams will be approved by NYSDEC in advance.

5.10 Field Documentation

Documentation will take place on either appropriate forms or in a dedicated site logbook. Permanent black or blue ink will be used to record information in the logbook. Errors in field documentation will be lined through, initialed, dated, and corrected. Forms will be kept by the PWGC Field Team Leader during the field activities. Field activities will be documented in the field logbook. The logbook will contain waterproof pages that are consecutively numbered, and be permanently bound with a hard cover. Upon completion of daily activities, unused portions of pages will be lined-through and initialed.

The primary purpose of the field logbook is to document the daily field activities and to provide descriptions of each activity. All entries in the field logbook will be recorded and dated by person making the entry.

6.0 REMEDIAL INVESTIGATION REPORT PREPARATION

The Supplemental Remedial Investigation Report (SRIR) will incorporate the methods and findings of the Supplemental Investigation activities performed as outlined in this work plan. The report will identify specific contamination concentrations throughout each media (e.g. soil, groundwater, etc), delineate the extent of contamination in soil and groundwater, evaluate potential exposure pathways, and provide conclusions and recommendations for additional investigation and/or remedial action. Electronic copies of the Supplemental Investigation Report will be submitted to the NYSDEC along with hard copies. Analytical results of the investigation will be submitted in the electronic data delivery (EDD) format through the Departments environmental information management system (EIMS).

7.0 HEALTH AND SAFETY

Field operations will be performed in accordance with the health and safety requirements to be provided in the site specific Health and Safety Plan (HASP). The HASP outlines the requirements for training, medical surveillance, daily tailgate meetings, emergency response, and accident and injury reporting. The HASP is included as Appendix B to the Interim Remedial Measure Work Plan (December 2011).

Activity hazard analyses (AHAs) have been completed for identified work activities planned for the investigation.

The PWGC Field Team Leader will be responsible for implementing the HASP, completing the daily tailgate safety meetings and performing necessary Industrial Hygiene (IH) monitoring as specified in the HASP.

8.0 COMMUNITY AIR MONITORING PLAN

A site specific Community Air Monitoring Plan (CAMP) will be prepared to provide measures for protection for on-site workers and the downwind community from potential airborne contaminants as a direct result of the Supplemental Investigation. The CAMP is included as Appendix C to the Interim Remedial Measure Work Plan (December 2011).

The Community Air Monitoring Plan will be implemented and executed in accordance with 29 CFR 1910.120(h), the New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan, and the New York State Department of Environmental Conservation (NYSDEC) TAGM #4031.

9.0 PROJECT SCHEDULE

The preliminary schedule for the major project milestones is presented in **Table 4**. The field work is anticipated to start in June 2012, following approval of this SRIWP by NYSDEC, and be completed by August 2012. A draft RI Report should be submitted to the NYSDEC by November 2012.

10.0 REFRENCES

Associated Environmental Services Ltd, September 21, 2009, Remedial Investigation Work Plan - 3140 Coney Island Ave. Brooklyn, New York

Associated Environmental Services Ltd, December 10, 2009, Addendum Remedial Investigation Work Plan - 3140 Coney Island Ave. Brooklyn, New York

Associated Environmental Services Ltd, February 12, 2010, Remedial Investigation Report - 3140 Coney Island Ave. Brooklyn, New York

Associated Environmental Services Ltd, October 30, 2010, Supplemental Remedial Investigation Work Plan Addendum - 3140 Coney Island Ave. Brooklyn, New York

Associated Environmental Services Ltd, September 14, 2011, Supplemental Remedial Investigation Report - 3140 Coney Island Ave. Brooklyn, New York

NYSDEC, Division of Environmental Restoration, 6 NYCRR Part 375 Subpart 6, Remedial Program Soil Cleanup Objectives

NYSDEC, Division of Environmental Remediation, December 2002, Draft DER-10, Technical Guidance for Site Investigation and Remediation.

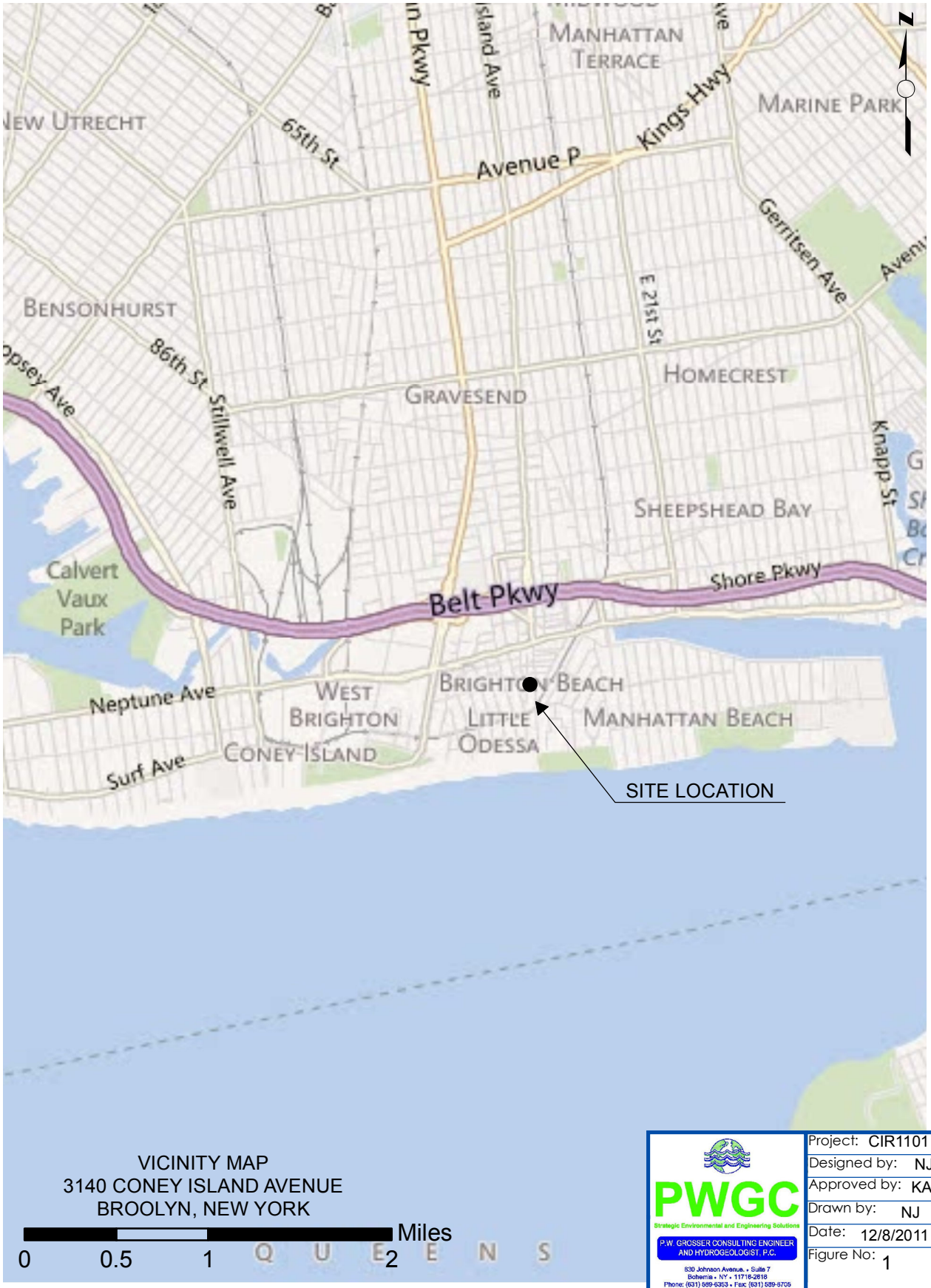
NYSDEC, Division of Hazardous Waste Remediation, January 24, 1994, Memorandum # 4046, Technical and Administrative Guidance Memorandum #4046, Determination of Soil Cleanup Objectives and Cleanup Levels

NYSDEC, Division of Water, June 1998, Addendum April 2000, Technical and Operational Guidance Series 1:1:1, Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations

NYSDOH, October 2006, Guidance for Evaluating Soil Vapor Intrusion in the State of New York

USEPA, Standard Operating Procedure SOP 2042, Soil Gas Sampling

FIGURES



VICINITY MAP
3140 CONEY ISLAND AVENUE
BROOLYN, NEW YORK

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Project:	CIR1101
Designed by:	NJ
Approved by:	KA
Drawn by:	NJ
Date:	12/8/2011
Figure No:	1

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Fuel Oil UST
Former Dry Cleaning Machine
Property Line
Former Building

DRAWINGS PREPARED FOR:

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REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

PROJECT:	CIR1101	APPROVED BY:	KA
DESIGNED BY:	NJ	DATE:	12/8/2011
DRAWN BY:	NJ	SCALE:	As Shown

SHEET TITLE:

SITE PLAN
3140 CONEY ISLAND AVENUE
BROOKLYN, NEW YORK

FIGURE NO: 2

SHEET: 2 of 9

Groundwater				
Analyte	GW-1			
	10-14'	21-25'	33-37'	48-52'
cis-1,2-Dichloroethene	ND	ND	ND	ND
Tetrachloroethene	**20J**	1.3	1.2	1.7
trans-1,2-Dichloroethene	**16J**	ND	ND	ND
Trichloroethene	ND	ND	ND	ND
Vinyl Chloride	ND	ND	0.65J	ND

Groundwater				
Analyte	GW-2			
	10-14'	21-25'	33-37'	48-52'
cis-1,2-Dichloroethene	**470**	1.3	0.68J	ND
Tetrachloroethene	**20,000**	**86**	**53**	**18**
trans-1,2-Dichloroethene	**11**	ND	ND	ND
Trichloroethene	**1,600**	4.4	2.2	ND
Vinyl Chloride	**160**	ND	ND	ND

Groundwater				
Analyte	OSB-1			
	10-12'	23-25'	35-37'	50-52'
cis-1,2-Dichloroethene	3	**5.2**	1.0	1.0
Tetrachloroethene	1.0	0.8	1.4	2.4
trans-1,2-Dichloroethene	ND	ND	ND	ND
Trichloroethene	ND	0.66	ND	ND
Vinyl Chloride	**15**	**5.5**	ND	ND

Groundwater				
Analyte	AWQS	MW-1		
cis-1,2-Dichloroethene	5	**3,200**		
Tetrachloroethene	5	**1,000**		
Trichloroethene	5	**620**		
Vinyl Chloride	2	**760**		

Groundwater				
Analyte	GW-3			
	10-14'	21-25'	33-37'	48-52'
cis-1,2-Dichloroethene	**940**	**1,200**	2.8	4.2
Tetrachloroethene	**72**	**220C**	**8.3**	**35**
trans-1,2-Dichloroethene	**5.2**	**8.8**	ND	ND
Trichloroethene	**120**	**330**	0.77J	1.4
Vinyl Chloride	**290**	**280**	ND	ND

Groundwater				
Analyte	GW-6			
	10-14'	21-25'	33-37'	48-52'
cis-1,2-Dichloroethene	**5.1**	**260**	2.4	ND
Tetrachloroethene	**19C**	**11**	**5.8C**	**14**
trans-1,2-Dichloroethene	ND	ND	ND	ND
Trichloroethene	1.7	2.1	ND	0.59J
Vinyl Chloride	**3.7**	**350**	**8.5**	ND

Groundwater				
Analyte	OSB-2			
	10-12'	23-25'	35-37'	50-52'
cis-1,2-Dichloroethene	**27,000**	**72**	**300**	**6.5**
Tetrachloroethene	ND	**6.5**	**7.7**	**14**
trans-1,2-Dichloroethene	ND	ND	ND	ND
Trichloroethene	ND	1.1	ND	ND
Vinyl Chloride	**8,300**	**24**	**10**	ND

Groundwater				
Analyte	AWQS	MW-2		
cis-1,2-Dichloroethene	5	**8,200**		
Tetrachloroethene	5	**42,000**		
Trichloroethene	5	**6,700**		
Vinyl Chloride	2	ND		

Groundwater				
Analyte	GW-7			
	10-14'	21-25'	33-37'	48-52'
cis-1,2-Dichloroethene	ND	ND	ND	ND
Tetrachloroethene	0.84JC	ND	0.84JC	0.92J
trans-1,2-Dichloroethene	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND

Groundwater				
Analyte	GW-8			
	10-14'	21-25'	33-37'	48-52'
cis-1,2-Dichloroethene	**160**	1.9	2.0	2.0
Tetrachloroethene	**7.5**	0.88J	0.63J	1.3
trans-1,2-Dichloroethene	4.3	ND	ND	ND
Trichloroethene	3.8	ND	ND	ND
Vinyl Chloride	**9.2**	ND	ND	ND

Soil		
Analyte	OSB-1	
	9-10'	
cis-1,2-Dichloroethene	**800**	
Tetrachloroethene	120	
trans-1,2-Dichloroethene	ND	
Trichloroethene	ND	
Vinyl Chloride	ND	

Soil		
Analyte	OSB-2	
	8-9'	
cis-1,2-Dichloroethene	**1,200**	
Tetrachloroethene	**32,000**	
trans-1,2-Dichloroethene	27	
Trichloroethene	**3,100**	
Vinyl Chloride	2	

Groundwater				
Analyte	GW-9			
	10-14'	21-25'	33-37'	48-52'
cis-1,2-Dichloroethene	3.8	ND	0.68J	ND
Tetrachloroethene	2.9	0.64J	1.3	0.97J
trans-1,2-Dichloroethene	0.58J	ND	ND	ND
Trichloroethene	ND	ND	ND	ND
Vinyl Chloride	**2.3**	ND	ND	ND

Groundwater				
Analyte	AWQS	MW-3		
cis-1,2-Dichloroethene	5	**1,100**		
Tetrachloroethene	5	**320**		
Trichloroethene	5	**98**		
Vinyl Chloride	2	**230**		

Groundwater	
Analyte	B-1
cis-1,2-Dichloroethene	<5
Tetrachloroethene	**116**
trans-1,2-Dichloroethene	<5
Trichloroethene	**10**
Vinyl Chloride	<5

Groundwater	
Analyte	B-5
cis-1,2-Dichloroethene	<25
Tetrachloroethene	<25
trans-1,2-Dichloroethene	<25
Trichloroethene	<25
Vinyl Chloride	**63**

Groundwater	
Analyte	B-2
cis-1,2-Dichloroethene	<5
Tetrachloroethene	**22**
trans-1,2-Dichloroethene	<5
Trichloroethene	**1,700**
Vinyl Chloride	**2,080**

Groundwater	
Analyte	B-6
cis-1,2-Dichloroethene	<5
Tetrachloroethene	**31**
trans-1,2-Dichloroethene	<5
Trichloroethene	**7**
Vinyl Chloride	**18**

Groundwater	
Analyte	B-3
cis-1,2-Dichloroethene	<5
Tetrachloroethene	**105**
trans-1,2-Dichloroethene	<5
Trichloroethene	**20**
Vinyl Chloride	**382**

Groundwater	
Analyte	B-7
cis-1,2-Dichloroethene	<5
Tetrachloroethene	**14**
trans-1,2-Dichloroethene	<5
Trichloroethene	<5
Vinyl Chloride	**<5**

Groundwater	
Analyte	B-4
cis-1,2-Dichloroethene	<5
Tetrachloroethene	**8**
trans-1,2-Dichloroethene	<5
Trichloroethene	<5
Vinyl Chloride	**46**

Soil	
Analyte	B-8
	8-10'
cis-1,2-Dichloroethene	**5,000**
Tetrachloroethene	990
trans-1,2-Dichloroethene	ND
Trichloroethene	380J
Vinyl Chloride	ND

Soil	
Analyte	B-9
	5-7'
cis-1,2-Dichloroethene	200
Tetrachloroethene	**1,100,000**
trans-1,2-Dichloroethene	3.2J
Trichloroethene	**1,300**
Vinyl Chloride	ND

Soil	
Analyte	B-11
	7-9'
cis-1,2-Dichloroethene	7
Tetrachloroethene	160
trans-1,2-Dichloroethene	ND
Trichloroethene	9
Vinyl Chloride	ND

Soil	
Analyte	B-12
	6-8'
cis-1,2-Dichloroethene	140
Tetrachloroethene	**170,000**
trans-1,2-Dichloroethene	1.3J
Trichloroethene	**4,200**
Vinyl Chloride	ND

