Site Characterization Work Plan

115 Old Country Road, Carle Place, NY Site
Order on Consent: A1-0625-08-09
Site: 1-30-199

Client:
Country Glen, LLC
143 Old Country Road
Carle Place, NY 11514

July 19, 2012

Submitted by:
Edgewater Environmental, Inc.
10 Adams Place
Huntington Station, NY 11746

Office: (631) 824-7036
Fax: (631) 759-2919

Stephen R. Hix
President

File: 115 OCR SC WorkPlan July 19 2012

Contents

1.0 INTRODUCTION 1
2.0 SITE DESCRIPTION AND HISTORY 2
3.0 PRIOR INVESTIGATION AND REMEDIATION SUMMARY 5
Johnson & Hoffman Manufacturing (J&H) Site: Off-Site Vapor Intrusion Investigation Results 5
Impact Environmental - March 2009 Soil Vapor Sampling Report 5
December 2009 Sub-Slab Vapor Monitoring 5
Sub-Slab Depressurization System (SSDS) Installation - February 2010 6
June 2010 Sub-Slab Vapor Monitoring 6
Records Search Addendum 7
Record Search Conclusion 8
4.0 WORK PLAN 9
4.1 Areas and Compounds of Concerns 9
4.2 Scope of Investigation 9
4.2.1 Geophysical Survey 10
4.2.2 Soil 10
4.2.3 Groundwater 11
4.2.4 Soil Vapor Intrusion (SVI) Investigation 11
4.2.5 Soil Vapor 11
4.3 Project Schedule 12
5.0 QUALITY ASSURANCE/QUALITY CONTROL 13
6.0 HEALTH AND SAFETY AND COMMUNITY AIR MONITORING PLAN 14

Figure 1 Location Map 2
Figure 2 Site Plan 4

Appendix A - Site Plan
Appendix B - Quality Assurance Project Plan
Appendix B Addendum - Quality Assurance Project Plan: Sub-Slab Soil Vapor and Air Sampling
Appendix C - Project Schedule
Appendix D - Health and Safety Plan and CAMP
Appendix E - Sub-Slab Depressurization System
Appendix F - 2012 Soil Vapor Investigations

1.0 INTRODUCTION

On behalf of Country Glen, LLC, (Respondent), Edgewater Environmental, Inc. (Edgewater) prepared this Site Characterization (SC) Work Plan as required by the Order on Consent and Administrative Settlement (Order on Consent) between the New York State Department of Environmental Conservation (NYSDEC) and the Respondent A1-0625-08-09 for Site Number 1-30-199 (the *115 Old Country Road Site or the Site*). [Note: Order on Consent originally referred to the investigation as a Preliminary Site Assessment (PSA)].

Country Glen LLC is the current owner of the Site, which is described on the tax records as 115 Old Country Road, Carle Place, NY. The *115 Old Country Road Site* will be abbreviated as the *115 OCR Site* in this report.

The *115 OCR Site* is not listed on the Registry of Inactive Hazardous Waste Disposal Sites in New York.

To date, the Soil Vapor Intrusion (SVI) samples were collected in the Tiger Schulmann and the Sprint stores in March 2012, and as a follow up soil vapor screening survey was completed by the Respondent. See Appendix F for the preliminary report of the SVI investigation and screening survey.

2.0 SITE DESCRIPTION AND HISTORY

The *115 OCR Site* is located at 115 Old Country Road, Carle Place, NY, on the north side of Old Country Road and west of Glen Cove Road. The *115 OCR Site* is located in Nassau County and the Town of North Hempstead, and is identified as Section 9 - Block 670 - Lot 55. The *115 OCR Site* is 4.65 acres and is currently a commercial shopping center. See the Location Map and Site Plan on following pages.

As noted in the previously submitted and approved Record Search Report, dated October 28, 2010 and the addendum thereto, dated December 20, 2010, Country Glen Associates, a predecessor to the Respondent, purchased the *115 OCR Site* in 1977. Prior to the purchase, the *115 OCR Site* was owned/operated by Laboratory Furniture, Inc., (Laboratory Furniture), and according to the documents reviewed for the Record Search Report, Laboratory Furniture operated at the *115 OCR Site* beginning in the early 1950s, and ceased operations in 1985. Most of the building used by Laboratory Furniture was demolished, and replaced with the current layout of buildings and parking areas.

The current tenants in the shopping center at the *115 OCR Site* include (starting from the west end):

- Art Cleaners
- Super Cuts Hair Cutting
- Spa
- Tiger Schulman Karate
- Old Country Wine and Liquor
- Standup MRI of Riverhead
- Sprint
- Hollywood Tans
- Louie's Pizza
- Bagel Boss Cafe
- Babi Nails

The *115 OCR Site* is generally flat with a strip shopping center facing Old Country Road surrounded by asphalt parking lots. It is located approximately 106 feet above mean sea level. The upper glacial deposits are located directly below the surface and extend to a depth of 144 feet bgs. The soil consists primarily of coarse grained sand and is characteristic of outwash plain deposits. The water table is located at approximately 50 feet bgs, and the groundwater flows south-southeast. The Magothy aquifer lies below the upper glacial aquifer. This aquifer is 600 feet thick and consists of moderately to highly permeable sediments. The Magothy formation is a primary source of drinking water for this portion of Long Island. The Lloyd aquifer lies below the Magothy aquifer and is 350 feet thick. Below the Lloyd aquifer is bedrock.

The surrounding properties include:

North: LIRR Tracks, commercial buildings, and retail stores
South: Old Country Road, residential dwellings, and office buildings
East: Glen Cove Road, and shopping center
West: Five-story office building

Figure 1 Location Map

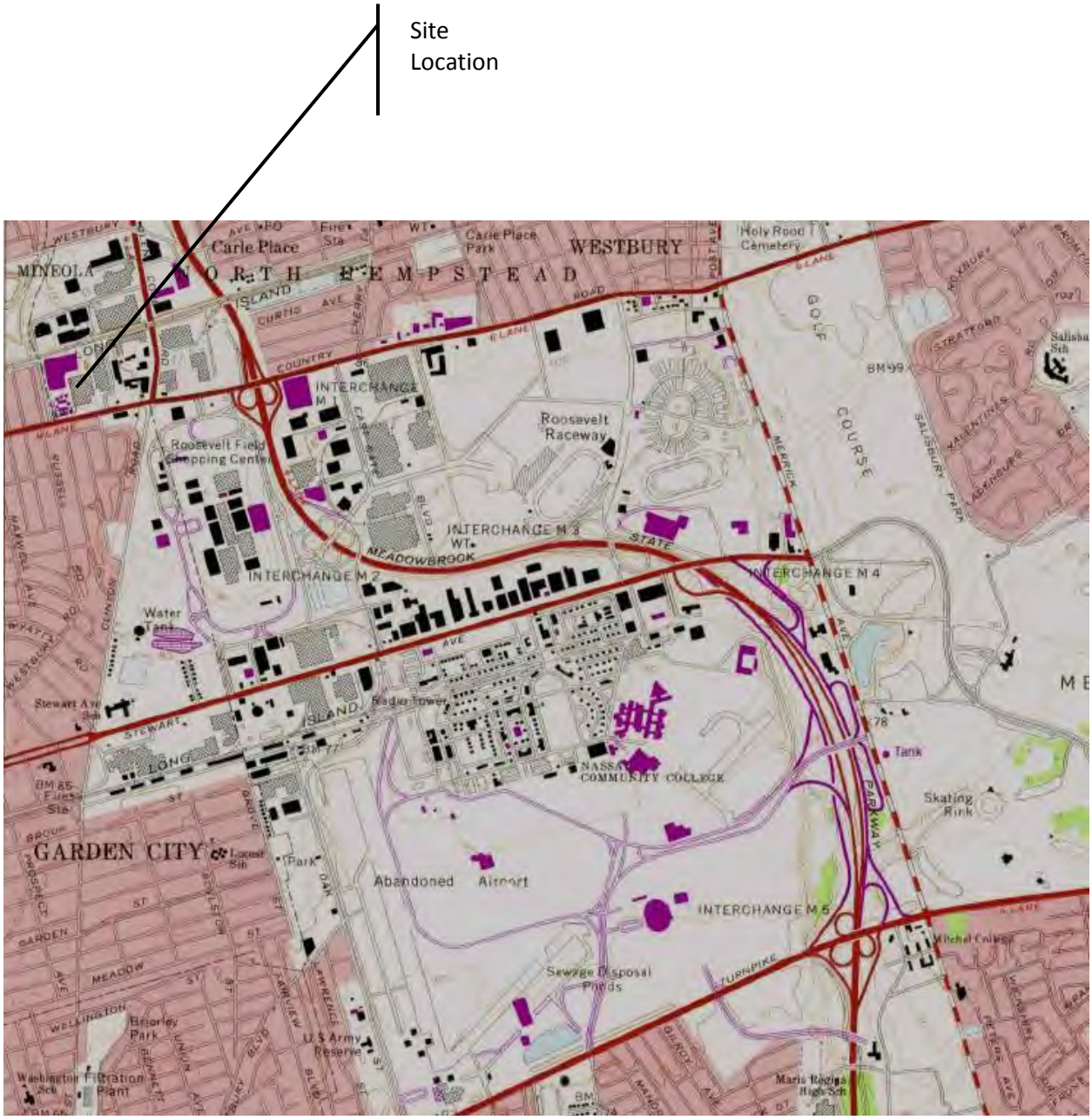
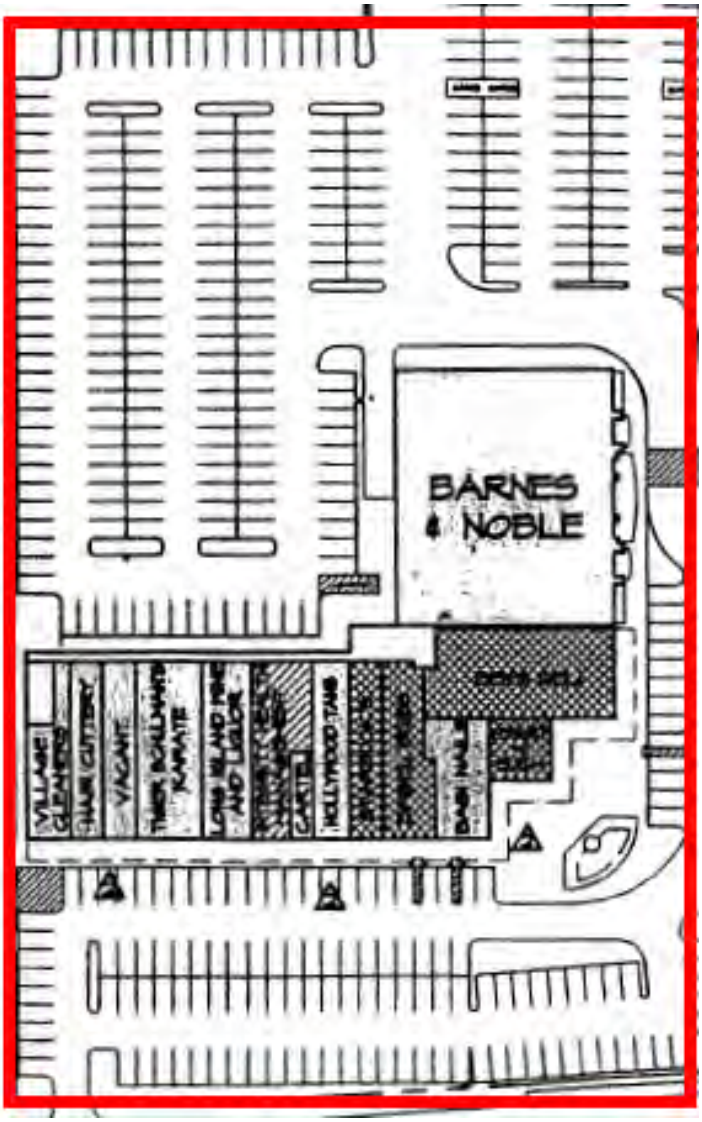


Figure 2 Site Plan



3.0 PRIOR INVESTIGATION AND REMEDIATION SUMMARY

The Record Search Report (October 28, 2010) and its addendum (December 20, 2010) prepared by Edgewater for the Site provides a summary of the prior investigations conducted on the Site. The following is an abbreviated summary of the prior investigation and remedial work. The scope of the current investigation is based on the findings of these earlier actions.

Johnson & Hoffman Manufacturing (J&H) Site: Off-Site Vapor Intrusion Investigation Results

Beginning in 1962 and continuing for several decades, J&H manufactured metal specialty products at its facility located at 40 Voice Road in Carle Place, which included the use of several chlorinated solvents. The J&H Site is located north of the *115 OCR Site*, on the other side of the Long Island Railroad track. J&H's activities contaminated the soil and groundwater. J&H entered into an agreement with the NYSDEC to investigate and remediate its on-site and off-site contamination. As part of J&H's required off-site investigation, in March and April 2008, ERM, J&H's consultant, conducted a Soil Vapor Investigation (SVI) to assess conditions at the *115 OCR Site* and at One Old Country Road, which is located directly west of the *115 OCR Site*. ERM collected sub-slab soil gas, indoor air and outdoor air samples as part of the SVI. The sub-slab and indoor air samples taken by ERM at the *115 OCR Site* were collected from a then vacant unit.

ERM reported that the sub-slab and indoor samples from the vacant space contained 1,1,1-trichloroethane (TCA) and tetrachloroethene (PCE). Both PCE and TCE were used at the J&H site. Although J&H's consultant, ERM, suggested that the dry cleaner located at the *115 OCR Site* may be a source of PCE in these samples if historic releases occurred, there were no such documented releases from the dry cleaner. (See EDR report included with the previously-submitted Record Search Report.) ERM also suggested that the presence of TCA in the samples was unrelated to J&H Site, since this chemical was not used by J&H.

Impact Environmental - March 2009 Soil Vapor Sampling Report

Impact Environmental conducted sampling in March 2009 to evaluate the conditions in the vacant tenant space at the *115 OCR Site*. Impact Environmental reported finding TCA at 1,160 $\mu g/m^3$, PCE at 540 $\mu g/m^3$, and TCE at 3.4 $\mu g/m^3$ in the sub-slab sample. It also reported finding PCE at 346 $\mu g/m^3$ and TCE at 4.2 $\mu g/m^3$ in the indoor air sample. Impact Environmental compared its results to the NYSDOH vapor intrusion guidance matrices and reported that the levels fell within the mitigation range, similar to ERM's findings.

December 2009 Sub-Slab Vapor Monitoring

As a follow-up to the earlier sampling work, Edgewater Environmental, on behalf of the Respondent, collected one sub-slab vapor sample from the existing probe located in the vacant tenant space at the *115 OCR Site* on December 1, 2009.

The sub-slab PCE and TCE concentrations detected by Edgewater Environmental had significantly decreased and were about half of the concentrations reported by ERM. Relatively low concentrations of

gasoline components and trichlorofluoromethane (Freon) were also found in the December 2009 sampling.

Sub-Slab Depressurization System (SSDS) Installation - February 2010

Respondent requested that Edgewater Environmental install a sub-slab depressurization system in the vacant space prior to its being leased to a tenant. A standard blower-type system was installed.

The construction of the SSDS was as follows:

- Two separate systems were installed; one along the east wall and one along the west wall in the tenant space with two separate extraction wells installed approximately 40 feet from the front wall.
- All piping was six-inch diameter PVC pipe.
- The extraction wells were constructed of slotted schedule 40 PVC pipe and hand-dug to a depth of approximately 40 inches below the slab. The annular spaces around the wells were packed with pea gravel and the slab grade finished with concrete. The installation work generated one drum of non-hazardous/non-RCRA regulated waste. A copy of the manifest is attached.
- The piping continued vertically along the walls and then above the drop ceiling toward the rear of the building.
- Two 220 CFM radon-type blowers (one for each extraction well) were installed immediately outside the tenant space in the enclosed alleyway and the blowers exhausted to the roof level. The exhaust piping extends two feet above the roof line.
- Three flush-mount soil vapor probes were installed in the front of the tenant space and the vapor probe previously installed in the rear of the space was re-installed so it was flush to the slab and not causing a tripping hazard. These vapor probes were used to pilot test the system.

Following the installation of the system, a sub-slab vacuum test was conducted on February 12, 2010. The purpose of the pilot test was to document the negative pressure beneath the slab. In general, sufficient vacuum was documented beneath the slab with the blowers operating in tandem or independently. A memorandum summarizing the SSDS installation and pilot test is enclosed in Appendix E.

June 2010 Sub-Slab Vapor Monitoring

After operating the SSDS for several months, on June 18, 2010, Edgewater collected sub-slab vapor samples from the two probes located in the vacant tenant space.[1] The samples were collected following standard sampling protocol and analyzed by EPA Method TO-15. The TCA concentrations in the two samples were 360 ug/m^3 and 1,309 µg/m^3, both of which are much lower than the results from the samples collected in March 2008 and December 2009.

[1] The June 2010 sampling locations are about fifty feet from the original sampling point installed by ERM.

The following table compares Edgewater Environmental's December 2009 and June 2010 sampling results with the ERM March 2008 sampling results, and Impact Environmental's March 2009 sampling results.

	Middle Vapor point	**Middle-Front Vapor Point**	**Original Vapor Point Rear of Store**		
Analyte	**June 2010 (Edgewater)**	**June 2010 (Edgewater)**	**December 2009 (Edgewater)**	**March 2009 (Impact)**	**March 2008 (ERM)**
Vinyl chloride	ND	ND	<0.51	--	<4.40
1,1-dichloroethene	8.32	55.5	107.19	--	19
Methylene chloride	ND	ND	<0.69	--	<12
cis-1,2-dichloroethene	ND	ND	<2.03	--	6.8
TCA	360	1309	2620	1160	2700
Carbon tetrachloride	ND	ND	<2.52	--	<0.96
TCE	16.1	ND	3.49	3.4	7.0
PCE	746	1830	882.05	540	1600

Concentrations are in micrograms per cubic meter.

Relatively low concentrations of gasoline components and trichlorofluoromethane (Freon) were also found in the June 2010 sampling.

Records Search Addendum

As part of the additional files provided by the NYSDEC, the location of Laboratory Furniture's hazardous waste storage area was identified near the north-west corner of the former building, and it appeared to be a fenced-in asphalt area. No chlorinated solvent use by Laboratory Furniture has ever been identified in the regulatory files.

Record Search Conclusion

Based on the information reviewed, there is no record of TCA use or historical chemical spills at the *115 OCR Site*. The manifest records for Laboratory Furniture do not refer to any halogenated solvent wastes (such as TCA, TCE or PCE). In addition, although the on-site dry cleaner uses PCE, there is no documented discharge of PCE from the dry cleaner. Thus, the only known source of halogenated VOCs is from off-site sources, including the J&H Site. No discharge to the recharge basin is documented in the 1951 Well Permit documents and the 1951 engineering report states that the water from Laboratory Furniture's production well was discharged to the on-site sanitary system at the south-west corner of the Site. The on-site sanitary septic system was closed and its use was discontinued when the facility was connected to the Nassau County Publicly Owned Sewage Treatment Works (POTW).

The focus of the Site Characterization will be the south-western area of the *115 OCR Site* in the general location of the existing dry cleaner, the historical location of Laboratory Furniture's paint booth, the historical location of Laboratory Furniture's waste storage area, the former recharge basin area, and former sanitary disposal system. The Site Plan in Appendix A illustrates an overlay of the former structures and current building

4.0 WORK PLAN

4.1 Areas and Compounds of Concerns

The Order on Consent requires that the Respondent provide a work plan for a Site Characterization (SC) The Areas of Concern (AOC) have been identified based on the Records Search Report and subsequent scoping meetings with the NYSDEC. The AOCs are:

- Areas near the existing dry cleaner
- The historical location of Laboratory Furniture's paint booth
- The historical location of Laboratory Furniture's waste storage area
- The former recharge basin area
- The location of the closed on-site sanitary system

The primary compounds of concern (COC) are chlorinated volatile organic compounds. However, the initial round of soil and groundwater samples will be analyzed for the full Target Analyte List (TAL) for inorganic compounds and Target Compound List plus 30 non-targeted compounds (TCL + 30) for organic compounds as required by the NYSDEC Division of Environmental Remediation. For subsequent rounds of sampling, if any, the analytical list will be limited to the COCs identified in the initial round.