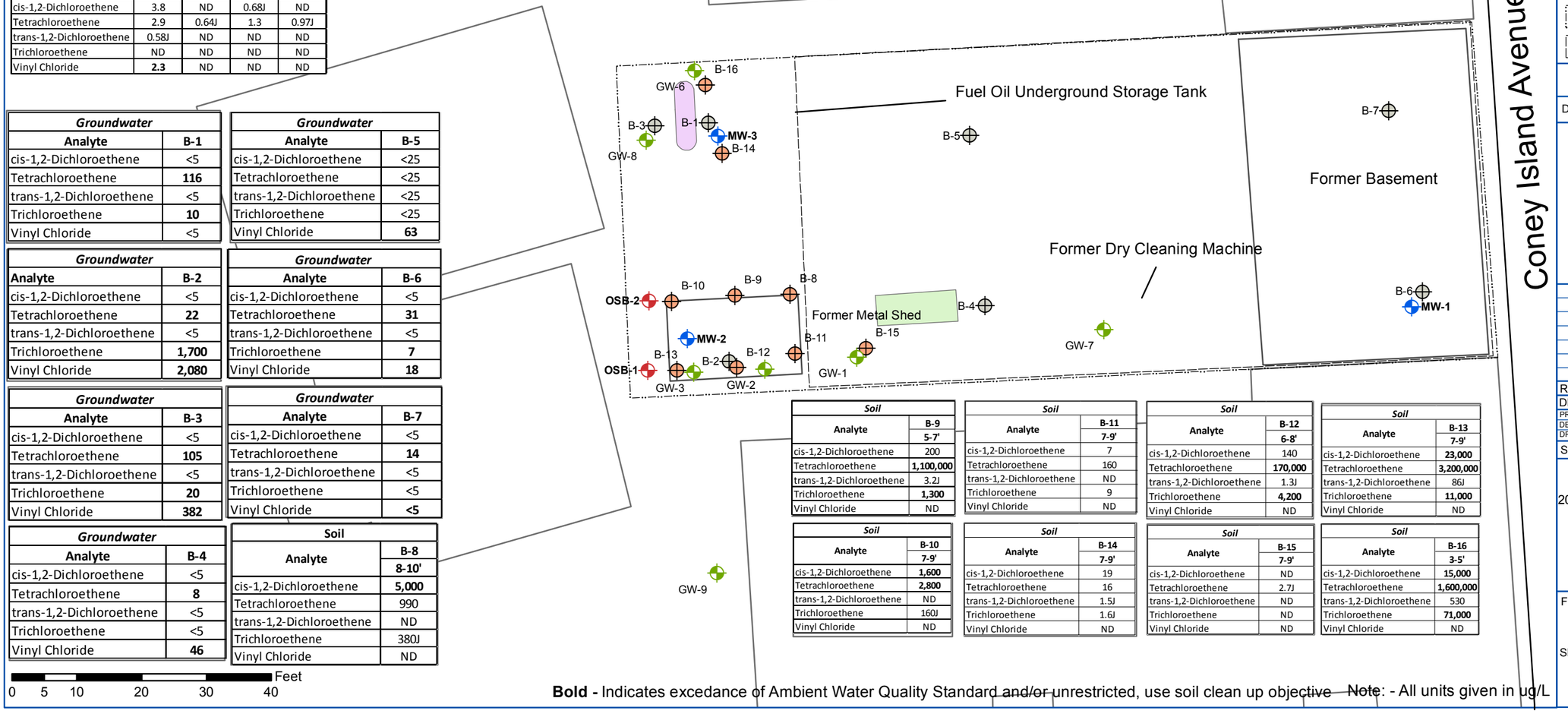
Soil	
Analyte	B-13
	7-9'
cis-1,2-Dichloroethene	**23,000**
Tetrachloroethene	**3,200,000**
trans-1,2-Dichloroethene	86J
Trichloroethene	**11,000**
Vinyl Chloride	ND

Soil	
Analyte	B-10
	7-9'
cis-1,2-Dichloroethene	**1,600**
Tetrachloroethene	**2,800**
trans-1,2-Dichloroethene	ND
Trichloroethene	160J
Vinyl Chloride	ND

Soil	
Analyte	B-14
	7-9'
cis-1,2-Dichloroethene	19
Tetrachloroethene	16
trans-1,2-Dichloroethene	1.5J
Trichloroethene	1.6J
Vinyl Chloride	ND

Soil	
Analyte	B-15
	7-9'
cis-1,2-Dichloroethene	ND
Tetrachloroethene	2.7J
trans-1,2-Dichloroethene	ND
Trichloroethene	ND
Vinyl Chloride	ND

Soil	
Analyte	B-16
	3-5'
cis-1,2-Dichloroethene	**15,000**
Tetrachloroethene	**1,600,000**
trans-1,2-Dichloroethene	530
Trichloroethene	**71,000**
Vinyl Chloride	ND



Bold - Indicates excedance of Ambient Water Quality Standard and/or unrestricted, use soil clean up objective Note: - All units given in ug/L

N

Coney Island Avenue

PWGC

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- Offsite Soil Borings
- Monitoring Wells
- Groundwater Borings
- 2010 Soil Borings
- Previous Soil Borings
- Property Line
- Former Building

DRAWINGS PREPARED FOR:

3140 Coney Island Realty, LLC
172 Jaffrey Street
Brooklyn, New York 11235
&
New York State Dept. of Environmental Conservation
Region 2
47-40 21st Street
Long Island City, New York 11101-5407

REVISION	DATE	INITIAL	COMMENTS

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DRAWN BY:	BB	SCALE:	As Shown

SHEET TITLE:

2011 Supplemental Remedial Investigation Report
3140 Coney Island Avenue
Brooklyn, New York

FIGURE NO:

3

SHEET:

3 of 9

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REVISION	DATE	INITIAL	COMMENTS

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DRAWN BY:	NJ	SCALE:	As Shown

SHEET TITLE:

SURROUNDING LAND USE
3140 CONEY ISLAND AVENUE
BROOKLYN, NEW YORK

FIGURE NO: 4

SHEET: 4 of 9

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- Existing Monitoring Wells
- Proposed Monitoring Wells
- Fuel Oil UST
- Former Dry Cleaning Machine
- Property Line
- Former Building

DRAWINGS PREPARED FOR:

3140 Coney Island Realty, LLC
172 Jaffrey Street
Brooklyn, New York 11235
&
New York State Dept. of Environmental Conservation
Region 2
47-40 21st Street
Long Island City, New York 11101-5407

REVISION	DATE	INITIAL	COMMENTS

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SHEET TITLE:

PROPOSED MONITORING WELL LOCATIONS
3140 CONEY ISLAND AVENUE
BROOKLYN, NEW YORK

FIGURE NO: 5

SHEET: 5 of 9

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- Proposed Vertical Profile Location
- Fuel Oil UST
- Former Dry Cleaning Machine
- Property Line
- Former Building

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PROPOSED VERTICAL PROFILE LOCATIONS
3140 CONEY ISLAND AVENUE
BROOKLYN, NEW YORK

FIGURE NO: 6

SHEET: 6 of 9

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Proposed Soil Sample Location
Former Building
Property Line

DRAWINGS PREPARED FOR:

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Brooklyn, New York 11235
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47-40 21st Street
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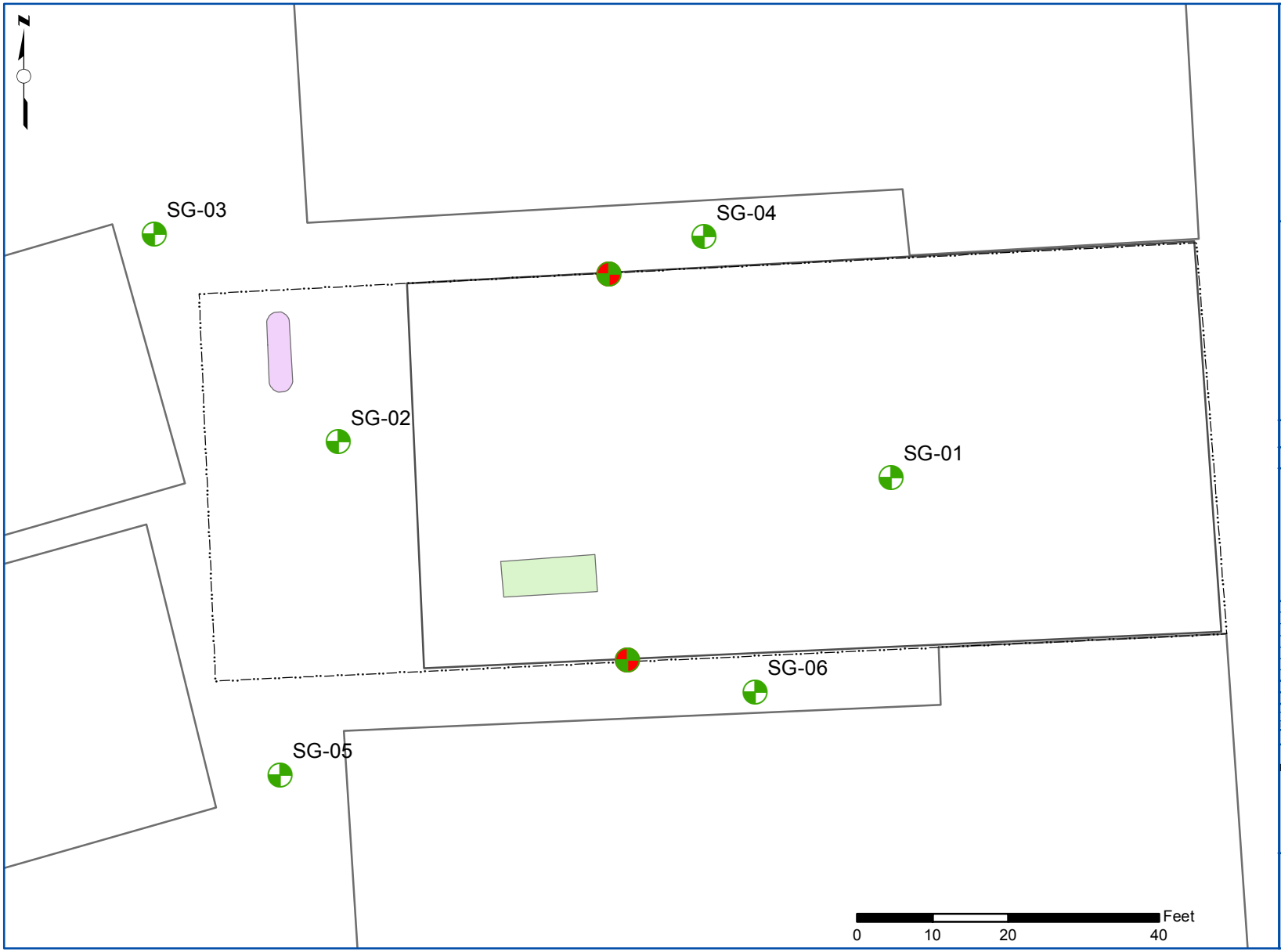
Proposed Soil Boring Locations
3140 Coney Island Avenue
Brooklyn, New York

FIGURE NO: 7

SHEET: 7 of 9



PWGC
Strategic Environmental and Engineering Solutions
P.W. GROSSER CONSULTING ENGINEER AND HYDROGEOLOGIST, P.C.
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Proposed Soil Vapor Samples
Soil Vapor Sample Contingency
Fuel Oil UST
Former Dry Cleaning Machine
Property Line
Former Building

DRAWINGS PREPARED FOR:

3140 Coney Island Realty, LLC
172 Jaffrey Street
Brooklyn, New York 11235
&
New York State Dept. of Environmental Conservation
Region 2
47-40 21st Street
Long Island City, New York 11101-5407

REVISION	DATE	INITIAL	COMMENTS

DRAWING INFORMATION:

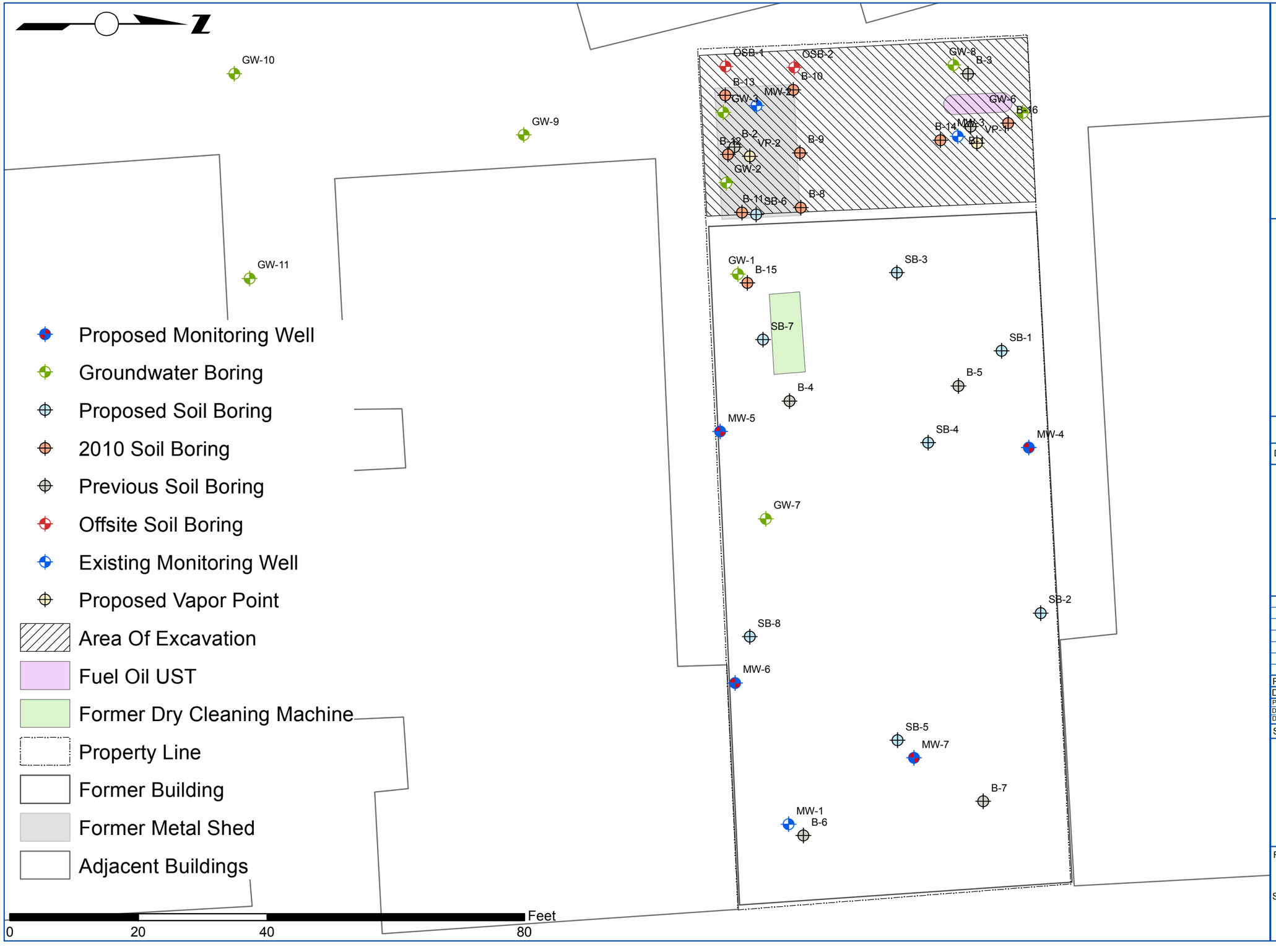
PROJECT:	CIR1101	APPROVED BY:	KA
DESIGNED BY:	NJ	DATE:	12/8/2011
DRAWN BY:	NJ	SCALE:	As Shown

SHEET TITLE:

PROPOSED SOIL VAPOR SAMPLE LOCATIONS
3140 CONEY ISLAND AVENUE
BROOKLYN, NEW YORK

FIGURE NO: 8

SHEET: 8 of 9



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DRAWN BY:	NJ	SCALE:	As Shown

SHEET TITLE:

HISTORICAL AND PROPOSED SAMPLING LOCATIONS

3140 CONEY ISLAND AVENUE
BROOKLYN, NEW YORK

FIGURE NO: 9

SHEET: 9 of 9

TABLES

Table 1

Laboratory Analytical Methods
3140 Coney Island Avenue, Brooklyn, New York

Sample Location	Sample Matrix	Sample Type	Parameters	EPA Method	Sample Preservation	Holding Time	Sample Container
Soil Vapor	Air	Grab	VOCs	TO-15	Maintain Under Vacuum	14 days	6-L SUMMA
Soil Delineation*	Soil	Grab	TCL VOCs, TCL SVOCs, Pesticides, TAL Metals	8260, 8270, 8081, 6010	Cool to 4°C	7 days	2-oz. wide mouth glass, 4-oz. wide mouth glass, 4-oz. wide mouth glass, 4-oz. wide mouth glass
Vertical Profile Wells*	Groundwater	Grab	TCL VOCs, TCL SVOCs, Pesticides, TAL Metals	8260, 8270, 8081, 6010	Cool to 4°C HCl to pH<2	14 days	40-mL vials, 1-L Amber Bottle, 1-L Amber Bottle, 500-mL Plastic Bottle

* 15% of samples collected will be analyzed for TCL VOCs, TCL SVOCs, Pesticides, and TAL Metals

Table 2

Field/Laboratory QA/QC Requirements
3140 Coney Island Avenue, Brooklyn, New York

Sample Type	Frequency	Purpose
Blind Duplicate	One duplicate sample, or One per 20 samples of the same matrix.	To evaluate the precision of the field sampling and laboratory analyses.
Equipment Blank	One per type of sampling method used for each batch of sampling equipment. Equipment blanks are collected in the field using analyte-free water supplied by the laboratory.	To assess the cleanliness of the sampling equipment and the effectiveness of the decontamination process.
Trip Blank	One VOA (volatile organic analysis) trip blank per sample cooler that contains site samples to be analyzed for VOAs.	To detect VOC cross-contamination during sample shipping and handling. No trip blanks are anticipated because VOCs are not part of the proposed analytical analysis.
Method Blank	One per 20 samples of same matrix	To document contamination resulting from the analytical process.
Matrix Spike	One per 20 samples of same matrix	It is used to measure the efficiency of all steps of the sampling and analytical methods in recovering the target analytes from the sample. It is a sample spiked with known quantities of analytes and subjected to the entire analytical procedure.
Matrix Spike Duplicate	One per 20 samples of same matrix.	To reinforce the matrix spike information. It is a second aliquot of the same sample as the matrix spike.

Table 3

Estimated Number of Samples
3140 Coney Island Avenue, Brooklyn, New York

Sample Type	Matrix	Estimated # of samples to be collected
Soil vapor	Air	6
Soil delineation	Soil	16
Vertical profile well	Groundwater	20 = 10 samples x 2 temporary wells

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TABLE 4

PROJECT SCHEDULE

FORMER BRIGHTON CLEANERS SUPPLEMENTAL REMEDIAL INVESTIGATION

WEEK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
TASK																														
NYSDEC approved work plan																														
Ten day notice to NYSDEC																														
Field Activities																														
Laboratory Analysis																														
Data Usability and Validation																														
Prepare Remedial Investigation Report																														
Submission of Draft RI Report to NYSDEC																														
NYSDEC Internal and 30 Day Public Review Period																														

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PH 631.589.6353 • FX 631.589.8705 • www.pwgrosser.com
New York, NY • Syracuse, NY • Seattle, WA

APPENDICIES

Paul K Boyce, PE, Vice President

Professional Experience

PWGC: 19 years

PRIOR: 3 years

Education

- MS, Environmental Engineering, Polytechnic University, NY
- BS, Civil Engineering, SUNY Buffalo, NY

Professional Certification/Training

- Professional Engineer, NYS
- BNL Radiological Worker I & III
- OSHA HAZWOPER 40-hr (29CRR 1910.120)

Areas of Expertise

- Water Resource/Supply Design
- Civil Site Design
- Remedial System Design
- Geothermal Systems
- Groundwater Hydrology

Affiliations

- American Society of Civil Engineers (ASCE)
- NYS Society of Professional Engineers (Suffolk County Chapter)
- American Council of Engineering Companies (ACEC)
- Long Island Professional Geologists Association
- American Water Works Association (AWWA)
- National Groundwater Association (NGWA)
- International Ground Source Heat Pump Association (IGSHPA)

Honors and Awards

- Platinum Award, C. W. Post College Campus Geothermal System, ACEC New York 2009 Engineering Excellence Award
- ACEC, NY, 2005 New Principal of the Year
- NYSSPE Suffolk Chapter, 2006 Young Engineer of the Year

Profile

An environmental engineering professional for more than 19 years, Mr. Boyce has an impressive portfolio of successful project strategies, designs, management, and execution. He is an expert in providing commercial, public, and private clients with targeted analyses, designs, modeling services, investigations, master planning development, construction oversight, and regulatory and sustainability consulting. At PWGC, he focuses on clients' environmental and engineering needs.

His experience covers a broad spectrum of remediation designs and techniques, such as combining institutional controls and engineered systems to create workable, cost-effective solutions. Mr. Boyce looks beyond the obvious to determine whether new natural techniques will achieve the client's long-term plans, limit future liability; and have the least impact on overall operations. He assists clients with choosing conventional technologies and implementing them for use to their fullest capacity.

Mr. Boyce creates customized structural, mechanical, and civil/environmental designs, implementation strategies, and ultimately, management plans. His thorough knowledge of regulatory issues and his dedication to sustainable engineering solutions provides clients with invaluable guidance, and effective tools to establish, and effectively implement, long-term strategies based on factual, comprehensive data.

Mr. Boyce is the designated PWGC expert on all aspects relevant to Geothermal Wells - from the planning stage through to system start up and operation. He assists clients with selecting the appropriate system and location, assessing a given system's feasibility in terms of the client's objectives, preparing designs in accordance with regulatory requirements, managing the system's construction, and coordinating its startup.

Mr. Boyce has earned a reputation with clients and within the industry for his vast hands-on experience in assessing feasibility of existing systems and providing financially sound modifications for possible improvements.

Notable Projects

Ross School, East Hampton, NY

Master Planning & Campus Design - Mr. Boyce provided civil engineering design services to develop a master plan for the private school campus, which was to be one of a kind, transforming the school into a state of the art learning institution, situated in a rural, wooded groundwater recharge area.

Civil Engineering Services - Civil engineering and consulting were for grading, drainage, utility layout, roadways, parking, site lighting, athletic playing fields, irrigation, water supply, sanitary, wastewater collection, and open loop geothermal heating/cooling water systems. Throughout the project, Mr. Boyce collaborated with other project consultants, foremost planners, architects, landscape architects, MEP engineers, surveyors, contractors, the construction manager, and the school administration. He oversaw and participated in the conceptualization and preliminary design of the campus' proposed layout, which included eco-friendly engineering designs consulting/development, and integration of civil engineering design aspects with other important features such as academic programs, architecture, landscaping and pedestrian walkways.

Environmental Engineering Services - The campus was to be as green as possible utilizing available eco-friendly technologies for the most environmentally sensitive and appealing design. The campus' sensitive environmental location as well as sanitary density issues required a sewage treatment plant. Mr. Boyce investigated and evaluated different sewage treatment technologies capable to meet the school's projected needs functionally,.

Paul K Boyce, PE, Vice President

aesthetically, and academically. Further, to meet sustainability goals and be in compliance with regulatory requirements.

Environmental Consulting/Conceptual Design Services After researching the latest sewage treatment technologies, Mr. Boyce recommended to the master planning team and school administration a wastewater treatment system that naturally treats sewage and industrial waste to re-use quality and meet Master Plan goals: aesthetics, economic/environmental advantages, and well below regulatory discharge standards. The panel accepted his recommendation, and he created conceptualized layouts, sited for possible plant locations, and designed a preliminary ecologically engineered sewage collection system.

Suffolk County Department of Public Works, NY

Timber Point Country Club, Great River, Water Supply System & Irrigation Well Upgrades –- Directed the well's condition assessment, including a pump test, to determine capacity and water quality, and prepared specifications/plans to upgrade supply well with new pump and motor. Further, he designed new piping configurations to integrate irrigation well with distribution and cross-connection to the Suffolk County Water Authority, and specified new variable frequency drive for well pump motor. Completed.

West Sayville Golf Course, Sanitary System Improvements - Supervised design and development of permitting, bidding, and construction documents to modernize and upgrade the existing administrative building's sub-surface sanitary disposal system, and oversaw construction phase services (administration, observation) through to completion.

Peconic Dunes Park, Peconic, NY, Water Distribution System Improvements – Supervised design/development of permitting, bidding, and construction documents to upgrade the existing water distribution system's components including backflow prevention devices water mains/meters, hydrants, and internal plumbing. Further, he oversaw construction phase services through to completion.

BOMARC Police Firing Range Westhampton, Drainage Improvements - Directed design/development of permitting, bidding, and construction documents for drainage conditions improvements (i.e. stormwater collection/conveyance systems, new recharge system), and oversaw construction phase services through to completion.

Suffolk County Fire Academy, Yaphank, Water Supply Well Improvements - Supervised design/development of bidding and construction documents for the re-circulated supply system. Included: physical/chemical rehabilitation, electrical service upgrades, a new motor starter, and replacement of a diesel driven booster pump with an electrically operated one, as well as the deep well vertical turbine pump and motor with a new submersible pumping unit. He managed construction phase services (administration, observation) to project completion.

SUNY Stony Brook, Sewer District 21, Groundwater Modeling Study, Stony Brook NY - Performed 3-d numerical groundwater modeling to estimate flow path and travel time of sewage treatment plant effluent from recharge basins to the Long Island Sound, and prepared an engineering report documenting findings and modeling results.

Pinelawn Memorial Park, Farmingdale, NY

Colonial Springs Golf Course Irrigation Well System Design & Construction – Mr. Boyce designed and supervised the installation of a new system for the new 18-hole golf course. The system, comprised of 2 groundwater supply wells, a 12-acre storage lake, booster pumping station, and distribution piping, has been running smoothly since start-up.

Three Mile Harbor Boat Yard, East Hampton, NY

Site Planning Analysis – After evaluating site conditions, Mr. Boyce recommended feasible improvements to enhance an existing boat yard facility. He investigated local zoning/building codes, sized/located sanitary facilities, sized/designed layout and arrangement of parking facilities, sized/located/orientated a new proposed structure to house a marine shop, offices, storage, and industrial space. He effectively addressed critical issues such as the site's location in a harbor protection area and no public water access, which put severe constraints on sizing and locating the sanitary facilities. He prepared plans and reports delineating suitable site alternatives and requirements for implementation in compliance with regulatory agencies and utility companies.

Inlet Seafood, East Hampton NY

Site Plan Application - As senior engineer, he designed and coordinated the preparation of site-plan application drawings for the commercial/industrial fishing marina looking to expand the site from a commercial to a multiple use area that included retail, restaurant, and commercial fishing. Mr. Boyce managed civil/site concerns, which included grading, drainage, sanitary, water supply, utilities, parking, traffic controls, site lighting, and building locations/elevations. He worked with the owners and other project consultants to conceptualize and plan the site layout for optimum use and compliance with local zoning and building codes. In addition, he prepared site-plan application drawings for the Town Planning Board and local regulatory agencies. He supervised development of designs and bidding/construction documents for new water mains/services/flow meters, hydrants, and drinking water fountains, oversaw construction, and supervised wetlands delineation and permitting with the NYSDEC through to project completion.

Paul K Boyce, PE, Vice President

Benjamin Beechwood, LLC, Arverne Urban Renewal Area (URA), Far Rockaway, NY

Design/Engineering Management Services, Stormwater Collection & Conveyance System - Mr. Boyce was managed design and siting of a stormwater collection and conveyance system for an 80+ acre development along the south shore of Queens County. He coordinated catch basins locating, grading design, sizing interconnected piping networks and tie-ins with the local NYC storm sewer system. Mr. Boyce was also responsible for incorporating BMP's in the system design.

Stormwater Quality Impact Assessment on Local Surface Water Body - Mr. Boyce was responsible for determining stormwater roadway run-off concentrations for TPH's, suspended solids, metals, coli forms, pH, and dissolved oxygen. To estimate the influence of these parameters on the nearby canal basins into which they were to be discharged, he employed chemical and mathematical relations using chemical properties and mass balances based on flow rates and tidal flushing volumes to estimate potential effects. Subsequently, he assisted in preparing the stormwater portion section of a DEIS (Draft Environmental Impact Statement).

Montauk Yacht Club, Star Island, Lake Montauk, NY

Sewage Treatment Plant Design – Managed the structural design of the key components of a sewage treatment plant for the Montauk Yacht Club. The plant, a sequential batch reactor (SBR) type with a peak design load of 50,000 gpd, featured a treatment process involving several large tanks made of reinforced concrete. Mr. Boyce worked closely with the process design engineers to size, arrange, and orientate the various tanks in the treatment train within the plant. He then prepared the structural design of the tanks and associated building facilities, which included reinforced concrete, steel, and masonry components. In addition, Mr. Boyce prepared the design drawings and specifications, and collaborated with the project architect to coordinate the overall height, shape, and exterior appearance of the sewage treatment plant.

Environmental Compliance Audits (ECA) - Oversaw the ECAs for NSUH at Glen Cove, Franklin, Syosset, Southside, and Plainview. ECAs concentrate on major environmental areas of concern: storage tanks, air emissions, hazardous materials/wastes, storm water, potable, and wastewater. He prepared an Environmental Compliance Issues report, based on ECAs. Further, he provides on-going guidance and support to address any identified violations per government, state, and local environmental regulations.

North Shore Long Island Jewish Health System, NY

North Shore University Hospital (NSUH), Glen Cove, NY, Geothermal Wells Project – As project manager, he prepared the feasibility study, well permits, construction documents, and oversaw the construction and fieldwork for the installation of a 400 GPM open-loop groundwater heat pump system. Before design, Mr. Boyce conducted the study to assess the feasibility of augmenting the AC's geothermal well system; he investigated size and location options for new wells, and prepared construction cost estimates, based on minimizing potential conflicts with existing site constraints and the likelihood of regulatory agency approval. He determined that expansion of the existing system would be feasible based on cost, local hydrogeology, and his modeling results. He advised the client that construction would cause significant disruptions to the hospital's daily operations. In accordance with NYSDEC guidelines, he investigated the potential effects of the proposed project on a nearby inactive hazardous waste site, obtained baseline water quality data, estimated aquifer characteristics to refine and calibrate the model, and drafted a design and construction plan of a test and monitoring well to determine local geologic conditions. As liaison between NSUH, the NYSDEC, and the local regulatory agencies, he established that a scaled-down, relocated system would have negligible effects on the hazardous waste site, and consequently, obtained approval for the proposed construction. NSUH selected Mr. Boyce to design, plan, and oversee the construction of the new system, which involved developing the design and strategy for a supply and recharge well system with inter-connecting process piping, detailed hydraulic analyses, sizing the various system components, and coordination with other project consultants on the installation of piping and process equipment.

Heatherwood Communities, LLC, Manorville, NY

Ecologically Engineered STP Design & Engineering Study - Designed and supervised an engineering study to determine optimum site for the planned STP in the environmentally sensitive and shallow groundwater area. After thorough analysis of the area's historical groundwater level data from nearby off-site wells, and simulation (using numerical analysis to estimate anticipated high water levels for the site), he compared water level readings at the designated site to readings from nearby off-site wells. He had a series of observation wells installed, which he used to investigate the relationship between his findings, the proposed layout for the apartment community and STP location, and environmental constraints (i.e. wetlands setbacks).

Southampton College, Southampton, NY

Sewage Treatment Alternatives Evaluation - Mr. Boyce assisted in preparing an engineering report to evaluate various sewage treatment alternatives for the current campus, and for possible expansion of the campus. Mr. Boyce researched ecologically engineered sewage treatment systems (i.e. Living Machines, Solar Aquatics, and Ocean Arks), determined their applicability, coordinated with the SCDHS regarding acceptance, and computed estimated sanitary flow numbers based on County sanitary code requirements. Mr. Boyce

Paul K Boyce, PE, Vice President

was involved with the conceptual layout of sewage treatment locations and associated sewage collection systems. He helped develop and cost out the various viable alternatives and provided input into the report recommendations.

Ridge Mobil Gas Station, Ridge, NY

Soil & Groundwater Remediation System - Evaluated, selected, and designed the system for a petroleum spill at a gas station. He chose a soil vapor extraction (SVE) system in conjunction with an air-sparging system as the appropriate remedial technology, based on the characteristics of the contamination, site hydrogeology, and overall size of the spill and associated plume. Mr. Boyce oversaw SVE wells and air-sparge points locating/sizing, SVE blower and air sparge compressor designs, off-gas treatment needs assessment, and appropriate controls and instrumentation selection for system interlocking capability. He prepared project plans/specifications for NYSDEC review and construction purposes

Geothermal Well System Design – Managed the site assessment, design, construction oversight, and preparation of O&M manuals for the systems, conducted a feasibility study of using open-loop geothermal systems to heat and cool 2 of the school's most prominent buildings - The Center for Well Being (Bldg 5) and the Media Pavilion (Bldg 2). Mr. Boyce researched local hydrogeological and groundwater quality conditions and analyzed the effects of required flow rates on a nearby Suffolk County Water Authority (SCWA) well field. He employed Groundwater Vistas by ESI, to create a detailed 3-dimensional model for the area. His analysis illustrated the potential effects of supply and recharge wells on (1) each other, (2) nearby neighboring shallow wells, (3) the SCWA well field, and (4) the local water table (The model also took into account of the local groundwater divide). Once he had demonstrated that operating two separate open-loop geothermal well systems in close proximity would not have an impact, he prepared the engineering report for the NYS Department of Environmental Conservation, along with the appropriate Long Island Well permit applications for approval.

Pratt Institute, Brooklyn, NY

Geothermal Feasibility Study - Oversaw and coordinated a test hole drilling, geological characterization, water quality sampling. Prepared a feasibility study comparing and evaluating open loop, closed loop and standing column well geothermal technologies and recommended the most appropriate based on site constraints and water quality issues. Project is on going as of September 2007.

C.W. Post Campus – LI University, Brookville, NY

Open Loop Geothermal Well System –Mr. Boyce conducted 3-d numerical groundwater modeling to determine possible and real effects of proposed geothermal wells (i.e. effects on each another, and/or other nearby wells). He designed open loop geothermal system wells and associated piping; and managed the development of project plans and specifications as well as permitting documents. Subsequent, he supervised, and provided QA/QC, for construction services, and served as regulatory agency liaison and primary client contact. The system went in service spring 2007.

Minmilt Realty, Farmingdale NY

Groundwater & Soil Remediation Systems Design - Mr. Boyce evaluated, selected, and designed appropriate remediation systems to cleanup a large industrial solvent plume that had contaminated nearby soil and groundwater. The chosen groundwater remediation consisted of an air-stripping tower, granular activated carbon (GAC) filters for off gas treatment and recharge structures; the soil treatment system was a soil-vapor extraction system (SVE) and GAC filters. Mr. Boyce's design responsibilities included sizing and selecting remediation system equipment, structural, mechanical, electrical, hydraulic, well, controls and instrumentation design. Mr. Boyce also performed three-dimensional numerical groundwater modeling to evaluate the effectiveness of the proposed groundwater remediation system and to size and locate a series of deep and shallow wells. Mr. Boyce prepared plans and specifications, a technical report for the NYSDEC detailing the choice of the specific components overall design process. Mr. Boyce was involved in the construction administration and oversight of the remediation systems and was responsible for reviewing and approving shop drawings and performing routine construction observation services.