Compound	**EPA Method**
Volatile Organic Compounds (TCL + 10)	8260
Semi-Organic Compounds (TCL + 20)	8270
Polychlorinated Biphenyls	8082
Pesticides	8081A
Metals (except mercury)	6010B
Mercury	7471
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods	SW-846

4.2 Scope of Investigation

Based on the review of the existing documents, the requirements of the current Order on Consent, and the project meetings with the NYSDEC, the following scope of work is proposed. The methods and procedures are outlined in the Quality Assurance/Quality Control Section. The objective of this SC work plan is to determine whether a release of hazardous constituents has occurred at the *115 OCR Site*. The scope has been revised to address the findings of the 2012 SVI Investigation in the Tiger Schulmann and Sprint store, and the subsequent soil vapor screening survey.

4.2.1 Geophysical Survey

A geophysical survey will be performed in the outdoor areas to identify any subsurface structures of concern (i.e., underground storage tanks, pumping well pits, etc.). No geophysical survey will be performed in the indoor areas, since these were excavated during construction of the Shopping Center and no structures of concern were identified.

4.2.2 Soil

Areas of Concern

Soil samples will be collected in each of the AOCs. A total of five borings will be drilled. The soil samples will be collected continuously from grade to the water table level. The samples will be field screened for VOCs, and visually examined for indications of spills, and one sample from each boring will be submitted to the laboratory for analyses based on field observations and screening results.

Additional Areas

Based on the findings of the April 2012 soil vapor screening (see Appendix F), two areas of relatively higher total vapor readings were identified for further investigation, which are as follows.

- The first area is the electrical room located near the north-west corner of the building and immediately adjacent to the dry cleaners. This soil sample will be collected using a hand-auger after core cutting the concrete. The hand-dug boring will be extended to the maximum depth physically possible. One sample will be collected from this boring.

- The second area is an area in the rear parking lot approximately 170 feet from north (rear) property line and 40 feet from west property line. One vertical profile boring will be advanced in the area of the previously documented highest reading. The vertical profile boring will be advanced to a depth of 20 feet and screened for VOCs with a PID. The boring will be advanced until two consecutive intervals do not exhibit elevated VOC readings.

  Four additional borings will be advanced to bracket the central boring. The sample intervals in each boring with the highest PID reading will be collected and held for analysis. The soil sample collected from the central boring will be expedited for laboratory analysis of VOCs and the results will be reviewed with the NYSDEC to determine which of the bracketed samples will be analyzed for VOCs. The laboratory will be instructed which of the selected will be analyzed.

The approximate locations of the soil borings are shown on the site plan in Appendix A. The sampling work and analytical procedures are outlined in the QAPP (Appendix B).

4.2.3 Groundwater

Three shallow groundwater monitoring wells will be installed to bridge the water table. The shallow water table wells to be installed as part of the SC will be approximately 50 to 60 feet deep with 10-foot of screen set based on field determination of the depth to the water table. Water samples will also be collected from the existing monitoring well installed by ERM at the southwest corner of the site. The shallow well installed by ERM is 85 feet deep with a 10-foot screen. In addition to water samples collected as part of this investigation, the water quality data previously collected by ERM will be used in the assessment.

The well locations and the casing elevations will be surveyed and the water table elevations will be determined from the water levels measured at the onsite monitoring wells. A map showing on site water level elevations will be provided. The approximate locations of the wells are shown on the site plan in Appendix A.

4.2.4 Soil Vapor Intrusion (SVI) Investigation

On March 8, 2012, temporary soil vapor sampling ports were installed in Tiger Schulmann and Sprint tenant spaces and concurrent soil vapor, indoor air samples and outdoor air samples were collected in accord with the NYSDOH guidelines. This work was authorized by the NYSDEC and permitted to proceed prior to approval of this SC Work Plan, so the work could be completed within the heating season. The May 15, 2012 letter report summarizing the findings is included in Appendix F - 2012 Soil Vapor Investigations. Based on the findings of the SVI investigation, the sub-slab concentrations indicates that further monitoring and mitigation. The original scope has been modified to include the investigation of two additional tenant spaces during the next heating season. Samples will be collected in the rear of the Bagel Boss store and the front of the vacant store on the south-east corner of building.

The approximate locations of the SVI samples are shown on the site plan in Appendix A. The sampling work and analytical procedures are outlined in the QAPP (Appendix B).

4.2.5 Soil Vapor

Initially, soil vapor samples had been proposed to identify areas of concern. Based on the 2012 soil vapor intrusion investigation and subsequent soil vapor screening, no soil vapor samples are proposed at this time. (See Appendix F) However, if the sampling is required at a later date, the sampling work and analytical procedures are outlined in the QAPP (Appendix B).

4.3 Project Schedule

The anticipated project schedule is included in Appendix C. The schedule is subject to change based on NYSDEC and NYSDOH reviews, site conditions, weather, and sampling results. The project schedule will be updated periodically to reflect changing conditions and project durations.

5.0 QUALITY ASSURANCE/QUALITY CONTROL

The sampling and analytical methods and procedures are outlined in Quality Assurance Project Plan (Appendix B) .

Appropriate Quality Assurance/Quality Control (QA/QC) Procedures have been prepared to ensure that suitable and verifiable results from sampling and analysis are collected. The sample preservation requirements, holding times, and frequency for field blanks, field duplicates, matrix spike and matrix spike duplicates and equipment rinse blanks will be consistent with the NYSDEC Analytical Services Protocol (ASP).

The quality assurance (QA) objective is to develop and implement standard procedures to record field measurements, collection of samples, laboratory analyses, and report laboratory results to provide consistent quality data.

All data generated will be submitted in an electronic data deliverable (EDD) that complies with the DEC's Electronic Data Warehouse Standards (EDWS). The laboratory will provide the analytical data in EqUIS format consistent with the NYSDEC Format template files. Reports will be provided in pdf-format.

6.0 HEALTH AND SAFETY AND COMMUNITY AIR MONITORING PLAN

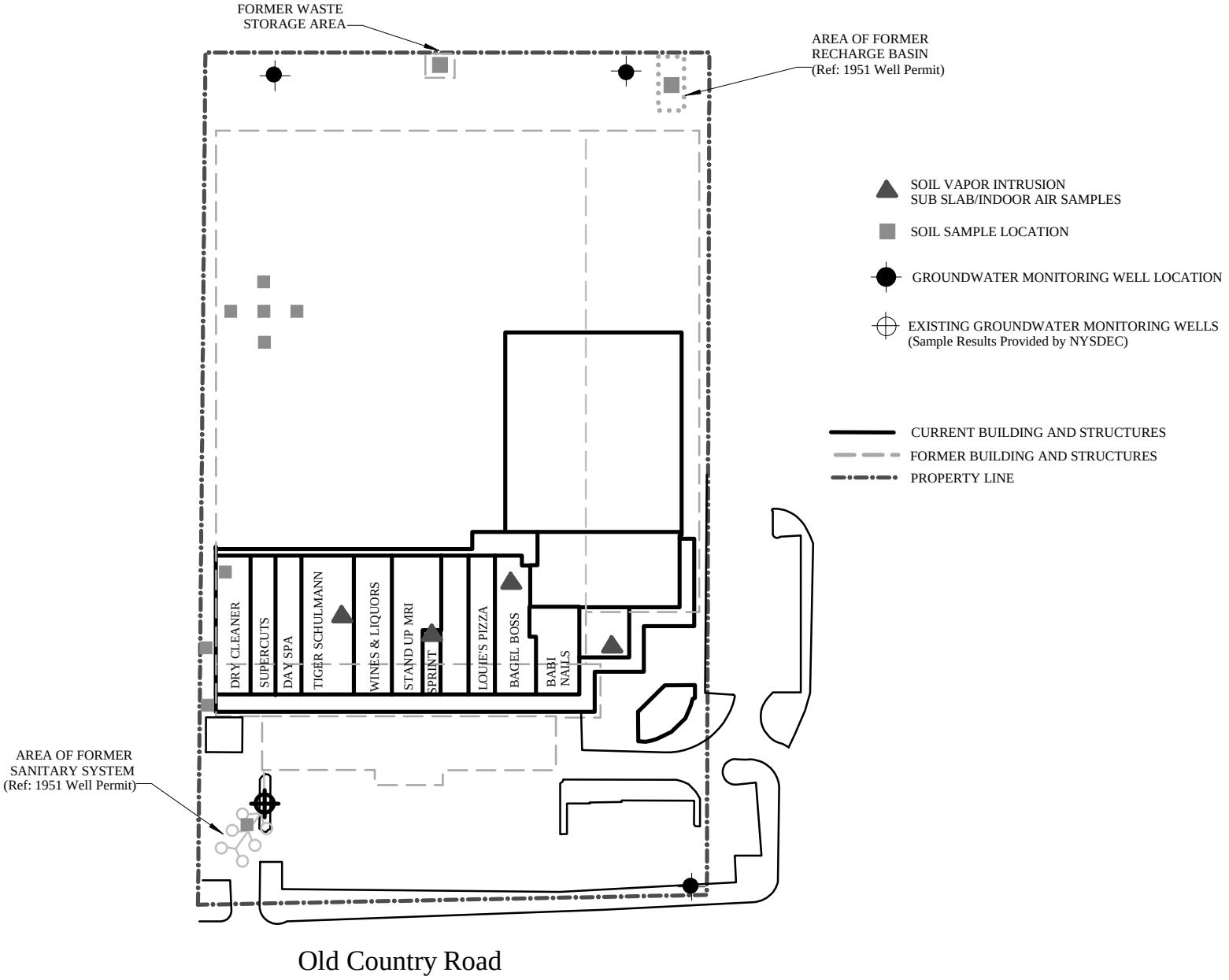
A site-specific Health and Safety Plan has been developed for the project and is attached as Appendix D. The plan will be followed by the field personnel involved in the investigation and/or remedial work. Included in the plan is a section on community air monitoring (CAMP) with measures to ensure that the public working near the site are protected from exposure to site contaminants during intrusive site activities.

.