Lincoln Bright Bay, Bay Shore, NY

Groundwater & Soil Remediation System Design - Mr. Boyce evaluated, selected, and designed, a soil and groundwater remediation system for a petroleum spill at a car dealership. His choice of a soil vapor extraction (SVE) system in combination with an air-sparging system as the appropriate remedial technology based on the characteristics of the contamination, the site hydrogeology, and capability to measure the extent of the spill and associated plume. Mr. Boyce located and sized SVE wells and air-sparge points, designed the SVE blower, and air-sparge compressor, evaluated whether off-gas treatment would be necessary, and selected appropriate controls and instrumentation to interlock the systems smoothly. He prepared plans and specifications, assisted the client in the bid and award of construction contracts, and oversaw the system's construction, testing, startup and operation, maintenance and monitoring.

Paul K Boyce, PE, Vice President

Computer Circuits Hauppauge, NY

Soil Remediation System Design - Mr. Boyce was responsible for the design of a soil vapor extraction (SVE) system to remediate a small plume of solvents at an industrial site in Hauppauge, NY. The design included SVE wells both vertical and horizontal, a treatment shed, an SVE blower, air/water separator, a particle separator, electrical power supply and distribution and instrumentation and controls. Mr. Boyce performed all necessary calculations to estimate radii of influence for the horizontal and vertical SVE wells and was responsible for preparing the project plans and specifications that were to be submitted to the NYSDEC for approval and used as construction documents.

Water Authority of Great Neck North, Nassau County, NY

Weybridge Road Clearwell Design - Prepared design for new air stripper clearwell, upgraded booster pump and piping and controls modifications, coordinated with NCDOH, cost estimates, the design is completed and NCDOH has approved it, funding constraints have put the project on hold.

SCADA System Design - Prepared design for new Supervisory Control and Data Acquisition System, prepared bidding and construction documents, providing construction administration and observation services, cost estimates, construction is about to begin in late 2007.

Emergency Water Main Replacement, Berkshire Road - Prepared design, construction and bidding documents for emergency water main replacements, expedited NCDOH review and approval, provided PE certification services, project is complete water mains have been installed in 2006.

Community Drive Treatment System Upgrades - Preparing design, construction and bidding documents for perchlorate removal, and Freon removal that includes new packed column air stripper and resin filtration units, project is on-going as of fall of 2007 and will be providing construction phase services which will include administration and observation.

Air Stripper Cap at Watermill Lane - Coordinated with contractor and WAGNN regarding design and sizing of appropriate air exit cap atop existing air stripper at Watermill Lane treatment plant. Project is on hold as substantial modifications are pending at the Watermill Lane plant due to threatening MTBE contamination.

Valve Book Review/Updates - Updated valve location sketches as new valves are being installed in the distribution system. Continually on-going project as new valves are installed continue to update valve location maps.

Municipal Supply Well Design, Well #14 – Design services for the new 1,400 gpm municipal supply well nclude engineering report for NYSDEC and NCDOH review/approval, preparation of plans and specifications for new well, associated piping, well house, electric, controls, instrumentation, chemical treatment, safeties, etc. Project is just underway as of Sept 2007. Construction phase services will also be provided.

Weybridge Road Ground Storage Tank Replacement – Lead the project team charged with designing new 500,000-gallon steel ground storage tank to replace deteriorated and dilapidated existing 400,000-gallon ground storage tank. Subsequent the team prepared bidding/construction documents, inclusive plans and specifications, obtained NCDOH approval, and provided construction administration and oversight services. Design is beginning Sept 2007.

General Consulting Services - Attend Board of Directors meetings to present monthly engineering report, assist with hydrogeological issues, contaminant fate and transport concerns, well maintenance, water main rehabilitation, etc.

Lemon-X Corp., Huntington Station, NY

Industrial Wastewater Treatment Study – Generating roughly 3,000 gallons per day of industrial wastewater at a facility without a wastewater treatment system, the mixed drink and fruit juice beverages manufacturer hired PWGC to comply with a NYSDEC-issued order of consent to rectify their current method of wastewater disposal into on-site drywells. Mr. Boyce prepared an analysis of viable treatment options, such as a hold and haul, and a 2-step treatment process that uses roughing filters to filter and remove nitrogen. He has led the on-going waste stream sampling program, and has been involved with the treatment process selections and cost estimates. The treatment system design is expected to receive NYSDEC approval based on the report's recommendations.

Hampton Bays Water District, Suffolk, NY

Well Field Construction & Integration – He prepared the structural, mechanical, and electrical designs for a new well field including 2 pump stations. In addition to construction plans and specifications, Mr. Boyce oversaw the integration of new well field with an existing distribution system via hydraulic analyses, and guided the client through the regulatory agency review and approval process. In a subsequent project phase, he partook in creating the layout of several residential water main projects, for which he analyzed the proposed water main layouts and prepared conceptual designs based on Health Department and ISO requirements.

Caustic Feed Systems Design - Mr. Boyce was responsible for the design of caustic feed systems at all 8 District supply wells. He prepared existing conditions drawings by conducting field visits to obtain the necessary information. He then designed caustic feed systems consisting of double-walled underground storage tanks, piping, metering pumps, safety interlocks, controls, alarms and injection equipment to raise the ambient pH of the groundwater withdrawn from the shallow aquifer system to between 7 and 8.5. He was

Paul K Boyce, PE, Vice President

responsible for preparing plans and specifications, obtaining Health Department approval, and then overseeing the construction administration and observation aspects of the project.

Isolated Pressure Zone Design - Mr. Boyce was responsible for designing an isolated pressure zone in an area that was experiencing chronic low-pressure conditions within the District's distribution system. He worked with existing distribution system maps and survey data to identify the boundaries of the proposed zone, he worked with available hydraulic data to estimate pressure conditions and developed a planned approach as to how to isolate the zone and create a booster pumping station to raise pressures within the zone to acceptable levels. He was responsible for preparing the project plans and specifications that included a new packaged booster pumping station, water main and valve work, electrical service and site work. The SCDHS approved the plans and the pressure zone's was constructed closely to Mr. Boyce's design and construction cost estimate.

Good Samaritan Hospital, West Islip NY

Well Turbidity Study - Based on his review of existing quality data, Mr. Boyce recommended sampling and analyzing for additional parameters. He applied a Water quality model, using the existing raw water quality data; to achieve optimal water quality pH-level, hardness, and alkalinity), he performed trial and error solutions using a numerical model. Different treatment chemicals were included in the model in various combinations or by themselves. Concluding modeling efforts led to a realistic chemical concentration.

Copper & Lead Desktop Study – The results of his study served to identify the possible cases for turbid water condition and proposing alternative options for corrective actions to restore acceptable water quality. He presented each alternative for evaluation and comparison to determine most advantageous choice, based on potential for success, technical complexity, and cost. He prepared a treatment specification and coordinated with an experienced well driller, resulting in a successful chemical treatment, and restoration of the water quality to acceptable conditions.

Times Square Construction, New York, NY

Geotechnical Report for 47 East 34th Street Building Construction - Oversaw rock core boring program, characterized rock core samples, developed geotechnical report based upon findings of rock core boring program, provided foundation recommendations for a new 38 story residential building being erected upon Manhattan schist on the east side of mid town Manhattan. Assisted with the rock anchor design and specification. Supervised and managed field observation services for rock anchor testing. Supervised and managed the design and development of a foundation waterproofing system. Foundation is nearly complete as of September 2007.

Islip Resource Recovery Agency, Town of Islip, NY

Environmental Compliance and Permitting - Managed and supervised environmental compliance audits for three Town facilities that included a C&D landfill, a composting facility, and a recycling center. Managed the preparation of environmental permits and design upgrades to bring facilities into compliance with SCDHS and NYSDEC requirements. As of Sept 2007 project is awaiting regulatory agency approvals.

NYC Transit – Multiple Projects, NY

Environmental Anticipatory Boring Program - Mr. Boyce served as the Environmental Engineer for multiple New York City Transit (NYCT) capital improvement projects, Contract Nos C-34742, C-34808, and E40803. He reviewed the project scope and resulting project plans and documentation for feasibility, accuracy and completeness. When necessary or requested, Mr. Boyce attended meetings and performed site visits with the client and NYCT

Allied Aviation Services, LaGuardia Airport, NY

Filter Pad Design – Mr. Boyce managed the structural design of a reinforced concrete pad to supply fuel for a jet fuel tank farm. After investigating soil conditions to determine bearing capacity/structural adequacy to support the new proposed loads, Mr. Boyce located, sized, and situated the new filter pad among an existing pipe and tank network, and prepared designs for concrete reinforcement to withstand differential settling effects. He sized a 2^{ary} containment volume and dyke wall for the pad; and prepared designs to integrate fuel filters into the existing system, and for a steel frame staircase and catwalk system to provide maintenance workers access to the fuel filters. Subsequent, he prepared structural calculations and construction documents (i.e. plans and specifications. Before construction, he submitted the plans to the NY/NJ Port Authority for review and comment. During construction, unexpected sub-surface conditions were encountered that required significant design changes, including re-engineering the pad foundation. He provided adjusted structural calculations and revised the design to accommodate the conditions that could not be alleviated.

Stormwater Sediment & pH Control Investigation, LaGuardia Airport, Queens, NY - He was responsible for reviewing and investigating an on going problem of storm water discharge to a surface water body with a too high solids content level. Storm water runoff collected at the fuel tank farm for LGA is passed through a treatment system to remove oils and organic contaminants. Under severe rainfall events, the treated storm water effluent had been discharged to the adjacent harbor with unusually high amounts of

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suspended solids, which were temporary violations of the facility's SPDES permit. To find a cost effective solution for the continuing problem, he evaluated various alternatives from in line cartridge filters, to settling tanks, to storm drain separators. Aside from cost, he considered other restrictions, such as limited space for installation, maintenance, durability, and reliability. He studied peak hydrologic events and recommended the most efficient and effective treatment option for the owner to implement. Elevated pH of the discharged treated storm water effluent presented an unexpected, and separate, water quality issue. Mr. Boyce was responsible for investigating the cause of the problem and recommending a course of corrective action.

City of Long Beach, NY

Elevated Storage Tank Hydraulic Analysis & Permitting - Mr. Boyce was responsible for performing a hydraulic analysis to identify the optimal height and location for a new steel elevated water storage tank for the City of Long Beach. He used computer modeling to perform the analysis and was responsible for obtaining and entering all data into the model. He worked closely with the City's water department personnel to accurately represent the City's distribution system and obtain factual hydraulic data such as flow rates, operating flow rates, velocities, pipe sizes, etc. Mr. Boyce ran several different modeling scenarios including worst-case conditions under peak day with fire flow demands. He used the model output to locate and recommend an appropriate height for the new tank.

Catholic Health Services – St. Charles Hospital, Port Jefferson, NY

Cooling Tower and Boiler Blow Down Discharges – SPDES Permitting - Led the investigation into alternatives for blow-down discharges that included discharge to either groundwater or sanitary sewer. Conducted flow studies of the sanitary sewer to determine how much water the Hospital was discharging and compared it to the Hospital's water bills, which the SCDPW was basing sewer usage on. Oversaw and managed the preparation SPDES permit applications for groundwater discharges. As of Sept 2007, flow study continues, and SPDES permit application is still under review with the NYSDEC.

Roanoke Sand & Gravel, Mid Island, NY

Sand Mining Design and Permitting - Primary client contact for an application to the Town of Brookhaven and NYSDEC to expand mining operations at existing sand and gravel mine. Scope of services included assembling engineering drawings for proposed mining operations by excavating deeper through the bottom, preparing an engineering report addressing environmental, geotechnical and hydrogeological issues, preparing volume estimates to determine how much more sand and gravel could be mined by expanding the operations at the existing site and acting as regulatory liaison for the client. Project is ongoing as of Sept 2007.

Lawrence Livermore National Laboratory, Livermore, CA

CD 0/1 Document Peer Review - a member of a National Nuclear Security Administration (NNSA) team, Mr. Boyce was charged with conducting a peer review of preliminary CD 0/1 documents that site staff had prepared for the D&D of a nuclear research facility at LLNL (Bldg 431). As a focus area lead, he conducted the review's technical scope and value engineering portions. He toured the facility, reviewed pertinent work documents, interviewed staff responsible for document preparation, and reviewed/evaluated the work documents for coherency, completeness, and acceptable levels of detail for CD 0/1 stage requirements. He recommended the documents improvements and participated in a debriefing with the NNSA team and site staff.

NYC DOT, Kensico Reservoir Rte, Westchester, NY

120 Expansion Stormwater Mgmt System Stormwater Quality Pre-Construction Baseline Assessment – Directed the roadway run-off sampling of 15 storm events and 5 outfalls along the Reservoir. Mr. Boyce oversaw installation of automated sampling equipment to monitor weather conditions, sampling events, and system/statistical data analyses for a stormwater-runoff quality report.

Shelter Island Heights Water District

Water Main Replacement - Mr. Boyce was responsible for providing construction observation services for a water main replacement project in the Shelter Island Heights Water District. He provided daily oversight throughout the new mains' installation. He ensured the mains were installed in accordance with project plans and specifications. He inspected pipe sizes and materials, installation and excavation procedures, flushing, pressure testing and backfilling of the trenches. He prepared inspector's daily reports and coordinated closely the contractor, design engineer, and heights personnel.

Brentwood Water District Air Stripper, Plant No. 2, NY

Treatment Alternatives Study & System Design – As Project Engineer, Mr. Boyce conducted the treatment alternatives study for a VOC contaminated well field at BWD. The study ultimately recommended air stripping as the most effective and cost efficient technology to treat groundwater withdrawn from Plant No. 2. Upon the study's completion and acceptance, he prepared the design for the treatment system, which encompassed mechanical, electrical, structural, hydraulic, and architectural and site components. Specific

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design components: an 11' diameter by 30' packed bed depth aluminum air stripper, a 100,000-gallon ground storage clearwell, and booster pumps. Specific design aspects: Restaging an existing well pump, electrical service upgrade, a new natural gas engine generator set, stripping tower enclosure, and three existing pumping stations refinish. He prepared the plans and specifications, which were approved by the SCDHS and ultimately used to construct the air stripper and related facilities. Following the design phase of the project Mr. Boyce was then responsible for providing construction administration and observation services.

Nitrate Study & Analysis - Mr. Boyce prepared a statistical analysis to compare increasing groundwater nitrate concentrations with pumpage from Plant # 2 of the Brentwood Water District (BWD). The analysis involved compiling water quality data to measure levels in three wells of Plant No. 2, reviewing the data, and using statistical methods to forecast the water quality of pumpage from the aquifers utilized by the BWD. He superimposed pumpage data from Plant # 2 over his water quality findings to create a trend analysis, which showed nitrate concentrations fluctuated in the different wells based on pumpage. Mr. Boyce recommended available treatment technologies, which eventually, would be necessary to slow the deterioration rate of water quality caused by nitrate level changes. He advised that, based on the statistical analysis, establishing pumping sequences would slow the rate of water quality deterioration. His report also included estimates for when treatment of nitrate will become necessary and appropriate treatment technologies available.

Town of Oyster Bay, Syosset, NY

Potable Water Supply System Upgrade Design & Compliance Management Services – As Project Manager, Mr. Boyce coordinates -inspection and assessment services for the town's Tobay Beach Park & Marina potable water supply system. PWGC focuses on the water supply system's status of compliance with NYSDOH, NCDOH and 10-State Standards, and provides feasible engineering designs to in response to the town's objectives: Safe, potable water for Tobay Beach patrons, in an economically sound fashion. Mr. Boyce managed the authoring of a feasibility report, and selected/recommended minimum corrections and system upgrades. In addition, he prepared the design of a dry-briquette calcium hypochlorite chlorination system and other upgrades at Well House 3 of the Tobay Beach Park & Marina. To date, he continues to provide engineering services and design specifications for wellhead improvements. He also directs PWGC water quality monitoring and assessment services at the beach to determine compliance with local and state health department water quality and equipment guidance.

Jay Construction Corp, NY

Pile Foundation Designs for Residential Homes - Mr. Boyce was responsible for designing foundations for four residential homes in Patchogue, New York. The design included investigating existing soil conditions, reviewing architectural plans, sizing piles based on soil conditions, locating piles based on architectural layout, determining number of piles based on loads including self weight, building dead, live, snow and wind load, and worst case combination of loads based on building code. He created designs for reinforced concrete pile caps in accordance with ACI requirements, and foundation walls to serve as grade beams between pile caps. Mr. Boyce prepared construction documents including plans and specifications, and acted as the primary client contact throughout the project.

Village of Dering Harbor Water District

Corrosion Control - Responsible for preparing a study to evaluate various corrosion-control treatment options for the Village's water district. Based on his study, Mr. Boyce recommended adding soda ash to raise the groundwater's pH and allow for continued water supply to the Village. Following completion and acceptance of the study by the SCDHS, he designed the chemical solution feed systems to inject soda ash at the wellheads of the Village's two supply wells. He designed chemical mixing and solution storage tanks, feed pumps, interconnecting piping, injection tube assemblies, and safety interlocks. Once the systems' construction was completed, Mr. Boyce prepared record drawings for the Village and SCDHS.

Village of Hempstead

Iron Sequestering Report - Mr. Boyce was responsible for preparing a report that documented the results of an iron sequestering study that was performed for the Village of Hempstead. He evaluated different sequestering products for effectiveness in keeping the dissolved iron in the Village's water supply in solution. He was responsible for collecting all the field data, comparing the various sequestering agents that were used and ultimately recommending the most effective and cost efficient product.

West Neck Water District, Shelter Island

New Well and Upgraded Pumping Station - Mr. Boyce was responsible for designing a new well and upgrade for an existing treatment plant for the West Neck Water District on Shelter Island. The existing plant was basically a below grade vault that housed two shallow supply wells, two pressure tanks and some chemical feed equipment. He designed and integrated a new well and upgraded the vault to an above ground treatment building. The upgrade involved new piping, pumps, monitoring equipment, controls, a new structure, and accessories such as heating, ventilation, lighting, and power. Mr. Boyce was responsible for preparing plans and specifications, obtaining Health Department approval and preparing as-built drawings once the project was completed.