Appendix A - SITE PLAN

115 OLD COUNTRY ROAD SITE
CARLE PLACE, NY

SITE CHARACTERIZATION WORK PLAN
SAMPLE LOCATIONS



Appendix B - QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN

FOR USE WITH

FACILITY CLOSURE PLAN -- FORMER LABORATORY FURNITURE SITE

AND

SITE CHARACTERIZATION WORK PLAN -- 115 OLD COUNTRY ROAD SITE

File: 115OCR - QAPP July 19 2012

INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been prepared to outline the appropriate Quality Assurance/Quality Control (QA/QC) procedures that will be followed to ensure that suitable and verifiable results from sampling and analysis are collected for the Site Characterization (SC) investigation and Hazardous Waste Facility Closure at the 115 Old Country Road Site. To assure consistent QA/QC for the two investigations, this QAPP will be used for both investigations.

The sample preservation requirements, holding times, and frequency for field blanks, field duplicates, matrix spike and matrix spike duplicates, and equipment rinse blanks will be consistent with the New York State Department of Environmental Conservation (NYSDEC) July 2005 Analytical Services Protocol (ASP), and NYSDEC DER-10 guidance.

The quality assurance (QA) objective is to develop and implement standard procedures for recording field measurements, collecting soil samples, laboratory analyses, and reporting laboratory results to provide consistent quality data. The Quality Assurance Project Plan is broken down into two sections: the Facility Closure Plan and Site Characterization Plan. The Project Manager is Stephen R. Hix of **Edgewater Environmental, Inc.**, and the Quality Assurance Officer will be Nicholas A. Andrianas, PE of **NAC Consultants Inc.** Mr. Andrianas will conduct periodic field audits, coordinate with the laboratory to resolve problems, and interface with the data validator. To support the QA objective Renee Cohen of **Premier Environmental Services** will provide data validation services and preparation of the DUSR. The resumes of these individuals are included in Attachment A.

FACILITY CLOSURE PLAN: FORMER LABORATORY FURNITURE, INC.

SOIL SAMPLING

Quality Control Requirements

Field quality control procedures will be followed according to this Quality Assurance Project Plan and documented in bound ledgers as described below.

Field Measurements

Measurement data will be generated during field activities that are incidental to the collection of samples for analytical testing or unrelated to sampling. The activities include the following:

- Documenting the condition of the floor slab, asphalt surface (ex. stains, etc.) prior to boring and sample collection.
- Measuring and documenting the distance from the sample location to known, fixed measuring points.
- Determining the collected depth of each soil sample.

The general QA objective for this measurement data is to use standard procedures to obtain reproducible and comparable measurements at a degree of accuracy consistent with the intended use of the data. Field measurements will be recorded in a bound field logbook and sample documentation will conform to the standard sample handling requirements.

GeoProbe Equipment

The soil to be sampled will be obtained by the use of GeoProbe drilling equipment. The methodology for soil collection using GeoProbe equipment is as follows:

- At each sampling location, the concrete/asphalt slab will be penetrated by a GeoProbe drilling rig equipped with a GeoProbe model GH-40 hammer, or equivalent.

- The demolished concrete/asphalt will be discarded and the hammer attachment will be washed with Alconox detergent and triple-rinsed with distilled water. The sampling/boring equipment will be air dried before reuse. The wash waters will be containerized.
- A clean, disposable, 4-foot long macro-core liner will be placed into a 4-foot long by 2-inch outside diameter macro-core sample tube. A macro-core, core-catcher, and cutting shoe will be installed at the bottom of the sample tube.
- The top of the macro-core sample tube assembly will be connected to the GeoProbe sampler drive head.
- The sampler will be advanced from grade (beneath the concrete/asphalt) to a designated depth. The sample tube assembly will be withdrawn after advancement to the desired sample depth, disassembled, and the undisturbed soil sample and macro-core liner will be provided to field personnel.
- The sampler tube and cutting shoe will be washed with Alconox detergent and triple-rinsed with distilled water, followed by a reagent grade 10% nitric acid rinse (for samples that will be analyzed for metals) and/or a reagent grade methanol rinse (for samples that will be analyzed for VOCs). The wash waters will be containerized. The sampling/boring equipment will be air dried before reuse.

Sample Collection

A total of nine locations will be sampled for VOCs (8260 TCL+10), target analyte list (TAL) Metals, and Hexavalent Chromium. The sample locations are provided on Figures 3 and 4 in the Facility Closure Plan. The sampling procedures are described below:

- Enter the designated sample identification along with the collection date, time, and the name of the sample collector into a bound field logbook. Record the equipment used to collect the sample.

- Place new plastic sheeting over and around the borehole so that a 5-foot by 5-foot clean surface is created for the sampling equipment. Ensure that all materials, tools, and equipment are clean prior to placement on the plastic.
- Prepare the sample bottles to receive samples. Screen the core with a PID (10.6 eV lamp) and take the grab sample from the 2-foot interval that exhibited the highest PID readings. A 2-ounce wide-mouth glass sample bottle with a Teflon-lined septum cap will be filled with soil from the grab sample location with no headspace for VOCs. A 9-ounce wide-mouth glass sample bottle will be filled with soil from the grab sample location for TAL metals and Hexavalent Chromium. Write the sample identification, collection date, and time on each sample bottle.
- Collect and immediately place the sample into the sample bottles. Soil samples will be collected with a GeoProbe unit at designated areas as directed by NYSDEC. Soil samples will be collected at 2-foot intervals using 4-foot long, pre-cleaned, disposable plastic macro-cores. The use of chromium, cadmium, or galvanized plated or coated equipment for soil sampling is not permitted.
- Place the samples on ice immediately after collection and enter the sample information on the laboratory chain of custody document. The soil samples will be delivered to the laboratory no later than 24 hours after sample collection. The maximum allowable holding time for soil samples is 14 days for VOCs, 6 months for Metals, 30 days for Hexavalent Chromium, and 28 days for Mercury.
- Place excess sample material back into the excavation/borehole.
- Decontaminate equipment and discard the plastic sheeting and other expendable materials.

Equipment Decontamination

The boring and sample collection equipment will be decontaminated prior to collection of each individual soil sample. The decontamination procedure will consist of washing the equipment in an Alconox detergent solution and a triple rinse of distilled water, followed by a reagent grade 10% nitric acid rinse (for samples that will be analyzed for metals) and/or a reagent grade methanol rinse (for

samples that will be analyzed for VOCs). The sampling/boring equipment will be air dried before reuse. The decontamination wash water and rinse water will be containerized, sampled, and analyzed for RCRA characteristics: ignitability, reactivity, corrosivity, and toxicity. The sample will be taken from the drum used to contain the wash water using a pre-cleaned disposable plastic drum thief or similar container. The contents of the drum will be mixed to homogenize the material prior to sampling.

LABORATORY ANALYSES

Laboratory Qualifications

The samples will be delivered to and analyzed by CHEMTECH, located at 284 Sheffield Street, Mountainside New Jersey, 11376, an ELAP certified environmental Laboratory (ELAP# 11376). A Category B deliverables package will accompany the submitted analytical data, in accordance with the NYSDEC July 2005 ASP. Soil samples will be analyzed for TAL Metals by USEPA Methods 6010B and 7471B, VOCs by USEPA Method 8260C, and Hexavalent Chromium by USEPA Method 3060A. An Analytical Methods/QA Summary table for the Waste Facility Closure Work Plan is provided in Table 1.

Parameters and Reporting Limits

The soil samples will be analyzed for VOCs and TAL metals (including hexavalent chromium). Table 3 provides list of parameters and reporting limits.

All quality objectives and acceptance criteria shall be consistent with the NYSDEC July 2005 ASP. The detection limits for target VOC and TAL Metal analytes will reflect the contract required quantification limits (CRQLs) cited in Exhibit C of the NYSDEC July 2005 ASP.

The soil sampling data will be compared to the NYSDEC Part 375-6.8(a) cleanup standards, a copy of the standards are provided in Attachment B. Non-detects will be reported at the sample specific CRQL

and flagged “U”. Values detected above the sample specific method detection limits (MDL) but below the CRQL will be reported and flagged “J”.

Field Blank Samples

A field blank will be taken from a representative GeoProbe macro-core sample liner to determine if interferences in the soil sample laboratory analyses occur. The following field blank sample collection method will be followed prior to soil sampling:

- Place a vinyl end cap on one end of the liner.
- Pour 100 milliliters of distilled water into the liner and cap the open end of the liner.
- Repeatedly invert the liner so that the distilled water contacts the entire inner surface. Repeat this step for one minute.
- Remove one cap from the inner liner and empty contents into an appropriate sample container.
- Perform analyses of the extract water for the analytes of interest to the investigation.

Field Duplicates

Field duplicates will be collected and submitted to the analytical laboratory to provide a means to assess the quality of the data resulting from the field sampling program. Field duplicate samples will be analyzed for sampling and analytical reproducibility. All duplicate samples will be collected using the same procedures, the same equipment, and in the same types of containers as the required samples. The duplicate samples will be preserved in the same manner and submitted for the same analyses as the samples. At least one soil and/or groundwater duplicate sample will be collected per day.

Matrix Spike / Matrix Spike Duplicates

In addition to field duplicate samples, a matrix spike sample and matrix spike duplicate sample will be obtained at a frequency of one sample for every 20 soil samples collected.

Equipment Rinse Blank

An equipment rinse blank will be collected once per day. The equipment rinse blank will be analyzed for the identical target parameters (VOCs, TAL Metals) as the soil samples to determine if interferences exist from the sampling equipment (stainless steel spoon/trowel). The equipment rinse blank will be placed on ice upon collection. The holding times for the equipment rinse will be 14 days for VOCs, 6 months for Metals, 24 hours for Hexavalent Chromium, and 28 days for Mercury. The following Equipment Rinse Blank collection method will be followed after equipment decontamination:

- Deionized water will be poured over the decontaminated sampling equipment.
- Water runoff will be collected in laboratory prepared sampling bottles.
- Analysis will be performed on the extract water.

Trip Blank

A laboratory prepared trip blank, generated by CHEMTECH, will be submitted to the laboratory at a frequency of one per shipping container. The trip blank samples will be analyzed for VOCs.

Data Usability Summary Report

A Data Usability Summary Report (DUSR) will be prepared by an experienced environmental scientist in accordance with NYSDEC DER-10 guidance. The DUSR will be developed by reviewing and evaluating the Category B deliverables package from the laboratory. The DUSR and Category B deliverables package will be submitted under a separate cover.

SITE CHARACTERIZATION WORK PLAN: 115 OCR SITE

GEOPHYSICAL SURVEY

Based upon the site conditions and surfaces of the survey locations, the geophysical survey will be performed using ground penetrating radar (GPR) equipment. The GPR equipment will consist of a mobile GSSI SIR system with a 400 MHZ antenna, equipped with a dedicated laptop computer with data processing software or equivalent. The GPR survey equipment is designed to identify underground structures, conduit, piping, etc. to a depth of 10 feet below grade. This depth penetration range is sufficient to identify potential underground structures such as buried storage tanks and drywells. In addition, a magnetometer will be used to identify any metallic structures underground and trace any underground piping.

Each area will be surveyed by scanning horizontal and vertical transect paths, approximately five to seven feet apart, within the survey area. The GPR survey equipment will visually identify potential underground structures on the laptop screen upon completion of the scanned path. If potential underground structures are identified along a path, the transect path will be re-scanned. The approximate locations of the underground structures will be delineated at the surface using spray paint and the transect path will be recorded as an electronic data file.

SOIL SAMPLING

Quality Control Requirements

Field quality control procedures will be followed according to this Quality Assurance Project Plan and documented in bound ledgers as described below.

Field Measurements

Measurement data will be generated during field activities that are incidental to collection of samples for analytical testing or unrelated to sampling. The activities include:

- Documenting the condition of the floor slab, asphalt, or other ground surface conditions (ex. stains, etc.) prior to boring and sample collection.
- Measuring and documenting the distance from the sample location to known, fixed measuring points.
- Determining the collected depth of each soil sample.
- A hand held photoionization detector (PID) will be used to screen the soil samples and determine the soil sample that will be submitted to the laboratory for analysis. A portion of each sample will be placed in a zip lock plastic bag and the head space will be screened for VOCs using a handheld PID.

The general QA objective for the measurement data is to use standard procedures to obtain reproducible and comparable measurements at a degree of accuracy consistent with the intended use of the data. Field measurements will be recorded in a bound field logbook and sample documentation will conform to the standard sample handling requirements.

GeoProbe Equipment

The soil samples will be collected by a GeoProbe drilling rig. The methodology for soil collection using GeoProbe equipment is as follows:

- At each sampling location, the concrete/asphalt slab will be penetrated by a GeoProbe drilling rig equipped with a GeoProbe model GH-40 hammer or equivalent.

- The demolished concrete/asphalt will be discarded and the hammer attachment will be washed with Alconox detergent and triple-rinsed with distilled water. The wash waters will be containerized.
- A clean, disposable, 4-foot long macro-core liner will be placed into a 4-foot long by 2-inch outside diameter macro-core sample tube. A macro-core, core-catcher, and cutting shoe will be installed at the bottom of the sample tube.
- The top of the macro-core sample tube assembly will be connected to the GeoProbe sampler drive head.
- The sampler will be advanced from grade to a designated depth. The sample tube assembly will be withdrawn after advancement to the desired sample depth, disassembled, and the undisturbed soil sample and macro-core liner will be provided to the field personnel.
- The sampler tube and cutting shoe will be washed with Alconox detergent and triple-rinsed with distilled water, followed by a reagent grade 10% nitric acid rinse (for samples that will be analyzed for metals) and/or a reagent grade methanol rinse (for samples that will be analyzed for VOCs). The sampling/boring equipment will be air dried before reuse. The wash waters will be containerized.

Sample Collection

A total of five soil samples will be collected and analyzed for VOCs (TCL+10), SVOCs (TCL+20), PCBs, Pesticides, TAL Metals, and Hexavalent Chromium in accordance with USEPA SW-846 "Test Methods for Evaluating Solid Waste Physical/Chemical Methods". The sample locations are provided in Appendix A of the Site Characterization Work Plan. The sampling procedures are as follows:

- Enter the designated sample identification along with the collection date, time, and the name of the sample collector into a bound field logbook. Record the equipment used to collect the sample.

- Place new plastic sheeting over and around the borehole so that a 5-foot by 5-foot clean surface is created for the sampling equipment. Ensure that all materials, tools, and equipment are clean prior to placement on the plastic.
- Prepare the sample bottles to receive samples. Write the sample identification, collection date, and time on each sample bottle.
- Collect and immediately place the sample into the sample bottles. A GeoProbe will be used to collect soil at designated areas as directed by NYSDEC. Soil samples will be collected using 4-foot long, pre-cleaned, disposable plastic macro-cores. The use of chromium, cadmium, or galvanized plated or coated equipment for soil sampling is not permitted.
- Place the samples on ice immediately after collection and enter the sample information on the laboratory chain of custody document. The soil samples will be delivered to the laboratory no later than 24 hours after sample collection.
- The maximum allowable holding time for soil samples is as follows: 14 days for VOCs, PCBs, Pesticides, and SVOCs analyses, 6 months for TAL Metals analyses, 30 days for Hexavalent Chromium analyses, and 28 days for Mercury analyses.
- Place excess sample material back into the excavation/borehole.
- Decontaminate equipment and discard the plastic sheeting and other expendable materials.

Equipment Decontamination

The boring and sample collection equipment will be decontaminated prior to collection of each individual soil sample. The decontamination procedure will consist of washing the equipment in an Alconox detergent solution and a triple rinse of distilled water, followed by a reagent grade 10% nitric acid rinse (for samples that will be analyzed for metals) and/or a reagent grade methanol rinse (for samples that will be analyzed for VOCs). The sampling/boring equipment will be air dried before reuse. The decontamination wash water and rinse water will be containerized, sampled, and analyzed for RCRA characteristics: ignitability, reactivity, corrosivity, and toxicity. The sample will be taken from the drum used to contain the wash water

using a pre-cleaned disposable plastic drum thief or similar container. The contents of the drum will be mixed to homogenize the material prior to sampling.

GROUNDWATER SAMPLE COLLECTION

Monitoring Well Installation

(1) Three monitoring wells will be installed using GeoProbe or similar machinery.

(2) The monitoring well assemblies will be 2-inch or 4-inch diameter flush joined, internally threaded PVC riser pipe attached to 10 feet of machine perforated flush joined PVC well screen with a slot size of 0.01 inches (10 slot). The well screens will be installed at a sufficient depth below grade to bridge the water table.

(3) A clean silica sand filter pack, consisting of W.G. #2 sand will be installed around the well screen by gravity placement, and extend three feet above the well screen.

(4) A bentonite/cement grout will be installed by tremie to seal the borehole annulus and will terminate twelve inches below grade.

(5) An 8-inch steel well box with a steel well skirt will be installed flush at grade and finished in a concrete pad.

Monitoring Well Development

(1) The monitoring wells will be allowed to cure for at least three days after construction is completed.

(2) The three new monitoring wells and the one existing monitoring well will be developed by pumping to remove traces of drilling fluid and formation “fines”.

(3) The four groundwater monitoring wells will be purged of a minimum of three well casing volumes of standing water and will continue to be purged until the measured effluent turbidity is less than 50 Nephelometric Turbidity Units (NTUs).

(4) The purged groundwater will be containerized in 55-gallon drums for characterization and off-site disposal.

Quality Control Requirements

Field quality control procedures will be followed according to this Quality Assurance Project Plan and documented in bound ledgers as described below.

Field Measurements

Measurement data will be generated during field activities that are incidental to collection of samples for analytical testing or unrelated to sampling. The activities include:

- Documenting the condition of the floor slab or ground surface (ex. stains, etc.) prior to boring and sample collection.
- Measuring and documenting the distance from the sample location to known, fixed measuring points.
- Determining the collected depth of each groundwater sample.

The general QA objective for the measurement data is to use standard procedures to obtain reproducible and comparable measurements at a degree of accuracy consistent with the intended use of the data. Field measurements will be recorded in a bound field logbook and sample documentation will conform to the standard sample handling requirements.

Sample Collection

A total of four groundwater samples will be collected. The monitoring well locations are provided in Appendix A of the Site Characterization Work Plan. The sampling procedures are summarized as follows:

- Groundwater will be purged from the monitoring wells prior to sample collection. Either a low-flow rate submersible pump or bailer will be used to purge and sample the wells.
- Purged groundwater will be conveyed directly to a Horiba U-22, or equivalent water quality meter equipped with a flow-thru cell, and containerized in a 55-gallon drum.
- Dissolved oxygen, turbidity, pH, conductivity, and total dissolved solids of the purged groundwater will be measured with the water quality meter and recorded in a bound field logbook. Purging will proceed until turbidity measurements are at or below 50 NTUs.
- Groundwater samples will be collected in laboratory-prepared sample bottles. The sample bottles will be placed in an iced-cooler and delivered to CHEMTECH, an ELAP-accredited environmental laboratory.

Equipment Decontamination

The sampling assembly equipment will be decontaminated prior to collection of each individual groundwater sample. The decontamination procedure will consist of washing the equipment in an Alconox detergent solution and a triple rinse of distilled water, followed by a reagent grade 10% nitric acid rinse (for samples that will be analyzed for metals) and/or a reagent grade methanol rinse (for samples that will be analyzed for VOCs). The sampling/boring equipment will be air dried before reuse.

LABORATORY REQUIREMENTS

Laboratory Qualifications

The samples will be delivered to and analyzed by a New York State Department of Health ELAP certified environmental laboratory. A Category B deliverables package will accompany the submitted analytical data, in accordance with the NYSDEC July 2005 ASP. Soil samples will be analyzed for TAL Metals by USEPA Methods 6010B and 7471B, VOCs by EPA Method 8260C, SVOCs by USEPA Method 8270C, PCBs by USEPA Method 8082, Pesticides by USEPA Method 8081A, and Hexavalent Chromium by USEPA Method 3060A in accordance with USEPA SW-846 "Test Methods for Evaluating Solid Waste Physical/Chemical Methods". Groundwater samples will be analyzed for USEPA TAL Metals by USEPA Methods 6010B and 7470A, VOCs by EPA Method 8260C, SVOCs by USEPA Method 8270C, PCBs by USEPA Method 8082, Pesticides by USEPA Method 8081A, and Hexavalent Chromium by USEPA Method 3060A. An Analytical Methods/QA Summary for the SC Work Plan is provided in Table 2.