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AIL Systems Inc, Commack, NY

Recharge Basin Size Analysis – To assess the feasibility of reclaiming land used for recharge purposes, in order to sell or alter its use, Mr. Boyce analyzed the industrial facility's existing cooling/cooling water recharge system. His analysis included an investigation of the facility's hydrological and drainage characteristics, and the existing storm water handling facilities' capability to accommodate various storm events. Mr. Boyce reviewed local building codes to make sure any proposed alterations could handle the minimum required storm events He investigated also cooling water discharge rates to the recharge basins, to determine how much of the existing basins were required to handle the cooling water. With his report, AIL Systems was able to effectively evaluate its real estate options.

AIL Systems, Deer Park, NY

Sewage Treatment Plant Evaluation Study - AIL Systems, an electrical defense contractor, was attempting to sell their Deer Park property occupied by their large engineering and testing facility. The facility has its own sanitary wastewater treatment plant on-site. Located outdoors, the activated sludge type plant has a peak design flow of 43,000 gpd. A prospective buyer, The Tree line Companies, contracted PWGC to evaluate the condition and performance of the existing sewage treatment plant. Mr. Boyce performed a plant inspection, obtained, and reviewed operational records, annual operating costs, O&M manuals, plant influent and the effluent water quality data, design drawings, reports, schematics, and equipment catalog cuts. He supervised the following analysis and evaluation to determine the overall condition of the plant, its estimated remaining life expectancy, future operating costs, and level of performance according to the facility's SPDES permit requirements.

Village of Sag Harbor, East Hampton, NY

Municipal Sewage Treatment Plant Engineer of Record - Mr. Boyce is assisting in providing engineering services for the Village of Sag Harbor municipal sewage treatment plant. The plant is a sequential batch reactor (SBR) with a peak design flow of 250,000 gpd. His responsibilities include (1) providing on-call technical support to plant operators on how to troubleshoot operational and process problems, (2) review of plant effluent data, (3) analysis of flow and effluent quality conditions, and (4) provision of design services when needed.

Birchwood Nursing Home, Huntington, NY

Structural Design – Developed and created the structural design of a sewage treatment plant (STP) retrofit and upgrade for the nursing home, which, thus far, utilized a rotating biological contactor (RBC) process to treat 40,000 gpd of wastewater. The plant was to be upgraded to handle a new peak design flow of 60,000 gpd and be retrofitted from the RBC type of process to a sequential batch reactor (SBR) style plant while utilizing as much of the existing plant as possible. Process tanks needed to be increased in capacity and the footprint of the plant needed to be enlarged to accommodate the expansion. Mr. Boyce conducted a site survey to review and confirm the existing conditions. He worked closely with the process design engineers to rearrange and configure new tank sizes, piping runs, equipment locations, and the proposed building layout. To conduct the structural design of the tank upgrades and building expansion, Mr. Boyce utilized reinforced concrete and steel design procedures. He prepared plans and specifications and coordinated with contractors during construction accordingly.

Geothermal Consulting, Planning, Design, Compliance & Construction Management – Mr. Boyce is the designated PWGC expert on all aspects relevant to Geothermal Wells - from the planning stage through to system start up and operation. He assists clients with selecting the appropriate system and location, assessing a given system's feasibility in terms of the client's objectives, preparing designs in accordance with regulatory requirements, managing the system's construction, and coordinating its startup. Mr. Boyce has earned a reputation with clients and within the industry for his vast hands-on experience in assessing feasibility of existing systems and providing financially sound modifications for possible improvements enables clients to make sound decisions on how and if at all to conduct a proposed project.

Good Samaritan Hospital, West Islip NY

Well Turbidity Study - Based on his review of existing quality data, Mr. Boyce recommended sampling and analyzing for additional parameters. He applied a Water quality model, using the existing raw water quality data; to achieve optimal water quality pH-level, hardness, and alkalinity), he performed trial and error solutions using a numerical model. Different treatment chemicals were included in the model in various combinations or by themselves. Concluding modeling efforts led to a realistic chemical concentration.

Copper & Lead Desktop Study – The results of his study served to identify the possible cases for turbid water condition and proposing alternative options for corrective actions to restore acceptable water quality. He presented each alternative for evaluation and comparison to determine most advantageous choice, based on potential for success, technical complexity, and cost. He prepared a treatment specification and coordinated with an experienced well driller, resulting in a successful chemical treatment, and restoration of the water quality to acceptable conditions.

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City of Long Beach, NY

New Elevated Storage Tank Hydraulic Analysis & Permitting -Mr. Boyce was responsible for performing a hydraulic analysis to identify the optimal height and location for a new steel elevated water storage tank for the City of Long Beach. He used computer modeling to perform the analysis and was responsible for obtaining and entering all data into the model. He worked closely with the City's water department personnel to accurately represent the City's distribution system and obtain factual hydraulic data (ie: flow rates, operating flow rates, velocities, pipe sizes). Mr. Boyce ran several different modeling scenarios including worst-case conditions under peak day with fire flow demands. He used the model output to locate and recommend an appropriate height for the new tank.

Brookhaven National Laboratory, Upton, NY

Building 705 Stack Study – Mr. Boyce was the lead author of the study report, which was an evaluation of end-state alternatives for the D&D of a 320-ft tall reinforced concrete stack that had been used to exhaust reactor and nuclear experiment cooling gases. The report assessed different D&D technologies, disposal options, and potential effects of demolishing such a large structure on laboratory operations. PWGC prepared preliminary cost estimates the DOE used to select a feasible demolition methodology as well as a plan to construct a smaller replacement stack for any site activities that still needed a stack.

Engineering Services for the Glass Holes & Animal Chemical Pits CERCLA Remedial Excavation - Mr. Boyce prepared the excavation plan and design drawings for a remedial excavation of over 50 individual waste pits at the client's site. He managed the waste pits' initial delineation, oversaw the geophysical survey using electromagnetic survey equipment, and prepared the excavation plan detailing technical guidelines for the hazardous waste site's remediation. The plan provided direction for the removal/recovery of organic, inorganic, biological, and radioactive buried wastes, as well as explosive, reactive, and corrosive materials. His engineering drawings detailed excavation layout, work/stockpiling areas, grading, drainage, haul routes, utilities, and site restoration. He acted as a field engineer during the field operations, oversaw excavation/waste removal, stockpiling, characterization and segregation of excavated materials, and monitored daily logistics for field crews.

Mercury-Contaminated Soil Treatment Alternatives Evaluation Report - Mr. Boyce's report evaluated various appropriate remedial treatment technologies, including visual and technical system descriptions, a comparison study of each alternative's technology, treatment process efficiency in the types, quantities and concentrations of mercury present in the soil, as well as the overall economics and cost effectiveness. He called attention to the presence of other contaminants such as organics and radioactive parameters, and studied the available technologies. He also presented recommendations for a soil stabilization process and options for the remediated soil's disposal.

OUIII Western South Boundary Remedial System Design - Mr. Boyce was responsible for assisting in selecting the appropriate remedial technology for a groundwater pump treatment system for a volatile organic contaminant plume clean up. He suggested appropriate technologies and reviewed them from a feasibility standpoint. He recommended the most applicable one, based on effectiveness, available capital and O&M costs, implementation, reliability, operation, and maintenance. Mr. Boyce was then responsible for preparing a portion of the design of the recommended treatment technology, which included sizing and optimizing the primary treatment equipment (4-foot diameter x 35-foot tall air stripping tower).

Ash Pits Capping - Responsible for preparing the design of a capping system for an area formerly used as incinerator ash repository. He conducted the initial investigation to assess the area's extent by reviewing old aerial photographs, digging test pits, and conducting interviews with BNL personnel. Once he had delineated and surveyed the area, Mr. Boyce designed a soil-cap cover system in accordance with NYSDEC regulations to prevent surface exposure to ash and to minimize rainfall infiltration through the area. He was responsible for preparing design/construction drawings that included grading, drainage, slope stabilization details, limits of clearing and coverage and site restoration work such as fencing, roadways, signage, etc.

High Flux Beam Reactor (HFBR) D&D Cost Estimates & Scheduling - Mr. Boyce is well versed in D&D services for nuclear research facilities. He managed and oversaw various services at the DOE facility to provide the client with estimates for a facilities ultimate D&D end-state. Key tasks included

- Quantity takeoffs from original design and as-built/record drawings
- "Bottoms-up" cost estimating for D&D, waste management, health physics (HP), radiation control (rad-con) support, project management, engineering and planning aspects
- Development of project contingency matrix, and assignment of contingency degree for each D&D activity
- Applicable labor rates review and analysis
- Comprehensive project schedule (permitting, planning, engineering, execution, program management, closeout)
- Preliminary scope of work and estimates for indirect HP quantities and costs
- Regulatory rules/regulations review
- Liaison between client, contractors, vendors
- Preliminary D&D, restoration sequences
- Key assumption establishment for cost estimates and schedule

Paul K Boyce, PE, Vice President

Medical Research Reactor (BMRR) D&D Consulting - Mr. Boyce provided the planning and cost estimates for the planned D&D activities at the 5-megawatt research reactor and its associated structures (stack and well house). He provided an estimate for the complete demolition of the mechanical, electrical, and structural components of the reactor building and the exhaust stack, including quantity estimates (construction & demolition debris, hazardous wastes, LLW materials and site restoration materials).

He developed work scopes for D&D activities relative to specific BOPs and individual levels within the BMRR, and a project schedule and time line for D&D activities, and furnished supporting documentation in the form of a work-breakdown structure dictionary

Brookhaven Graphite Research Reactor (BGRR) D&D Services – As project manager, he was responsible for D&D oversight and engineering services, which included the design of ventilation systems, design of structural components in support of radiation shielding and equipment placement, as well as the design and construction of a facility mock-up to assist in personnel training for actual D&D activities. Throughout the project, Mr. Boyce provided guidance and direction to project engineers charged with performing design work and reviewed design drawings for adequacy. D&D activities design services were associated with included demolition and removal of radiological contaminated air filters

Modeling Experience

MODEL – CLIENT & APPLICATION
Groundwater Vistas - Environmental Simulations International
Glen Cove Hospital, Glen Cove, NY - Study of geothermal wells impacting each other, hazardous waste site, and water table
C.W. Post College, Brookville, NY - Size & locate open loop geothermal well system
Trigen-Nassau Energy Corp, Garden City, NY - Size new industrial well, estimate impacts on nearby wells & East Meadow Brook headwaters
BNL, Western South Boundary, Upton, NY - Estimate capture zone of groundwater recovery wells for Remediation Project
Ross School, East Hampton, NY - Study effects of geothermal wells on neighboring wells, water table, each other
Suffolk County, Department of Public Works, Sewer District 21, SUNY Stony Brook - Evaluate Travel time & flow of Sewage Treatment Plant effluent to Long Island Sound using The County's Groundwater Model
WaterCAD - Haestad Methods
Hampton Bays Water District, Hampton Bays, NY - Water distribution system design & analysis
West Neck Water Supply, Shelter Island, NY - Water distribution system design & analysis
City of Long Beach, Long Beach, NY - New elevated storage tank integration into existing distribution system
-Prickett Lonnquist Aquifer Simulation Model & Hyperventilate Model (Int'l Ground Water Modeling Center (IGWMC) -QuickFlow (Geraghty & Miller, Inc)
Minmilt Realty, East Farmingdale, NY - Well location & pumping rate selection; Soil vapor extraction system design; PLASM model results verification
Rothberg, Tamburini & Winsor Corrosion Control & Process Chemistry Model - American Water Works Association
Water Suppliers (Non-transient, non-community/community) Suffolk County, NY - Lead & copper desktop studies (water quality modeling)

Publications

Not Just a Chemical Interaction: Complementary Roles of Geologist & Engineer on a Hazardous Waste Remediation Project at BNL (5th Conference: Metropolitan & Long Island Association of Prof'l Geologists (M/LIPAG, 04/98, SUNY Stony Brook)

Much Ado About Mercury: Evaluation of Treatment Options for Mercury Contaminated Soil at Brookhaven Nat'l Laboratory (BNL) (6th Conference, M/LIPAG, 04/99, SUNY Stony Brook)

Open-Loop Geothermal Well Systems on Long Island (10th Conference, M/LIPAG, 04/03, SUNY Stony Brook)

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GEOTHERMAL SYSTEMS PROJECTS – Summary Table	
Glen Cove Hospital, Glen Cove, NY - 800 gpm Open Loop	
Feasibility Study Hydrogeological Study/Engineering Report Long Island Well Permit Application Groundwater Modeling	Design, Aquifer Testing, Water Quality Investigations Regulatory Agency Liaison (2) Existing Systems Rehabilitation, 650 gpm & 180 gpm – Physical/Chemical Rehab, New Well Screen Installation
Standard Microsystems, Hauppauge, NY - 600 gpm Open Loop	
Design Construction administration/oversight	Water quality investigation/iron related bacteria study Troubleshooting & Rehabilitation
C.W. Post College, Brookville, NY - 320 gpm Open Loop	
Feasibility Study Long Island Well Permit Application Regulatory Agency Liaison	Groundwater Modeling & Water Quality Investigation Design, Construction Administration/Oversight
Bear Mountain, Upstate NY - Closed Loop Lake System – Coils	
Evaluation of Thermal Effects on Lake Biota Bathymetric Survey	Analysis & Report Preparation
157 Central Ave, Greenport, NY - Closed Loop System 4 Ton	
Feasibility Study Open Loop vs. Closed Loop Closed Loop Boreholes Preliminary Design	Cost Estimating
Loeb Residence, East Hampton, NY - Open Loop System	
Supply & Recharge Well Design for Residential Air Conditioning System	Cost Estimating & Construction Oversight
175 Mohawk Ave, Watermill, NY - Closed Loop System 56 Ton	
Proposed Design Peer Review (borehole depths, spacing, sizes, piping)	
Ross School, East Hampton, NY - Bldg 5 (500 gpm) & Bldg 2 (250 gpm) Open Loop Systems	
Hydrogeological Study/Engineering Report Long Island Well Permit Application Groundwater Modeling	Design Construction Admin/Oversight O&M Manual Preparation
Telyas Residence, Old Westbury. NY - 90 gpm Open Loop System	
Long Island Well Permit Application & Design	Construction Administration
New Lane Elementary School, Coram, NY – Open Loop	
Existing System Assessment Corrective Actions Recommendations	TV Inspections
Citibank, Melville. NY - 325 gpm Open Loop System	
Existing System Evaluation Corrective Actions Recommendations	TV Inspections
Pratt Institute, Brooklyn, NY - Standing Column Wells 150 Ton System (5 Wells)	
Feasibility Study Compared Open Loop, Closed-Loop & Standing Column Test Hole Oversight & Logging Cost Estimating	Standing Column Test Well Design, Evaluation Oversight Closed loop layout & preliminary sizing Pond/open loop system investigation/analysis
AIL Systems, Deer Park, NY - 2,650 gpm Open Loop System	
4 supply wells totaling 2,650 gpm discharging to a recharge basin hydrogeological analysis	Basin Capacity Study & Study for Land Reclamation Purposes
Lerner Residence, Lloyd Harbor, NY – 66 gpm Open Loop System	
Feasibility Study – hydrogeological & water quality investigations	Design & Permitting
30 Wheatley Road, Old Westbury, NY - 90 gpm Open Loop	
Iron Removal System Design	As-built Preparation & Construction Oversight
Front Street (Manhattan, NYC) - Standing Column Well	
Expert Witness Testimony & Support	
Brooklyn Children's Museum (Brooklyn, NYC, NY) - 420 gpm open loop system	
Investigation & Trouble Shooting Analysis of Malfunctioning Diffusion Wells	Improvements/Recovery Recommendations for Recharge Performance & Capacity
Kensington Public Library, NYC DDC (Brooklyn, NY) - 200 gpm open loop system	
Consult and advise on design and feasibility	Perform hydrogeological calculations
Cow Neck (Suffolk County, NY) - Closed loop system 40 tons	
Feasibility study, Field testing program-+	Design – modeling using GLHEPRO Version 4.0
Queens Botanical Garden, NYC DDC (Queens, NY) - open loop system	
Consult and advise on construction Rehabilitation and re-development specification	Coordinate and observe rehab using impulse generation technology
Snug Harbor, NYC DDC (Staten Island, NY) – closed loop system 230 tons	
Field testing program Design – modeling using GLHEPRO Version 4.0	Construction administration and observation services
Bronx Zoo Lion House, NYC DDC (Bronx, NY) – standing column well 160 tons	
Investigation and troubleshooting analysis of malfunctioning well system	Recommendations to improve and recover performance and capacity
NYC DDC Geothermal Heat Pump Manual (NYC, NY)	
Update NYC Depart of Design and Construction Technical Manual on Geothermal Heat Pumps	

James P. Rhodes, CPG, Vice President

Professional Experience

PWGC: 17 years

Prior: 5 years

Education

- MS, Earth Science/Hydrogeology, Adelphi University, NY
- BS, Geology, SUNY Oneonta, NY
- Executive Education (ACEC)
- Leading Professional Service Firms (Harvard Business School)

Areas of Expertise

- Brownfields/Redevelopment Management
- Environmental Compliance Management
- Property/Real Estate Due Diligence Expert (Transaction, Environmental)
- Site Assessment & Reuse Analysis
- Environmental & Remedial Investigations (Soil/Groundwater, Air Quality)

Certification

- Phase I Environmental Inspector (Environmental Assessment Association)
- Professional Geologist (American Institute of Professional Geologists)
- Licensed Real Estate Sales Person, NY
- OSHA HAZWOPER 40-hr

Affiliations

- Environmental Business Association, New York
- American Institute of Professional Geologists (AIPG)
- Long Island Association (LIA), Building Real Estate Committee
- Long Island Builders Institute
- Long Island Geologists Association
- National Brownfield Organization
- National Ground Water Association
- CoreNet Global
- Long Island Business Development Council

Profile

Mr. Rhodes is an expert in managing environmental concerns unique to the real estate market. For 20 years, he has been working with a diverse clientele in overseeing redevelopment and environmental remediation projects such as environmental site assessments (Phase I/II ESAs) RI/FS, VCP studies, cost to cure estimates for real estate tax purposes, and Brownfields projects. Further, he has directed extensive soil/groundwater investigations, air quality studies, and remedial measures for clients, ranging from developers to attorneys, insurance companies and municipal agencies. His attention to the individual client, resourcefulness to pinpoint key environmental concerns quickly and excellent working relationship with regulatory agencies, effectively avoid unexpected delays and unnecessary costs.