Parameters and Reporting Limits

The initial round of soil and groundwater samples will be analyzed for TCL VOC, TCL SVOC, and TAL Metals. Additional sampling rounds, if any, will be analyzed for the Chemicals of Concern identified in the initial round. Table 3 outlines the list of parameters and reporting limits.

All quality objectives and acceptance criteria shall be consistent with the NYSDEC July 2005 ASP. The detection limits for target TCL VOC, TCL SVOC and TAL Metals analytes will reflect the CRQLs cited in Exhibit C of the NYSDEC July 2005 ASP.

The soil sampling data will be compared to the NYSDEC Part 375-6.8(a) soil cleanup standards, a copy of the standards are provided in Attachment B. The groundwater sampling data will be compared to the NYSDEC Part 703.5, class GA groundwater quality standards. Non-detects will be reported at the sample

specific CRQL and flagged “U”. Values detected above the sample specific MDL but below the CRQL will be reported and flagged “J”.

Field Blank Samples

A field blank will be taken on a representative GeoProbe macro-core sample liner to determine if interferences in the soil sample laboratory analyses occur. The following field blank sample collection method will be followed prior to soil sampling:

- Place a vinyl end cap on one end of the liner.
- Pour 100 milliliters of distilled water into the liner and cap the open end of the liner.
- Repeatedly invert the liner so that the distilled water contacts the entire inner surface. Repeat this step for one minute.
- Remove one cap from the inner liner and empty contents into an appropriate sample container.
- Perform analyses on the extract water for the analytes of interest to the investigation.

Field Duplicates

Field duplicates will be collected and submitted to the analytical laboratory to provide a means to assess the quality of the data resulting from the field sampling program. Field duplicate samples will be analyzed for sampling and analytical reproducibility. All duplicate samples will be collected using the same procedures, the same equipment, and in the same types of containers as the required samples. The duplicate samples will be preserved in the same manner and submitted for the same analyses as the samples. One duplicate sample will be obtained for every 20 soil samples collected and one duplicate sample will be obtained for every 20 groundwater samples collected. At least one soil and/or groundwater duplicate sample will be collected per day.

Matrix Spike / Matrix Spike Duplicates

In addition to field duplicate samples, a matrix spike sample and matrix spike duplicate sample will be obtained at a frequency of one sample for every 20 soil samples collected and one sample for every 20 groundwater samples collected.

Equipment Rinse Blank

An equipment rinse blank will be collected once per day. The equipment rinse blank will be analyzed for the identical target parameters (VOCs, TAL Metals) as the soil samples, to determine if interferences exist from the sampling equipment. The equipment rinse blank will be placed on ice upon collection. The holding times for the equipment rinse will be 14 days for VOCs, 7/40 Days for SVOCs, PCBs, and Pesticides, 6 months for Metals, 24 hours for Hexavalent Chromium, and 28 days for Mercury. The following Equipment Rinse Blank collection method will be followed after equipment decontamination:

- Deionized water will be poured over the decontaminated sampling equipment.
- Water runoff will be collected in laboratory prepared sampling bottles.
- Analysis will be performed on the extract water.

Trip Blank

A laboratory prepared trip blank, generated by CHEMTECH, will be submitted to the laboratory at a frequency of one per shipping container. The trip blank samples will be analyzed for VOCs.

Data Usability Summary Report

A Data Usability Summary Report (DUSR) will be prepared by Premier Environmental Services in accordance with NYSDEC DER-10 guidance. The DUSR will be developed by reviewing and evaluating the Category B deliverables package from the laboratory. The DUSR and Category B deliverables package will be submitted under a separate cover.

SUB-SLAB SOIL VAPOR AND AIR SAMPLING

Sub-slab soil vapor and indoor and ambient air samples will be collected in accordance with the protocols described in the NYSDOH October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York guidance document.

The sub-slab vapor samples will be collected from temporary sampling points installed in the floor slab. A 3/4" diameter hole will be drilled through the concrete floor slab. The temporary point will be drilled using a rotary hammer drill. The boring will be initially advanced to the bottom of the concrete slab, to determine the thickness of the slab, and then advanced an additional inch into the sub-slab annulus to create an open cavity to prevent potential obstructions during sampling. A 1/4" I.D. Teflon tube will be inserted into the hole and sealed in place with clay. The Teflon tubing will be removed from the temporary point and the point will be sealed with concrete upon completion of the sampling. The quality control requirements, sub-slab soil vapor and air sampling procedures are described below.

Quality Control Requirements

Field quality control will be maintained during all field activities. All field quality control procedures will be followed according to this Quality Assurance Project Plan and documented in bound ledgers.

Field Measurements

Measurement data generated during field activities that are incidental to collection of samples for analytical testing or unrelated to sampling will be recorded in a bound field ledger book. These activities may include:

- Identify any CVOC-related products used at the facility;

- Record weather conditions, including precipitation, outdoor temperature, barometric pressure, wind speed and direction at least 24 to 48 hours prior to sampling;
- Prepare a sampling site map which will include the site building(s), sampling locations, location of potential interferences, compass orientations, building footings and paved areas;
- Record building ventilation conditions, such as an active heating system, at the time of sampling;
- Record pertinent observations, such as odors and readings from field instrumentation, such as a Photoionization detector.

Field measurements will be recorded in a bound field logbook. Sample documentation will conform to the standard sampling handling requirements.

Tracer Gas Testing

Tracer gas field-testing using helium gas will be performed on all implants prior to sampling to verify the integrity of each implant seal and to limit the possibility of sample dilution from surface air.

The tracer gas field test will consist of sealing the area surrounding the implant with plastic sheeting or a plastic pail and introducing helium underneath the plastic to ensure that the area where the probe intersects the ground is immersed in the tracer gas. A helium detector will be connected to the soil vapor/sub-slab vapor implants, in accordance with Section 2.7.5 of the NYSDOH ***October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York*** document, and tracer gas concentrations in the well will be recorded in the sampling log sheet. This procedure will be duplicated at each implant prior to sample collection. The laboratory will confirm the field tracer gas tests by first analyzing approximately 85 to 90% of each sample canister for CVOCs via USEPA method TO-15 and then use a helium detector to analyze the remaining contents of the Summa Canisters.

The sampling logs with the recorded field tracer gas test measurements and the tracer gas measurements reported by the laboratory will be submitted to NYSDEC with the sampling results.

Sample Collection

The sub-slab vapor samples will be collected as follows for laboratory analyses:

- Enter the designated sample identification, collection date and time, and the name of the sample collector into a bound field logbook. Record the equipment used to collect the sample.

- Lay plastic sheeting over the sampling area to provide a clean surface.

- Insert Teflon tubing to each sampling point, seal it with clay, and allow approximately 12 inches to protrude from the ground.

- Seal the around over the sampling point with a plastic sheet or container and apply helium beneath the plastic sheeting/or container.

- Document the tracer gas concentration and repeat for each sampling location.

- Review the laboratory decontamination records for each of the "cleaned" Summa canisters prior to sampling. Ensure that the flow rate of all Summa Canister trains is less than 0.2 liters per minute.

- Evacuate a maximum of three implant volumes prior to sample collection and connect the tubing to a summa canister.

- Screen the purged soil vapor for VOCs using a PID and record the PID measurements on the sampling chain of custody and in the sampling logs.

- Following the setup of all summa canisters, open each valve and record the time.

- Periodically check the pressure of each summa canister to ensure proper function.

- After 8 hours have elapsed, close each valve and record evacuation volume, sample volume and duration.

- Label the sample summa canisters, record the sample ID used for each sample, sample time and sample analyses in the laboratory chain of custody. Preserve the sample, as instructed in USEPA compendium method TO-15 and complete the laboratory chain of custody form.

- After equipment decontamination, properly discard the plastic sheeting and other expendable sampling materials.

- Deliver the sample Summa canisters to the analytical laboratory and retain a signed copy of the chain of custody.

Field Duplicate

A field duplicate from one of the sub-slab vapor implants will be collected and submitted to the analytical laboratory to provide a means to assess the quality of the data resulting from the field sampling program. The duplicate samples will be analyzed for sampling and analytical reproducibility and will be collected using the same procedures as outlined in section A.4.

Indoor Air and Outdoor Air Samples

An indoor air sample will be collected in the area where the sub-slab vapor sample is collected. One outdoor ambient air sample will be collected at a frequency of once per day during the soil vapor sampling round. The air samples will be collected in 6-liter summa canisters over an 8 hour period concurrently with the sub-slab soil vapor samples.

Laboratory Analyses

The samples will be delivered to an ELAP accredited environmental laboratory, for CVOC and tracer gas detection. CVOCs in the collected soil vapor samples will be analyzed by USEPA Compendium Method TO-15. The sampling data with the NYSDEC CAT B deliverables package will be submitted to NYSDEC.

An independent third party Data Usability Summary Report (DUSR) prepared by Premier Environmental Services will accompany the submitted analytical data, in accordance with the New York Department of

Environmental Conservation (NYSDEC) Analytical Services Protocol. Laboratory tracer gas testing results will be documented by the laboratory and submitted with the laboratory analyses.

All data quality objectives (DQOs) and acceptance criteria shall be consistent with the NYSDEC ASP. The minimum reporting limits for target CVOC analytes will be 0.25 mcg/m^3 or less, to allow for easy comparison of the results to regulatory and/or background level concentrations**.**

ATTACHMENT A - RESUMES

EDGEWATER ENVIRONMENTAL, INC.
10 ADAMS PLACE
HUNTINGTON STATION, NEW YORK 11746

Office: (631) 824-7036
Fax: (631) 759-2919
Cell Phone: (631) 889-1253
Email: stephen.hix@verizon.net

Stephen R. Hix, LEED AP

PROJECT EXPERIENCE

ENVIRONMENTAL INVESTIGATIONS, REMEDIATION AND DUE-DILIGENCE

Commercial/Industrial Real Estate Developer/Property Owner, Long Island and Metro NYC. On-call environmental services related to due diligence, remediation, and regulatory compliance.

Commerical Shopping Center, Carle Place, NY. Subslab soil vapor testing and installation of a sub-slab depressurization system. Preparation of Preliminary Site Assessment and RCRA Facility Work Plans.

Former Gasoline Station, Hempstead NY. Prepared a Phase I Environmental Site Assessment of a closed filing station with multiple reported spills.

Automotive Repair and Heavy Equipment Storage Properties, Huntington NY. Completed Phase I ESAs for two commercial properties, followed by by site investigations, storage tank removal, site remediation, and closure of two petroleum spills.

West End Avenue, New York, NY. *10 West End Avenue, LLC.* Managed the site investigation and remediation related to a large-scale residential redevelopment of a former gas station and commercial buildings. The work included Phase II Environmental Site Investigation, soil management plan preparation and oversight, dewatering system design and permitting, and environmental construction management.

Oil Spill Remediation, Port Washington, NY. *Village of Port Washington North.* Managed the remediation of historic oil contamination uncovered during waterfront construction.

Groundwater Treatment System Installation. *Cofire Industries*. Managed the installation of a dual-phase extraction system. The construction work included trenching, piping, vaults, and well head installation.

On-Call Consulting Agreement, Bethpage, NY, *Northrop Grumman Corporation.* Project Manager for on-call environmental services for underground storage tank (UST) closures, subsurface investigations, and Phase I/II environmental site assessments at Northrop Grumman's Bethpage facility. The scope of the UST projects included closure management, investigation, and remediation related to gasoline; Nos. 2, 4, and 6 fuel oil; and waste oil tanks. The contract included 15 to 20 tanks.

Property Condition Assessment, John F. Kennedy International Airport (JFK), Queens, NY, *Air France Air Cargo.* Project Manager responsible for managing the post-lease property condition assessment of Air France's air cargo facility at JFK. The assessment addressed architectural and structural components; mechanical, plumbing, and electrical systems; and environmental concerns at the facility. Cost estimates were developed for repairs.

In Situ Soil Characterization, New York, NY, *Picone-McCullagh Joint Venture.* Senior Project Manager responsible for three projects requiring the characterization of contaminated soil to be excavated for the construction of upgrades to sewage treatment plants. The project included the preparation of work plans

for in situ soil sampling; field sampling work; the preparation of summary reports; and coordination with disposal facilities, drilling subcontractors, and the laboratory.

Demolition of Building and Structures at the Morris Park Facility, Queens, NY, *Long Island Rail Road (LIRR)*. Environmental Scientist responsible for environmental testing for the demolition of seven buildings and structures at the LIRR's Morris Park facility. Work included a physical site survey, an environmental assessment with soil sampling and analysis, and utility mapping. The project also involved drawings and specifications identifying the nature and condition of the buildings and structures to be demolished and showing utility modifications, shut-offs, and removals needed to facilitate abandonment and the maintenance of services to remaining buildings and structures. Dust control and rubble removal and disposal were major elements of the design.

Old Bethpage Landfill Groundwater Monitoring, Bethpage, NY, *Town of Oyster Bay.* Project Director responsible for overseeing a groundwater monitoring program at this closed municipal landfill, a federal Superfund site. The monitoring program consisted of quarterly sample collections, data analysis and interpretation, groundwater flow direction mapping, and report preparation.

Long Island MacArthur Airport Terminal Expansion Project, Islip, NY, *Southwest Airlines/Aviation Constructors, Inc.* Project Manager for the natural resource, hydrogeological, air quality modeling, and traffic impact analysis work for the Federal Aviation Administration (FAA) environmental assessment required for a four-gate expansion of the airport terminal. Prepared New York's State Environmental Quality Review Act (SEQRA) environmental assessment forms for the terminal expansion, parking lot construction, and airfield drainage projects.

Asbestos Management Program, Bristol, PA, *Confidential Construction Chemical Manufacturer.* Project Manager responsible for developing an operations and maintenance program for the in-place management of asbestos materials until an abatement program could be implemented in the company's Bristol, Pennsylvania, facility. Prepared the asbestos abatement specifications for the removal of the cementitious asbestos material applied to the facility's ceiling and directed environmental construction management services for the asbestos abatement work.

Phase I/II Environmental Site Assessments, Southampton, NY, *Korn & Spirn, Attorneys.* Senior Project Manager responsible for Phase I and II environmental assessments at a former printing facility. The Phase II assessment focused on known off-site sources and on-site sanitary and stormwater systems.

Environmental Assessment, Memphis, TN, *ESA1.* Project Manager for Phase II environmental assessments of two industrial sites in Memphis, Tennessee. Site work included collecting soil and groundwater samples for metal and organic analyses.

Pelham Bay Landfill, Bronx, NY, *New York City Department of Sanitation.* Group Manager in charge of the monthly monitoring of gas extraction wells and the gas flow system at the landfill. The scope of work also includes the quarterly monitoring of gas monitoring wells and surface gas monitoring points.

A&A Landfill, Staten Island, NY, *CSX Transportation, Inc.* Group Manager in charge of quarterly groundwater and surface water sampling and explosive soil gas monitoring for a landfill closure investigation. Manages the review and evaluation of laboratory data and the development of potentiometric maps and summary reports. Oversees field analyses of groundwater and wetlands and the monthly measurements of groundwater elevations as part of phytoremediation operations and maintenance.

Environmental Monitoring, Queens, NY, *Salem Fields Cemetery.* Group Manager in charge of quarterly groundwater sampling and explosive soil gas monitoring.

Long Island City Diesel Yard, Long Island, NY, *Long Island Rail Road*. Discipline Manager for an environmental design investigation and the remediation design required for improvements to the Long

Island City Diesel Yard. The environmental scope of work included demolition, asbestos abatement, and soil/groundwater remediation.

Train Wash Facilities at Babylon, Ronkonkoma, and Port Jefferson, Long Island, NY, *Long Island Rail Road*. Discipline Manager for an environmental design investigation and the remediation design required for the construction of three train wash facilities. The environmental scope of work included demolition, soil investigations, and remediation.

Williamsburg Bridge, New York, NY, *New York City Department of Transportation.* Environmental Project Manager for two bridge rehabilitation contracts involving the removal, handling, and disposal of lead paint. Developed hazardous waste compliance programs, air monitoring studies, and hazardous materials handling programs. Managed asbestos abatement, building demolition, underground storage tank removal work, and contaminated soils remediation efforts.

Verrazano-Narrows Bridge Rehabilitation, New York, NY, *MTA Bridges and Tunnels.* Environmental Project Director responsible for environmental compliance programs during a painting and steel repair project on the Verrazano-Narrows Bridge. The programs included ambient air monitoring, containment system inspections, and hazardous waste management related to abrasive blasting operations.

Bronx-Whitestone Bridge Rehabilitation, New York, NY, *MTA Bridges and Tunnels.* Environmental Project Director responsible for environmental compliance programs for a main cable rehabilitation project on the Bronx-Whitestone Bridge. The programs included ambient air monitoring, containment system inspections, and hazardous waste management related to abrasive blasting operations.

Throgs Neck Bridge Rehabilitation, New York, NY, *MTA Bridges and Tunnels.* Environmental Project Manager for environmental compliance programs during the rehabilitation of the on/off ramps between the Throgs Neck Bridge and the Cross Island Parkway.

Plant Closure Inspection, Calverton, NY, *Northrop Grumman Corporation.* Project Manager responsible for the inspection of 85 buildings at the Naval Weapons Industrial Reserve Plant for asbestos-containing materials requiring repair and removal as part of the manufacturing facility's closure. Developed asbestos abatement specifications for the removal and repair of the damaged materials and directed construction management, inspections, and project air monitoring for the asbestos abatement and demolition work. The demolition work included dismantling 15 buildings and removing 12 to 15 underground storage tanks.

Redevelopment of the New Rochelle Mall, Westchester County, NY, *New Roc Associates.* Project Manager responsible for a comprehensive design survey, environmental abatement plans, and the development of specifications for the demolition of a mall in New Rochelle. The design documents included asbestos abatement, hazardous materials removal, Freon recovery, and underground storage tank removal. Assisted with bid-phase coordination and environmental construction management for the abatement and remediation work.

Holnam-Mason City Environmental Demolition Project, Mason City, IA, *Holnam, Inc.* Environmental Demolition Project Manager responsible for the inspection of ten structures at a cement manufacturing plant. The structures had been selected for demolition, and the purpose of the inspection was to identify hazardous materials, such as asbestos, lead paint, and petroleum products, that would need to be addressed prior to the demolition work. The structures included a 400-foot cement kiln, eight 100-foot-high blending silos, blending and storage buildings, and several other derelict buildings. The findings were used to direct the demolition contractor with regard to asbestos abatement and hazardous material requirements.

Fairchild Republic Site Closure, Farmingdale, NY, *Fairchild Corporation.* Project Manager for the design of asbestos abatement and demolition specifications to decommission a 30-building manufacturing facility. The demolition design addressed lead paint, polychlorinated biphenyl (PCB), and solvent contamination.

City Buildings, Glen Cove, NY, *City of Glen Cove.* Project Manager responsible for the design and management of asbestos abatement work in three city buildings. The fast-tracked design provided the City with bid documents to meet their expedited bidding and construction schedule.

Asbestos Abatement Program, Syosset, NY, *Town of Oyster Bay Department of Public Works.* Project Manager responsible for designing and managing asbestos abatement and boiler demolition projects in several municipal buildings. Variances were required to perform the work in a safe and cost-effective manner while not disturbing the Town's operations.

Industrial Facility Remediation, New York, NY, *Preferred Plating.* Environmental Project Manager responsible for the preparation of remedial work plans, environmental site management, and final documentation for a former electroplating facility. Site work included the excavation of 2,000 tons of metals-contaminated soils from storage pits and backing pools at a Comprehensive Environmental Responsibility, Compensation, and Liability Act (CERCLA) site.

Cerro Wire Site Closure, Syosset, NY, *Tribune Company.* Environmental Project Manager responsible for designing and managing the asbestos removal and decontamination program in an abandoned seven-building manufacturing complex. Managed and oversaw the groundwater monitoring program and the removal of copper-contaminated soils.

Environmental Compliance Audit, Seattle, WA, *Vestar Capital Partners.* Environmental Manager responsible for conducting a prepurchase environmental compliance audit of an aerospace manufacturing firm. The site assessment included worker health and safety in addition to the typical environmental areas of concern. Phase II sampling was conducted to assess the groundwater and soil conditions at the site.

Environmental Compliance Audits, Jamestown, NY, and Berlin, PA, *Dean Foods.* Environmental Manager responsible for conducting an environmental compliance audit of two food processing facilities. The areas of concern were the handling and disposal of wastewater and hazardous wastes.