He coordinates with PWGC clients to prepare plans for approval by federal, state, and local agencies (i.e. quality assurance plans, sampling plans, tank closure plans, and corrective action plans) and monitors each project's day-to-day progress to meet the client's objectives and regulatory requirements on time and within budget.

Notable Projects

PWGC Environmental Real Estate Sector Services

Phase I & Phase II ESA Management – As Program Director for Property Transactions & Real Estate Environmental Management Services & Support, Mr. Rhodes oversees Phase I & II ESA's planning, preparation, implementation, and completion. He ensures that each Phase I and II is tailored to the situation, the client's needs, and long-term plans. For each project, a targeted scope of work and relevant documentation is prepared to provide clients with the necessary information to make cost-effective sound business decisions. Under Mr. Rhodes' guidance, PWGC performs Phase I & Phase II ESA's for private clients, environmental attorneys, municipalities, and lending institutions for use in property transactions. PWGC performs Phase I ESA's in accordance with ASTM Standard – E I527-00 and Phase II ESA's in accordance with ASTM Standard E 1903-97 Mr. Rhodes oversees over 60 Phase II ESA's annually. He provides clients with more than recommendations: Mr. Rhodes presents workable solutions for issues discussed in a Phase II report. Under his management, PWGC Phase I/II Management have gained recognition with peers and clients for effectively utilizing escrow agreements, environmental insurance and cost-to-cure estimates.

Suffolk County Department of Health Services (SCDHS)

Brownfield Program Engineering Consulting Services Agreement – Through a competitive bidding process, PWGC was chosen by SCDHS as their engineering consultant related to County owned Brownfield sites. Currently, PWGC is working on four sites for the SCDHS in various stages of the Brownfield Cleanup Program (BCP) process. These sites are in both the Municipal Environmental Restoration Program (ERP) and the BCP in situations where the county assumed responsibility for the contamination. Mr. Rhodes acts as the Project Director for these projects

James P. Rhodes, CPG, Vice President

projects and is the main liaison with the SCDHS. As part of his duties, Mr. Rhodes participates in meetings with the NYSDEC and collaborates with the client in effort to streamline the brownfield process.

Baumann Bus, Gabreski Airport - Westhampton, NY

UIC Investigation/Remediation - Mr. Rhodes oversaw the completion of the investigation/remediation for UIC structures at Grabreski Airport which consists of approximately 58 acres owned by Suffolk County. The property was previously owned by the United States Air Force when the airport operated as a military air base. Following a 2004 site investigation, an onsite manhole was identified as containing elevated levels of semi-volatile organic compounds (SVOCs). Through various historical maps and geophysical methods, a remedial work plan was prepared for the site to properly locate, characterize, and close over 100 UIC structures. Mr. Rhodes provided technical support to verify protocols on Local State and Federal levels. He corresponded with the County to negotiate scope of work, provided quality assurance and verified that all work was done in accordance with all proper guidelines. The UIC issues were thoroughly addressed so that structures not being utilized following site redevelopment could be properly closed without further need for assessment/ remediation.

Bellport Gas Station-Bellport, NY

Brownfield's Consulting Support Services - The Suffolk County municipal Brownfields site is currently in the NYSDEC environmental restoration program (ERP). Mr. Rhodes oversaw the preparation of a Remedial Investigation work plan as well as the Remedial Investigation/Alternative Analysis report. In addition, an Interim Remedial Measure (IRM) is scheduled to be performed as Mr. Rhodes negotiates the final Remedial Action Plan with the NYSDEC as the State is in the process of preparing the PRAP for public comment.

Avalon Bay Communities - Rockville Center, NY

Brownfields Project Management -& Planning – As project director, Mr. Rhodes provides technical support and acts as a liaison between the NYSDEC, Village of Rockville Centre, the previous owner of the property as well as Avalon Bay. He advocated the client's needs and goals within the firm and regulatory agency. Mr. Rhodes participated in pre-application meetings with NYSDEC to introduce the project, and collaborated with the client and project team to develop the most effective strategy to streamline the project's representation with the State, and project schedule under the BCP program. Mr. Rhodes provided invaluable guidance during the scope of work's development and project documentation's preparation, which included work plans, sampling, and RI reporting. He was instrumental in obtaining all permits to complete the IRM work plan as well as throughout the performance of the IRM, which is near completion.

New York City "E" Designation Sites

In response to the rezoning activities in NYC, the New York City Department of Environmental Protection (NYCDEP) oversees environmental investigation and remediation at suspect sites prior to redevelopment. Mr. Rhodes develops scopes of work for environmental investigation required to redevelop the "E" designated property. He oversees Phase I & II work plans, HASP and CHASP, which the NYSDEP must approve prior to the start of work. To assess the soil quality he coordinates and oversees subsurface investigations (including geophysical surveys and soil and groundwater sampling programs). Based on the findings he develops and implements remedial strategies and prepares Remedial Action Plans for NYCDEP approval. Mr. Rhodes provides technical oversight and support on vapor intrusion mitigation, such as vapor barriers and sub–slab depressurization systems, and is very familiar with the New York State Department of Health (NYSDOH) requirements on evaluating soil vapor intrusions.

Penetrex Processing, Glenwood Landing - New York

Subsurface Investigation, NYS Class II Inactive Hazardous Waste Site – As project principal, Mr. Rhodes was responsible for overseeing the investigative fieldwork in accordance with NYSDEC-approved work plan and the preparation and implementation of the NYSDEC- approved work plan for the sub-slab vapor & indoor air sampling as well as the implementation of a sub-slab depressurization system. In addition, he oversaw the preparation of a draft feasibility study as the project moves towards a Record of Decision (ROD) with the State program.

James P. Rhodes, CPG, Vice President

Expeditors c/o Cargo Ventures LLC - Inwood, NY

Environmental Site Assessment, Remediation, & Redevelopment – Mr. Rhodes oversaw the investigation, remediation, and redevelopment of a 4.25 acre former Shell Oil terminal located along Negro Bar Channel in Inwood, NY. As part of this multifaceted project, PWGC prepared a Phase I Environmental Site Assessment to satisfy the necessary lending institutions as well as to document historic environmental work performed at the site. Mr. Rhodes oversaw the completion of a Subsurface Investigation to determine current site conditions for the preparation of appropriate NYSDEC approved Corrective and Remedial Action Plans. He oversaw the removal of petroleum-impacted soils, which resulted in an excavation measuring 300 x 200 feet and over 40,000 tons of impacted soils processed.

Benjamin Beechwood, LLC, Arverne Urban Renewal Area (URA) - Far Rockaway, NY

Consulting Services, Multi-Site Phase II Planning & Management – As project director, Mr. Rhodes collaborated with the private developers and served as liaison to the NYC Departments of Environmental Protection (NYCDEP) and Housing Preservation and Development (HPD) to advocate the client's long-term project goals effectively. He oversees environmental due diligence for the development of the approximately 25 City blocks-wide site and prepared the scope of work for a multi-site Phase II investigation from existing NYC reports. The scope of work was incorporated into project documents along with work plans, Health & Safety Plans, Special Area Management, and submitted to NYCDEP and HPD. Upon approval, Mr. Rhodes was responsible for coordinating with NYCDEP many of the various services PWGC provides (i.e. extensive geophysical and geoprobe investigations, test pits, and soil pile characterization). He directed the multi-faceted project, through to tank removals and NYSDEC Spill Closures, successfully clearing the way for the planned redevelopment and area's revitalization.

Town of Babylon (TOB), NY

Phase II Site Investigation & Redevelopment – Mr. Rhodes worked with the TOB Community Development Agency and private developers to investigate and clear the subject site for redevelopment into the first Supermarket in Wyandanch within 20 years. He developed a soil and groundwater investigation scope during which PWGC identified low PCE levels in the soil, and higher levels in the groundwater, which had been generated by a dry cleaner formerly located at the site. Mr. Rhodes documented that PCE was degrading naturally, and that only low impact levels were migrating off-site. To determine the off-site plumes' real and potential effect, PWGC conducted an extensive well survey downgradient of the property to identify potential receptors of the off-site groundwater contamination. Subsequent, the TOB hooked up the identified residences to public water eliminating the contaminant pathway and clearing the site for redevelopment.

Groundwater Specialists, Inc. - Ronkonkoma, NY

QA/QC for Phase I & II Engineering Oversight Services – To assure quality of the remedial investigation, Mr. Rhodes reviewed the proposed work plan, analyses; progress and activities monitoring for the soil-boring program, monitoring well installation, groundwater sampling; and spot-checking of field records. He further reviewed the third party's data evaluation, risk assessment, draft report, and results' documentation to assure completeness and rationality; and assisted the client with the sealing of the final report upon approval

Village of Lindenhurst (VOL) - NY

Environmental Site Assessment for Property Redevelopment – Mr. Rhodes acted as liaison between VOL officials and the Suffolk County Department of Health Services (SCDHS) representatives during the environmental assessment part of a condemnation proceeding ordered by VOL as part of the site's proposed redevelopment into a court complex. Faced with access issues during the initial Phase I and II, PWGC managed to collect enough evidence for SCDHS to obtain a court order for gaining entry to the property. Working in conjunction with the SCDHS, Mr. Rhodes finalized a scope of work and tasks, divided between PWGC and SCDHS personnel. Information collected in the joint venture documented the site's environmental integrity allowing for formulating the proper remedial action plan.

Allstate Insurance Services - Lake Success, NY

Project Management - Mr. Rhodes oversees over 40 residential fuel oil spills a year in NYC, Westchester, Nassau, and Suffolk Counties on behalf of Allstate. He directs the PWGC Allstate team to provide targeted technical oversight to document that the remediation performed by the homeowner's contractor is sufficient to address the contamination present and to achieve closure of the NYSDEC. Professional representation at all levels, and coordination of the NYSDEC and

James P. Rhodes, CPG, Vice President

the environmental contractor, PWGC has been able to reach closure of the majority of spills in a timely fashion, effectively reducing or eliminating Allstate's liability in such cases.

Sub-Surface Investigation Management & Client Representation Texaco Station, NY – Mr. Rhodes reviewed and supervised a sub-surface investigation to determine whether two underground storage tanks at a Texaco gas station were the potential source of soil and groundwater contamination under remediation at the time. He reviewed existing site data and supervised a subsurface investigation to determine the responsible party. The investigation showed the two storage tanks were not the source of contamination and that the current remediation system appeared ineffective.

Dutchess Terminal, NY

Petroleum Investigation – Collaborated on the investigation for NYSDEC to identify spilled product from five different bulk oil-storage companies. NYSDEC sought to identify potential responsible parties for cost recovery. The hydrogeologic investigation was crucial to meet NYSDEC's objective, since it was able to identify sources of contamination and evaluate the effectiveness of a groundwater remediation system. Mr. Rhodes stayed on the project long-term to provide quarterly reporting and the fate & transport of product evaluation during final closure of the site.

The Law Offices of Theodore W. Firetog - Farmingdale, NY

Environmental/Engineering Consulting Services - For the past eight years, Mr. Rhodes has worked with Mr. Firetog on numerous legal cases, reviewing legal documents and examining regulations as part of soil and groundwater investigations.

Fong and Wong, PC - New York, NY

New Best Cleaners & Tailors, Inc., Centereach, NY, Environmental Investigation & Remediation– He provided professional consulting services and expert testimony for the attorney who represented the site lessee in litigation with the property owner over the environmental condition and a lease buy-out agreement. He oversaw the soil and groundwater study to evaluate potential impacts and determine multiple sources of contamination, and remediation of sources associated with the dry cleaners, and participated in an on-site meeting with the presiding judge to demonstrate the conditions at the site first hand.

Krumenacker Florist and Nursery - Amityville, NY

Phase II Investigation & Site Remediation - After reviewing an existing Phase I report, Mr. Rhodes performed a Phase II investigation and site remediation to bring the facility into regulatory compliance and clear the path for future development. He devised a strategy for the Phase II particularly focusing on specific areas of concern so that the client would not incur extra costs or unexpected delays. The environmental concerns focused on an existing Class V Underground Injection Control Well and Gasoline UST's as well as potential future EAF issues, such as impacted soils beneath the former greenhouse. While on-site during the greenhouse demolition, he met with regulatory agencies to ensure that soil sampling and Health & Safety measures met regulatory requirements.

Sive, Paget & Riesel, PC (SPR) - New York, NY

Expert Evaluation & Analysis, Carnegie Hill, New York, NY – SPR contracted Mr. Rhodes to provide an environmental engineering evaluation to determine the source of petroleum contamination at the Site. A previous investigation conducted by the NYSDEC contractor identified SPR's client as the responsible party for a spill that was causing oil to seep through the wall of the adjacent building. He used the evaluation of previous reports, proper closure of a 10,000 gallon UST, and cross match analysis of fuel oil to compare chemical fingerprints of several sources. PWGC prepared a comprehensive project document to illustrate hydrogeologic cross sections, a study of the bedrock, UST construction details, hydrographs, and photos. The comprehensive document ultimately proved favorable for the client.

John deCuevas, et al. v. East Hampton Golf Club, LLC, et Al

Expert Evaluation - Conducted an investigation to assess the potential impact of the Golf Club's development on the groundwater resource to provide testimony for John DeCuevas. He researched and evaluated the hydrogeologic characteristic beneath the site, local groundwater quality concerns, and potential chemical usage of the future golf course.

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Mr. Rhodes' thorough evaluation identified a potential for groundwater impact and the ultimate threat to nearby private drinking water wells from the development of the golf course.

After consulting Mr. Rhodes' findings, the two parties agreed on developing a groundwater monitoring program to protect private well effectively. Moreover, the golf course would implement an Integrated Pest Management (IPM) program to control chemical use at the site. After developing the monitoring program that includes two SCDHS ordered wells, He reviewed the data to determine if impacts had occurred and submitted his findings with SCDHS for incorporation in the county's database.

Water Authority of Great Neck North, NY

Groundwater Study – As project manager, he directed multiple studies, using groundwater models in conjunction with the Nassau County Department of Public Works, to evaluate the pumpage and potential for saltwater intrusion, in order to determine the most favorable locations for the proposed well field. Using the modeling results, Mr. Rhodes prepared an Aquifer Management Plan for the Authority, which described both short term and long term pumping scenarios. By following the Aquifer Management Plan, the Authority has obseved signs that the advancement of multiple saltwater wedges has slowed and or ceased. Mr. Rhodes also prepared the water supply application and engineering report for the installation of new wells located off ogf the Great Neck Peninsula, which was part of the Authority's long term plans contained in the Aqifer Management Plan.

Minmilt Realty - East Farmingdale, NY

Remedial Project Management - As field manager, he coordinated a full remedial investigation and provided technical direction during the installation of a deep monitoring well (180 ft.), and define the vertical extent of contamination and hydrophobic dyes to determine the movement of dense non-aqueous phase liquids (DNAPL).using groundwater quality screening to Accordingly, he prepared the RI/FS report and oversaw the operation & maintenance of the system.

Trigen Energy Corp. - White Plains, NY

Industrial Well Application - To finalize the engineering report for the project site, Mr. Rhodes, used the PLASM model to determine the impact on groundwater levels and stream flow. To provide the client with a comprehensive assessment and allow the client to assess the potential impact on surrounding wells.

Computer Circuits - Hauppauge, NY

Remedial Investigation and Feasibility Study (RI/FS) – Project director for a characterization of a contamination's nature and extent at the former Computer Circuits industrial site, a US Environmental Protection Agency Superfund Site (CERCLA-02-2000-2036). Mr. Rhodes coordinated the use of different geophysical techniques to determine if unknown buried objects such as drums, tank, or leaching structures exist. Techniques employed during the course of the project were interior/exterior soil borings, multiple drilling/probemethods, EnCore™ sampler (to preserve VOC sample integrity), and off-site groundwater vertical profile sampling (to depths in excess of 200 feet below grade). PWGC utilized an on-site laboratory grade gas chromatograph to screen both soil and groundwater samples and followed NYSDEC procedures during the investigation.

Brookhaven National Laboratory - Upton, NY

Major Cesspools Closure – Mr. Rhodes coordinated sampling efforts to comply with the EPA and States regulated UIC program for the closure. He monitored closely the full ASP-B protocol and, after analysis of laboratory data, submitted reports to the client.

Jain Center of America - Lake Success, NY

Sub-Surface Investigation Review - Mr. Rhodes reviewed a subsurface investigation of a former gasoline station. He had to adhere to Village of Lake Success' requirements addressing past environmental problems at the site, while at the same time, support the client's efforts to obtain construction approval for the property. As part of the SEQRA review process, the village required that the client perform a subsurface investigation since the site was a former gasoline station. After a review of County records, He discovered an open UIC file with the County because an acceptable endpoint result was not obtained. He designed a subsurface investigation to address the UIC issue, the former gasoline spill, a sanitary system at the

James P. Rhodes, CPG, Vice President

site, as well as other environmental concerns. Coordinating with the USEPA, NYSDEC, the Village, NCDOH, and the client, Mr. Rhodes expedited the review process significantly.

Village of Sands Point, NY

Hydrogeologic Investigation – To assess the impact of proposed irrigation wells on the surrounding area, he determined the potential screen zones of the wells, considered potentially vulnerable to salt water intrusion. In addition, he assessed the impact on nearby public supply wells operated by the Village.

Previous Experience

Nassau County Department of Health, Mineola, NY 1988 - 1993

Public Health Sanitarian - Public Water Supply regulatory issues, community concerns, and complaints

Outstanding Projects -

- 1993/1994 Source Water Monitoring Requirements Development - incorporated USEPA's Phase II and Phase V final regulations
- Comprehensive assessment of public/private water systems and compliance/monitoring requirements
- Well water quality Analysis and the restriction of wells from use based on MCL exceedances and/or violations. Managed private water system wells use regulations for drinking under Nassau County Public Health Ordinance (NCPHO) Article IV; entailed facilities' inspection, recording potential violations, or granting waivers from certain sections of the ordinance.

Publications and Presentations

The Significance of the New Brownfields Legislation (NY Real Estate Journal, 03/04; Business Industry Connection (BIC), 03/04 issue)

Brownfields: Timing is Everything (Empire State Report, 09/2004)

Watershed Strategy & Management as a Most Valuable Resource (Watershed Conference, 1996)

Watershed Management for a Limited Coastal Aquifer System (North American Water and Environment Congress '96)

Kris E. Almskog, Senior Project Manager

Professional Experience

PWGC 14 years

Education

- BS, Geology, Stony Brook University, NY

Certifications and Training

- OSHA Health & Safety 40-hr, Supervisor 8-hr, Competent Person for Excavation
- Manager Leadership Training (Dale Carnegie)
- Advanced Technologies for Natural Attenuation (Regenesis)

Areas of Expertise

- Water Treatment System Construction Management/Oversight
- Remedial System (Construction, Installation, Start-up, Troubleshooting, O&M)
- Soil Excavations and Soil Logging
- Groundwater & Soil Investigations
- Health & Safety Oversight/Consulting
- Phase I, Phase II Investigations
- NYCDEP E Designation Zoning Compliance
- NYSDEC BCP Implementation

Affiliation

- Long Island Association of Professional Geologists (LIAPG)
- NYS Professional Geologists Association

Profile

Mr. Almskog's construction inspector/field engineer oversight and quality control experience includes projects for multiple BNL Groundwater Treatment Systems construction projects and for decontamination and decommissioning activities at the High Flux Beam Reactor and the Brookhaven Graphite Research Reactor. In addition, he serves as liaison to the Environmental Management and Plant Engineering Divisions, providing progress updates and recommendations to for multiple construction projects. He has an excellent working knowledge of hydrology and geosciences issues and related tasks for groundwater, soil, and air quality investigations, characterizations, environmental remediation and reporting. Further, Mr. Almskog has provided field oversight for, and conducted, soil and subsurface water characterizations, pesticide investigations, and remediation services on diverse environmental studies such as Phase II investigations, geothermal well installations, treatment system installation and operation, and dredging projects.

Mr. Almskog has assisted property buyers, sellers and developers to navigate the potential environmental concerns, petroleum spills, and the NYCDEP E designation zoning requirements during property transactions and site development. PWGC's role on these projects pertained to soil/groundwater investigations, air quality studies, and remedial measures. His clients, ranging from developers to attorneys, and municipal agencies, benefit from his expertise in overseeing Phase II, RI/FS, cost to cure estimates for financial institutions, and Brownfields projects. Mr. Almskog's construction oversight background has allowed him to use his understanding of property development and environmental remediation to navigate unnecessary delays and costs. He coordinates with PWGC clients to prepare plans for approval by federal, state, and local agencies (i.e. Remedial Action Plans, Health and Safety Plans, Work Plans, Interim Remedial Measures) and monitors each project's day-to-day progress to meet the client's objectives and regulatory requirements on time and within budget.

Notable Projects

Brookhaven National Laboratory- Upton, NY

Mr. Almskog has worked for the Environmental Management Directorate (EM), and the Plant Engineering Construction Coordination Group/Modernization Project Office at BNL for 9 years. He provided support to the Groundwater, Surface, and Reactor Groups in various areas of construction management, system start-up and operation, investigation, characterization, remediation system operation, decontamination and decommissioning activities and technical reporting. Using his working knowledge of construction along with the EM Operational Procedure Manual (OPM), Standard Operating Procedures, BNL's Standards Based Management System and BNL's Work Control Procedures, he has completed tasks on time, within budget and without lost time to any of the personnel involved in these projects. He has extensive knowledge of water treatment and remedial system construction including well installation, piping, concrete work, control systems and construction health and safety. His field responsibilities include oversight and management of remediation systems' construction projects, remediation system start-up testing, and reporting, surface soil excavation, decontamination and decommissioning of reactor structures, landfill inspections, disposal coordination of generated project waste, environmental procedural

Kris E. Almskog, Senior Project Manager

compliance, health & safety oversight, and oversight of subcontractors. He has worked closely with subcontractors and regulatory agencies to conduct field activities safely and efficiently.

BNL, Environmental Management Directorate

Off Site Treatment Systems: LIPA/Airport, North Street/North Street East, Industrial Park East, & OUVI EDB Treatment Systems - Provided long term construction inspections services for multiple large-scale GTS designed to remove volatile organic compounds from groundwater. He was responsible for insuring contractors followed stringent design specifications at various treatment buildings and long-run buried piping through residential areas of BNL property. He also acted as the site geologist to determine the pumping/recharge wells locations and screen zones.

Sr-90 Pilot Study Groundwater Treatment System (GTS) Oversight and System Start-Up Administration Mr. Almskog provided construction inspection services for an on-site groundwater treatment system (GTS) aimed at removing Sr-90 from the groundwater. His oversight responsibilities include project planning, as well as oversight and coordination of contractors (e.g. drillers, plumbers, electricians, heavy equipment operators, programmers, engineers, and consultants). He ensured the work was performed in accordance with BNL's SBMS, OPMs, and in accordance with applicable OSHA guidelines. He also provides administrative and invoice review to ensure that the project is documented properly to meet BNL's strict guidelines and that BNL receives a quality product.

OUIII Middle Road GTS Construction & System Start Up - Mr. Almskog was involved on this project from the construction kick-off meeting through system start-up and reporting. In addition to responsibilities similar in scope to his current Sr-90 construction project duties, he provided hydrogeologic, health & safety oversight for the project as part of the OUIII plume evaluation. His responsibilities included the coordination of a drilling crew, conducting daily tailgate meetings, using and maintaining granular activated carbon units and ambient air monitoring. He was also responsible for the logging of soil borings and collection of groundwater samples from temporary vertical profile wells. He performed these duties for nine months while working on several other ongoing remediation projects at BNL.

Off-Site Groundwater Remedial System - Provided sampling services and hydrogeologic oversight for several vertical profiles as part of the off-site OUIII plume evaluation. His responsibilities included logging of soil borings and collection of groundwater samples. He was also responsible for construction observation and documentation for numerous monitoring well and remediation well installations. During the start-up phase of the system, he collected groundwater quality data for analysis to determine the effectiveness of the treatment system.

Off Site Treatment Systems: LIPA/Airport, North Street/North Street East, Industrial Park East, & OUVI EDB Treatment Systems - Provided long term construction inspections services for multiple large-scale GTS designed to remove volatile organic compounds from groundwater. He was responsible for insuring contractors followed stringent design specifications at various treatment buildings and long-run buried piping through residential areas of BNL property. He also acted as the site geologist to determine the pumping/recharge wells locations and screen zones.

OUIII Western South Boundary GTS Construction/Hydrogeologic Oversight & Coordination – Mr. Almskog provided construction oversight for a GTS designed to remove volatile organic compounds from groundwater. Specifically, he provided hydrogeologic oversight to locate extraction screen zones and construction oversight to coordinate trades working on the project in order to complete the system in a timely fashion. He provided health and safety coordination to ensure that work was performed in a safe manner and by properly trained professionals. Mr. Almskog also provided administrative and billing assistance to the BNL project manager to ensure that the project was properly documented and invoiced according to BNL's SOP's.

HFBR Tritium On-Site Tritium Remediation - Mr. Almskog provided intermittent oversight for the Low-Flow Tritium Extractions as part of the remediation of the onsite HFBR tritium plume. He monitored groundwater extraction rates, conducted daily tailgate safety meetings, managed the collection and shipment of groundwater samples, and coordinated the mobilization/demobilization of all necessary equipment and personnel to ensure that the work was performed under a Radiological Work Permit and required strict health and safety, sampling, and QA/QC procedures.

Landfill Monitoring/Maintenance - He was responsible for the monthly inspections and maintenance of BNL's Former, Interim, and Current Landfills. He performed monthly site visits and inspections of the landfills and documented the findings. Mr. Almskog also worked with BNL's Plant Engineering group to keep the landfills maintained according to NYSDEC requirements. He also coordinated landfill gas sampling by BNL's Environmental Services Division and was responsible for gathering data for the Annual Landfill Report.

Kris E. Almskog, Senior Project Manager

Calibration Coordinator – In his role, he assisted with revisions of OPM 4.14 and was responsible for implementing and monitoring project procedures according to guidelines (e.g. field calibration, equipment usage, and manufacturer's maintenance, recommendations). He provided assistance to determine calibration based on equipment function and use conditions (required the use of level C personal protection).

PCB Delineation & Excavation System - Conducted sampling activities defining the vertical and horizontal extent of PCB contaminated soils. Upon completion of the sampling, he was responsible for oversight of the excavation, disposal of the soils and for collection of confirmatory endpoint samples. Due to the hazards involved with the contaminated soils, he was responsible for conducting daily tailgate safety meetings with all of the contractors and coordinating the effort with EM ES&H professional.

BNL, BGRR Decontamination and Decommissioning Activities

Mr. Almskog provided management and field oversight for several D&D related activities at the BGRR. He was responsible for stabilizing asbestos containing materials and flaking lead paint throughout the reactor structure. He also oversaw brick façade refurbishment and the replacement of a built-up-roof on the reactor structure. Because of the nature of the building as a nuclear reactor, the strictest security and safety procedures were called for during the projects to ensure that BNL technical and health and safety procedures were followed by the contractors.

Former Darby Drug Facility - Rockville Centre, NY

NYSDEC BCP Implementation During Redevelopment Mr. Almskog is serving as Project Manager to implement an environmental investigation and substantial remediation effort during redevelopment activities at this 150,000 square foot warehouse being converted to apartments. PWGC previously conducted a subsurface investigation and was able to get the project accepted into the NYSDEC BCP program. As part of the remediation of the site, PWGC prepared a Interim Remedial Measure Work Plan to address significant chlorinated solvent contamination beneath the existing warehouse. As project manager, Mr. Almskog has been responsible for ensuring compliance with strict administrative policies of the BCP, while working within the developer's strict schedule requirements. He has prepared Remedial Investigation Work Plans, Community Participation Plans, Remedial Investigation Report, represented the developer at public meetings, prepared and conducted a competitive bid process to ensure a competitive price for this multi-million dollar remedial phase.

Glen Isle Development - Glen Cove, NY

Waterfront Redevelopment – Mr. Almskog served as Project Manager of environmental Due Diligence for the redevelopment of a 56-acre industrial site, slated for residential-use. The site's multiple parcels included Federal and State Superfund sites as well as municipal brownfields. Contamination ranged from organics, metals, and radionuclides in soil and groundwater. He provided document review and fact checking of previous investigations of the multiple sites and prepared a summary report detailing the findings of the previous investigations, data gaps that represented potential environmental areas of concern, and cost and schedule estimates to conduct further investigation, remediation and administrative services to get the sites delisted by the various regulatory agencies involved.

Neptune Transmission System

Mr. Almskog supported the environmental and health and safety compliance for the Neptune project, a large-scale power generation construction project. The project had two separate construction contractors and two distinct scopes: the upland cable route, a 13-mile stretch through environmentally sensitive areas including wetlands and the converter station, constructed on a former landfill. This required the use of a team of inspectors that were on-site daily as well as auditors that reported monthly. Prior to commencing the field effort, he directed the effort to generate inspector checklists that warranted the review of multiple plans and documents including the Certificate of Environmental Compatibility and Public Need; the checklists were accepted by the Public Service Commission (PSC) without comment. He reviewed the inspector's daily checklists and auditors reports to ensure meeting project environmental and safety requirements. The reports were then released to the PSC. Although reporting to the PSC, his project management approach allowed each contractor to operate more efficiently and save money. This was done by not duplicating effort and being part of the project team, i.e. notifying contractors of potential issues before problems arose and reducing need for additional environmental oversight on the contractor's part resulting in money savings. This approach resulted in participation of all upland operations, as

Kris E. Almskog, Senior Project Manager

opposed to those areas deemed solely environmentally sensitive, as had been called for in the project documents. The project was completed with no significant violations, satisfying the regulatory agencies as well as the PSC.

White Plains Courtyard Apartments - Bronx, NY

NYSDEC BCP Implementation During Redevelopment PWGC provided sub-surface investigation services and analysis of site conditions to get this previously rejected project entered into the NYSDEC Brownfield Cleanup program (BCP). Formerly an abandoned gas station, the current developer was able to obtain funding, upon acceptance into the BCP, to remediate the VOC impacted groundwater and transform this abandoned lot into an eight story residential building with retail space on the first floor. Mr. Almskog managed the remedial investigation and the IRM implementation at the site, which was conducted during construction of the new mixed-use building. Following the field effort and the installation of engineering controls at the site, Mr. Almskog prepared and received approval on the Final Engineering Report which documented the previous investigations, IRMs, remedial actions conducted, engineering controls installed, and the site management plan for the property. Due to the aggressive approach implemented at this site, the developer received his certificate of completion from the BCP program prior to construction activities being finished.

McCarren Park Mews - Williamsburg, NY

Subsurface Investigation – NYCDEP E Designation/NYSDEC Spill Site Redevelopment - PWGC conducted a subsurface investigation, and submitted a subsequent Remedial Action Plan & Health and Safety Plan to NYCDEP and provided engineering oversight during earth moving activities and during installation of engineering controls to mitigate vapor intrusion concerns at this NYSDEC spill site, for this eight story residential development project. Mr. Almskog provided project management services and coordinated remedial designs, and field efforts with NYCDEP and NYSDEC throughout construction. He also acted as a spokesperson for the developer, to news media, to address environmental concerns of the neighborhood residents, and assisted the developer with tenants questions during sales of the units.

North Development Group - Brooklyn, NY

Property Transaction, Subsurface Investigations, NYCDEP E Designation Redevelopment, & NYSDEC Spills Remediation - PWGC coordinated subsurface investigations and remediation of five ongoing re-development projects for North Development Group. Services included sub-surface investigation beneath existing buildings and design and implementation of engineering controls that could be implemented during ongoing construction to meet regulatory compliance and assure that project schedules would remain on track. Mr. Almskog provided project management services, field investigation oversight, and coordinated remedial designs.

Computer Circuits - Hauppauge, NY

Remedial Investigation and Feasibility Study (RI/FS) - Mr. Almskog acted as project director evaluating remedial alternatives following an extensive remedial investigation at the former Computer Circuits industrial site, a US Environmental Protection Agency Superfund Site (CERCLA-02-2000-2036). Mr. Almskog compiled data collected over several years of the remedial investigation to compile the Final Remedial Investigation Report and prepare remedial alternatives detailed in the Feasibility Study for the site. In addition, Mr. Almskog is responsible for implementation of the Interim Remedial Measure, which consists of a SVE system designed to remove VOCs from the impacted sub-surface soils.

Green Bus Lines, Bus Terminals - NY City Metro Area

Underground Storage Tank (UST) Investigation – UST Closure – Groundwater Investigation & Remediation NYSDEC Spill Management -PWGC conducted the investigations at five bus storage and maintenance yards through New York City. Mr. Almskog was part of the team performing field oversight of soil sampling using a Geoprobe®. He was integral in determining the source and amount of contamination in multiple areas, which contained up to 80 UST. Mr. Almskog is now working closely with NYSDEC to implement stipulation agreements and corrective action plans at each of the sites to deal with residual sub-surface impact from the UST removal action.

Kris E. Almskog, Senior Project Manager

Bright Bay Lincoln- Bay Shore, NY

Groundwater Quality Monitoring - Mr. Almskog provided quarterly sampling and reporting to evaluate the ongoing groundwater quality of the site, during remediation using a soil-vapor extraction system PWGC had designed for the project. The DEC ordered the spill number for the site be closed based upon these reports.

Bigman Electronics

Lead-Contaminated Soil Removal Sampling & Preparation - He performed soil sampling and coordinated with the contractor to determine the best method to remove lead contaminated soil from a limited access area.

Glen Cove Landfill Investigation,- Glen Cove, NY

Stockpiled Soil and Debris Sampling - He led the sampling team charged with the large-scale sampling project. Under his guidance, the work plan was prepared and followed within the set budget and on time. The results confirmed previous findings. He was further responsible for ensuring that strict sampling and decontamination procedures were followed in accordance with the project documents NYSDEC protocol.

Recreational Facility - East Northport, NY

Soil Sampling Program Design - Due to the client's concern about the possible historic use of pesticides at the site, Mr. Almskog implemented a soil-sampling program. The program addressed the presence of Dieldrin and other pesticides in soils. Soil samples were collected by him and he later incorporated laboratory data in a report submitted to the client.

Shore Petroleum - Merrick, NY

Site Investigation - Working with Senior Hydrogeologists at PWGC, He assisted with the preparation of an investigation plan, which was conditionally approved by the NYSDEC. Mr. Almskog then provided field oversight during a pump test. He also completed a round of water level measurements from eight wells and collected groundwater samples.

Town of Southampton, North Sea Landfill, NY

Landfill Leachate Program – Managed quarterly/monthly Monitoring & Data Analyses/Reporting.

Allied Aviation Services, Inc, - Newark Int'l Airport, NJ

SVE System Monitoring - Coordinated programs tasks such as obtaining well vacuum and PID levels, and generating AutoCAD figures detailing groundwater data.

BASF Corporation, NC

Groundwater Monitoring Study - Provided on-site field services to assess the impact of fungicide in use at the South and North Fork vineyards on Long Island, NY.

Sayville Yacht Club - Bayport, NY

Navigational Dredging Project - Was responsible for below water surface sediment collection and surveying, multi-agency permit application submittals and justification, work planning, spoil waste characterization, spoil pile design for 5,300-cubic yard navigational dredging project in the Great South Bay

Thomas J. Melia, Project Manager

Professional Experience

PWGC: 8years
PRIOR: 2 years

Education

- MS, Energy & Environmental Systems, Stony Brook University, NY
- BS, Geology, Stony Brook University, NY
- AS, Earth/Space Sciences, Suffolk Community College, NY
- ASTM Phase I ESA Practices for Commercial Real Estate: Transaction Screen & Phase I Site Assessment

Certifications

- OSHA 40-Hour HAZWOPER
- OSHA 8-Hour HAZWOPER Supervisor

Areas of Expertise

- Subsurface Investigation
- Remedial Investigations
- Phase I & II Environmental Site Assessments
- Health & Safety Oversight
- Air Monitoring
- Groundwater Monitoring & Sampling
- Remedial Activities
- Site Investigation/Analysis, Work Plan/Report Preparation
- Environmental Compliance & Investigation
- Soil/Groundwater Investigations, Analysis, Sampling (Manual; Mud Rotary/Hollow Stem Auger, Direct Push Technology, Roto-Sonic Drilling Techniques)
- UST Remediation
- Hazardous Waste Site Investigation/Cleanup

Profile

Mr. Melia oversees field activities and works closely with clients, sub-contractors, and regulatory agencies to ensure efficient workflow and reliable data collection. He possesses expertise in the areas of:

- Field Work Protocol, Oversight, & Documentation
- Water, Soil, and Air Sample Collection
- Quality Assurance & Quality Control Procedures
- Erosion & Sediment Control
- Hazardous Waste Monitoring
- Data Management & Interpretation
- UST Management
- Laboratory Data Analyses

As a Project Manager, Mr. Melia applies his working knowledge of hydrology and geosciences to groundwater, soil, and air quality investigations. He regularly oversees drilling operations, collects groundwater elevation measurements, performs several methods of groundwater sampling, and is well versed in utilizing numerous field-screening instruments and sampling tools. Mr. Melia is experienced with the following subsurface investigation techniques:

- Vertical Profiles
- Temporary and Monitoring Wells
- Exploratory Excavation
- Hollow-stem Auger Drilling
- Roto-Sonic Drilling
- Geoprobe® Technology

Notable Projects

Prysmian Cable & Systems - Lexington, SC & Siements Power Transmission & Distribution

Neptune Regional Transmission System, Wantagh Hwy, NY – To Support Neptune's Certificate of Environmental Compatibility and Public Need (Certificate) with the New York State Public Service Commission, Mr. Melia has provided independent Inspector services for the project. The project consists of two distinct portions: the upland cable route, which spans more than 13 miles along wetlands and parklands to install the power transmission cable, and the converter station constructed on a former NYS Department of Transportation landfill. For both portions, he performs environmental and safety inspections in accordance with the EM&CPs, permits and the Health & Safety Plan. Daily, he conducts inspections, monitors environmentally sensitive operations, and, if problems are noted, facilitates resolution by contacting the appropriate team managers. Subsequently, he documents the proposed or completed corrective actions. He participates in daily meetings summarizing any action items. Mr. Melia's involvement in the project as Inspector along the 13-mile cable route, that had multiple active work sites, eased the burden of the environmental compliance for the site Environmental Safety & Health Manager who could not cover all areas. His proactive, one-on-one communication style assured the Client that work was in accordance with the EM&CPs and permits, and that the NYSPSC and the overall environmental objectives would be satisfied and according to project documents.

Thomas J. Melia, Project Manager

AvalonBay Communities, Inc. - Former Darby Drug Facility, Rockville Centre, NY

NYSDEC Brownfield Cleanup Program Implementation During Redevelopment - PWGC conducted a Remedial Investigation (RI) and prepared a NYSDEC BCP application to get the redevelopment project accepted into the State Program. As part of the remediation of the site, PWGC prepared an Interim Remedial Measure Work Plan to address significant chlorinated solvent contamination beneath the existing warehouse. In providing project management support, Mr. Melia has been responsible for ensuring compliance with strict administrative policies of the BCP. He has assisted in the preparation of the Supplemental RI Work Plan, Community Participation Plan and Supplemental RI Report and coordinated a competitive bid process to ensure a competitive price for this multi-million dollar remediation project.

Baumann Bus, Gabreski Airport - Westhampton, NY

UIC Investigation/Remediation - Mr. Melia completed the investigation/remediation for Grabreski Airport which consists of approximately 58 acres owned by Suffolk County. The property was previously owned by the United States Air Force when the airport operated as a military air base. Following a 2004 site investigation, an onsite manhole was identified as containing elevated levels of semi-volatile organic compounds (SVOCs). A remedial workplan prepared for the site recommended the closure of unused sanitary structures. Mr. Melia was able to rapidly identify and inventory site structures through combination of file review and site inspections. He worked in conjunction with SCHDS to prepare evaluation criteria to assess which structures would require sampling. The revised sampling criteria allowed PWGC to target sampling to structures of concern and to control costs. Mr. Melia prepared an inventory sheet of the UIC structures present for the site, which did not previously exist. He thoroughly addressed site UIC issues so that structures which will not be required following site redevelopment may be properly closed without further need for assessment/ remediation.

Metro Management, Inc. - White Plains Courtyard Apartments, Bronx, NY

NYSDEC Brownfield Cleanup Program Implementation During Redevelopment – PWGC provided sub-surface investigation services and analysis of site conditions to get previously rejected project entered into the NYSDEC Brownfield Cleanup program (BCP). Formerly an abandoned gas station, the current developer was able to obtain funding, upon acceptance into the BCP, to remediate the VOC impacted groundwater and transform this abandoned lot into an eight story residential building with retail space on the first floor. Mr. Melia provided field and Health & Safety and oversight for the Interim Remedial Measure, Remedial Investigation and Remedial Action phases of the project which were implemented during construction of the new mixed-use building. Mr. Melia also assisted in preparation of the RI report, RAP and Final Engineering Report which documented the previous investigations, IRMs, remedial actions conducted, engineering controls installed, and the site management plan for the property. Due to the aggressive approach implemented at this site, the developer received his certificate of completion from the BCP program prior to construction activities being finished.

Wittmann Plumbing Associates, Inc.

NYC Transit – Multiple Projects - Environmental Anticipatory Boring Program - Mr. Melia served as Project Manager for the environmental evaluation of in-situ soil and wastes generated on multiple NYC Transit capital improvement projects. For each project this involved the preparation of multiple site-specific planning documents, utilizing his regulatory knowledge and available site data to optimize data usefulness, reduce costs while satisfying the NYCT and regulatory requirements. He oversaw the implementation of the plans and coordinated the field efforts. Upon completion of the field effort, he assisted with the preparation of a report that summarized activities, sample data, and provided recommendations for waste handling and disposal of soils that could not be reused.

F&S Contracting, LLC

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Atlas Fence Company

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Grovick Properties, LLC - Former Citigas Service Station, Flushing, NY

NYSDEC Brownfield Cleanup Program - Mr. Melia provided Health & Safety and field oversight for the Remedial Investigation phase of the project. The investigation consisted of the installation and sampling of soil borings and groundwater sampling points using direct-push drilling methods and the collection of soil-vapor samples. Following completion of the investigation, Mr. Melia assisted in the preparation of the Remedial Investigation Report.

New York City Housing Authority – Multiple NYCHA Developments –

Investigation Work Plan Preparation – Mr. Melia prepares work plans for subsurface investigations at NYCHA developments with active petroleum releases. Reviews historical reports and sampling data and develops site specific scope of work appropriate for each site. Each scope of work designed to lead to development of a remedial action plan or spill closure. In addition he negotiate/coordinated proposed scope of work with NYSDEC.

Former Computer Circuits Superfund Site, Hauppauge, NY

Remedial Investigation and Feasibility Study (RI/FS) – The former Computer Circuits industrial site is a US Environmental Protection Agency Superfund Site (CERCLA-02-2000-2036). Mr. Melia assisted in the preparation of the Final Remedial Investigation Report and Feasibility Study for the site. In addition, Mr. Melia is responsible for implementation and coordination of the Interim Remedial Measure, which consists of a SVE system designed to remove VOCs from the impacted sub-surface soils and periodic air and groundwater sampling.

CDM Federal - Lawrence Aviation Industries Superfund Site - Port Jefferson, NY

Remedial Investigation/Feasibility Study - Lawrence Aviation Industries is a former manufacturer of titanium for the aeronautics industry. The site has received numerous SCDHS and NYSDEC citations for improper disposal practices and releases, is listed on the National Priority List, and is the suspected source of trichloroethene (TCE) and tetrachloroethene (PCE) groundwater contamination in the area. Mr. Melia provided field oversight for drilling activities during the EPA RI/FS at the site. This included groundwater vertical profiling, installation and construction of multi-port monitoring wells and installation and sampling of deep soil borings. Roto-sonic drilling technology was utilized for all drilling activities. Mr. Melia's responsibilities included monitoring and documenting drilling activities and well construction, lithologic classification and logging of soils, managing the collection and analysis of soil and groundwater samples and documenting that procedures outlined in the Health & Safety plan were followed.

Islip Resource Recovery Agency, Blydenburgh Road Landfill - Islandia, NY

Groundwater/Leachate Monitoring - Mr. Melia conducted the quarterly groundwater sampling required by NY Environmental Conservation Rules and Regulations (NYCRR) Part 360. He monitored groundwater and leachate quality near the clean fill landfill, as well as Leachate Containment Basins to determine if landfills/basins operations are impacting groundwater quality and whether unnoticed failures of the leachate collection/storage systems occurred. As defined by NYCRR 360 regulations, Mr. Melia performed one baseline, and three routine parameter-sampling events. He was responsible for collection and analysis of groundwater and leachate samples from 27 groundwater-monitoring wells, 2 leachate containment basins, and 4 leachate storage tanks and recording groundwater quality parameters in the field using a multi-parameter water quality meter. In addition, he collected water level measurements from the monitoring wells to prepare groundwater contour and potentiometric surface maps. Mr. Melia used monitoring and data analysis results to assist with quarterly report preparation as well as submittal of one annual report to the IRRA and NYSDEC and quarterly well condition and leachate monitoring reports to the Suffolk County Department of Public Works (SCDPW) as part of the IRRA's sewage-discharge certification requirement.

Thomas J. Melia, Project Manager

Jackson Plaza, LLC - Former Gloss-flo Chemical Site Brooklyn, NY

Soil and Groundwater Remediation - Mr. Melia provided oversight for the implementation of the Remedial Action Plan at the site. Activities included the excavation of over 3,000 tons of VOC impacted soil, multiple injections of sodium persulfate solution throughout an area of impacted groundwater. Additionally, a vapor barrier, sub-slab depressurization system and injection/product removal wells were incorporated into the design of the new residential structure constructed at the site. Mr. Melia's responsibilities included monitoring and documenting excavation, drilling and injection activities and providing VOC and particulate air monitoring during the excavation phase of the project.

Allied Aviation Services - Nationwide

LaGuardia Airport Bulk Fueling Facility – Mr. Melia manages routine groundwater monitoring and sampling for the groundwater remediation program at Allied Aviation's LaGuardia Airport Bulk Fueling Facility. Mr. Melia coordinates periodic sampling, as well as removal of product from monitoring wells when necessary. Subsequent to monitoring and sampling, he prepares bi-weekly and quarterly status reports and the annual groundwater sampling report required by the site's MOSF license for submittal to the NYSDEC.

Newark Liberty International Airport – Mr. Melia manages routine groundwater monitoring and sampling at Allied Aviation's refueling station at Newark-Liberty International Airport. Coordination of periodic sampling and preparation of status reports for submission to NJDEP

Brookhaven National Laboratory - Upton, NY

HFBR and G-2 Tritium Investigation - Mr. Melia provided field engineering and oversight support to the HFBR and G-2 Tritium Investigations, which included the installation and sampling of temporary vertical profile wells. These investigations also included the installation and development of monitoring wells equipped with either bladder or submersible pumps. His responsibilities included managing the collection and analysis of groundwater samples, health and safety oversight, and coordinating the necessary permits. The work was performed under a Radiological Work Permit.

Building 96 PCB Remediation – Mr. Melia provided field and Health & Safety oversight for the Building 96 PCB Remediation project, which included the excavation and disposal of approximately 1,000 tons of poly-chlorinated biphenyl (PCB) impacted surface soil from the former scrap yard. Mr. Melia was responsible for monitoring and documenting excavation activities, as well as documenting that procedures outlined in the project Health & Safety Plan were followed.

Building 96 Silt Zone Remediation – Mr. Melia provided field and Health & Safety oversight for the chemical oxidant injection phase of the Building 96 Silt Zone Remediation project. This phase of the project included the collection of real-time VOC data using a membrane interface probe attached to direct push equipment, installation and sampling of monitoring wells within the project area and the chemical oxidation of a subsurface zone of silty soil suspected of being a source of VOC impact. Chemical oxidation of the silt zone was accomplished through the multiple applications of potassium permanganate (KMnO4) injections throughout the suspected source area. Mr. Melia was responsible for monitoring and documenting drilling activities and chemical mixing and injection procedures, as well as documenting that guidelines outlined in the project Health & Safety Plan and Job Safety Analysis were followed.

OU III Airport Vertical Profiles - Mr. Melia provided field and Health & Safety oversight for the OU III Airport Vertical Profiles. His responsibilities included supervising the installation and sampling of groundwater vertical profiles to provide additional characterization of the carbon tetrachloride plume at the Dowling College Brookhaven Campus. The project was conducted in a residential area south of the BNL property, where residential sensitivity was essential. Mr. Melia was also responsible for sample management, daily reporting and coordinating the management of project generated wastes with the BNL field engineer.

Waste Management Support – Mr. Melia was responsible for the preparation of Maintenance Procedures for multiple systems at the Waste Management Facility including: the Overhead Crane, Jib Crane and Shielded Cell in building 865 and the Ventilation Systems, Floor Coating and Grounds throughout the Facility. Mr. Melia also prepared Technical Work Documents and provided oversight for the refurbishment of the Shielded Cell window.

Phase I & Phase II Environmental Site Assessment (ESA)

Mr. Melia manages Phase I & II ESA preparation, implementation, and completion. For each project, he provides a customized scope of work and relevant documentation to provide clients with pertinent information. He performs Phase I &

Thomas J. Melia, Project Manager

Phase II ESAs for private clients, environmental attorneys, municipalities, and lending institutions for use in property transactions according to ASTM Standard E I527-05 & ASTM Standard E 1903-97.

American Environmental Assessment Corp. - Multiple Funeral Homes throughout Suffolk County, NY

Sanitary System Characterization and Remediation – Mr. Melia managed the characterization/remediation of on- site sanitary systems for facilities in violation of EPA UIC regulations (i.e., sites with onsite sanitary systems impacted by embalming fluid discharge). For each site, Mr. Melia prepared characterization and remediation work plans for submittal to USEPA and SCDHS, coordinated characterization and remediation work with and prepared closure reports for submittal to EPA and SCDHS.

Certilman, Balin, Adler & Hyman, LLP

Mr. Melia provided general consulting services in support of potential litigation on behalf of several Funeral Home directors. Mr. Melia prepared a report summarizing applicable regulations and standards pertaining to the discharge of embalming fluids to sanitary and sewer systems as well as potential alternative non-toxic embalming chemicals and waste treatment/disposal methods.

Previous Experience

Fenley & Nicol Environmental - Deer Park, NY

Project Geologist – Mr. Melia provided field and project management support for various projects, including Phase I & II Environmental Site Assessments, subsurface investigations, groundwater treatment system O&M, UST removals and abandonments and remedial activities, such as chemical oxidant injection and soil excavation and disposal. His activities served to provide a diverse clientele with environmental services, specializing in Hydrogeological, Air Quality, and Lead Services. As lead geologist on a major Suffolk County Water Authority project, Mr. Melia was responsible for coordinating field activities and preparing monthly reports of groundwater sampling and monitoring results for multiple Suffolk County Water Authority well fields