Environmental Site Assessments, Various Locations, U.S., *Simpson Thacher & Bartlett.* Environmental Manager responsible for conducting environmental site assessments at facilities in Chicago and Evanston, Illinois; Saint Louis, Missouri; and Seattle, Washington. The facilities manufactured warehouse electronic components and cabling. Stormwater discharges were the primary areas of concern.

WETLANDS PERMITTING AND RESTORATION

Tidal Wetland Design, Flushing Creek, NY. *Tully Construction*. Managed the design of approximately three acres of intertidal wetlands along Flushing Creek, Queens, New York. The restoration design was part of a NYS Department of Transportation Whitestone Expressway improvements project. The design included removal of invasive species (*Phragmites*), grading the shoreline to maximize the intertidal zone, and planting with *Spartina alterniflora* along with other woody shrubs.

Tidal Wetland Permit Application, Flushing Creek, NY. *Tully Construction*. Prepared the New York State Wetlands Permit Application for the commercial/industrial use of a NYS Department of Transportation yard located along Flushing Creek.

Tidal Wetland Design and Construction. Hackensack Meadowlands, NJ. *Hartz* Mountain. Managed and prepared wetland mitigation plans for an Army Corps 404 permit regarding the filling of wetlands associated with a multi-use development in New Jersey. Responsible for the restoration of 160 acres of tidal wetlands on the Hackensack River. Secured additional permits, such as special use herbicide, and waterfront development permits. Conducted and managed riverine and wetland sampling programs to support permit applications.

Golf Course Improvements Project, Bellport, NY, *Village of Bellport.* Project Manager responsible for preparing the New York State (NYS) tidal and freshwater wetland permit applications for this golf course improvements project, which involved the modification of tees, greens, and fairways within wetland jurisdictional boundaries. The improvement work included the removal of invasive vegetation by mechanical means. Coordinated and negotiated the NYS permits, as well as approvals from the U.S. Army Corps of Engineers and the U.S. Coast Guard for the work along Howells Creek.

South Plaza Estates, Amityville, NY, *Giannini Construction.* Project Manager responsible for preparing the New York State tidal wetland and U.S. Army Corps of Engineers permit applications for a six-lot waterfront subdivision. The work required agency negotiations, tidal wetland mitigation design, lot size and coverage variances, bulkhead replacement, and dredging. Managed the design of the site plans submitted for Town of Babylon approval. Site plans included the design of the roadway, sanitary sewer collection and water distribution systems, street lighting, and stormwater collection facilities.

Tidal Wetland Permit, Lawrence, NY, *J.T. Coe.* Project Manager responsible for preparing a tidal wetland permit application for the subdivision of a residential property and the demolition of the existing dwelling. Work included delineating the wetland boundary, preparing a site plan, and filing the joint application and associated New York State Environmental Quality Review Act (SEQRA) forms.

Freshwater Wetland Permit Application, Rockville Centre, NY, *Premier Self Storage.* Project Manager responsible for preparing the New York State (NYS) freshwater wetland permit application for the demolition of existing buildings and the redevelopment of a site within the jurisdiction of the NYS Freshwater Wetlands Act.

Tidal Wetlands Permit Applications, Amityville, NY, *Maria Ramirez.* Project Manager responsible for preparing the New York State tidal wetlands permit applications for two waterfront projects along Great South Bay. The first permit included the subdivision of a two-acre parcel into four building lots. The second permit included preliminary site development preparations, such as grading and concrete removal.

Freshwater Wetland Permit Application, Riverhead, NY, *Riverhead Building Supply.* Project Manager responsible for preparing a freshwater wetland permit application for an 18,000-square-foot warehouse expansion. Work included coordinating review-phase negotiations with the New York State Department of Environmental Conservation.

INDUSTRIAL HYGIENE AND SAFETY

Industrial Hygiene Survey, Farmingdale, NY, *Confidential Swimwear Manufacturer.* Project Manager for an industrial hygiene survey to assess formaldehyde exposure related to an employee complaint.

Indoor Air Quality (IAQ) Monitoring Program, New York, NY, *Insignia/ESG.* Project Manager responsible for the quarterly indoor air quality monitoring program at a 37-story, high-rise commercial building. The program included measurements for carbon dioxide, temperature, and relative humidity, as well as inspections of the mechanical rooms. The IAQ monitoring program was part of the building owner's proactive approach to building management.

Energy Control Program, Englewood, NJ, *Admiration Foods/Supreme Oil.* Project Manager for the preparation of an Occupational Safety and Health Administration (OSHA) compliance program addressing lock-out/tag-out of the plant's electrical systems.

Loss Prevention System (LPS) Program, **Atlanta, GA,** *ChevronTexaco Corporation.* Corporate Coordinator for the Chevron Loss Prevention System (LPS) Program for the prevention and reduction of site safety and environmental incidents.

EMPLOYMENT HISTORY

Edgewater Environmental, Inc.
May 2009 to Present
President

Cameron Engineering & Associates, LLP
March 2008 to May 2009
Director of Environmental Services

Trade-Winds Environmental Restoration, Inc.
April 2006 to March 2008
Senior Vice President – Special Projects

Gannett Fleming, Inc. (Eder Associates prior to 1998)
December 1990 to April 2006
Vice President – Environmental Services Group

TAMS Consultants
July 1986 to December 1990
Project Manager/Senior Environmental Scientist

Ethan C. Eldon Associates
January 1986 to May 1986
Environmental Consultant

New York Testing Laboratories
July 1984 to January 1986
Director of Pollution Engineering

Newing Laboratories
May 1979 to July 1984
Laboratory Manager/Environmental Scientist

EDUCATION

- Long Island University at C.W. Post
  M.S. Marine and Environmental Sciences (course work complete)

- New York State College at Brockport
  B.S. Biology 1977

PROFESSIONAL ASSOCIATIONS & CERTIFICATIONS

- USGBC Leadership in Energy and Environmental Design - LEED AP
- New York Water Environment Association (NYWEA)
- National Groundwater Association
- National Brownfield Association
- Gannett Fleming/Penn State Project Manager Certificate Program

Nicholas A. Andrianas, P.E.

Mr. Andrianas is a senior engineer with over 30 years of experience, solving complex environmental regulatory issues, conducting environmental site investigations, and designing and constructing treatment systems for contaminated groundwater, soil and industrial waste.

Mr. Andrianas is a founder and president of **NAC CONSULTANTS, INC.** an environmental consulting firm located in Kings Park, New York. Prior to founding **NAC CONSULTANTS, INC.** he was the principal in charge of the environmental and remediation section of a New York based, 200 person, nation-wide environmental consulting firm. Mr. Andrianas directs the environmental compliance programs, industrial air and waste treatment system projects, soil and groundwater investigations, feasibility studies, decommissioning and remediation of commercial, industrial, institutional, and municipal facilities. He has completed hundreds of investigation and cleanup projects under the supervision of the United States Environmental Protection Agency and various State and local environmental regulatory agencies. He is a recognized expert in environmental investigations, remediation and environmental compliance. He served on the technical and regulatory committees of the National Association of Chemical Recyclers for over five years, developing draft environmental statutes, tracking and interpreting environmental regulations, and developing remediation programs. He has taught programs in environmental compliance, treatment system design and operation, and chemical management for major transportation and manufacturing companies. Mr. Andrianas has prepared professional engineer's expert reports and has been accepted by the United States Tax Court as an expert witness in environmental engineering and compliance. Mr. Andrianas is a member of the National Society of Professional Engineers is a licensed professional engineer in New York and Michigan.

PROJECT EXPERIENCE

Photofinishing Company. Directed the environmental compliance program for a national film and paper photofinishing company. Tracked wastewater discharge monitoring for 23 facilities and compiled corporate permit records. Negotiated permit compliance programs, developed process monitoring programs for environmental and QC purposes, evaluated wastewater treatment equipment and developed programs to maintain and upgrade equipment. Reviewed wastewater discharge permits and negotiated permit limits and wastewater discharge surcharge programs. Directed the closure and decommissioning of facilities.

State Psychiatric Center. Directed the environmental assessment of the waste disposal areas at the Pilgrim State Psychiatric center, where hazardous materials were placed in landfills and surface impoundments and contamination was discharged to the soil and groundwater. The investigation included the installation of shallow and deep groundwater monitoring wells, test pit excavation and sampling of waste materials, and sampling of soil and groundwater. Developed the remedial alternatives and prepared the cost estimates to close the landfill and waste disposal areas, and to prepare the waste management areas for redevelopment as a warehouse distribution center.

Fasteners manufacturer. Developed the remediation plan to address contamination emanating from surface impoundments and an on-site landfill where hazardous wastes were discharged. Directed the operation and monitoring of the groundwater remediation system installed to remove solvents from groundwater prior to discharging the treated water to surface water. Prepared

reports required by New York State Department of Environmental Conservation to document soil and groundwater conditions at the site.

Armament Manufacturer. Operated the wastewater pretreatment system at the facility for 15 months. Modified the treatment system chemistry to improve effluent quality and meet discharge permit limits. Negotiated permit limits and prepared monthly reports to the City. Obtained permits for bulk chemical and metal finishing operations. Prepared and implemented spill prevention program and waste reduction program. Prepared and obtained air emission permits for scrubbers and process exhausts. Prepared and implemented the facility closure plan.

Precision Screw Machine Manufacturing. Prepared wastewater discharge monitoring reports. Prepared waste minimization reports to reduce wastewater discharge quantities and treatment system costs. Operated and maintained the plant's wastewater pretreatment system and directed the upgrades to the system. Prepared and obtained permits for hazardous materials storage. Performed compliance audits and trained personnel in treatment system operation and hazardous materials management.

Brookhaven National Laboratories. Directed the installation of soil vapor extraction wells and air sparging wells designed to remediate the groundwater plume contaminated with petroleum products and solvents. Directed the preparation of the summary report including lithologic information, well construction details, development data, and well permits.

Abandoned waste disposal site. Directed the investigation and remediation of a 4 acre parcel of vacant land that had been used as an illegal dump for construction and demolition (C&D) debris, plus petroleum contaminated soil. Prepared work plans for review by the State and conducted a soil boring investigation to map the extent of contaminated soil. Developed a remediation plan approved by the State. The remedial plan consisted of excavating and separating C&D debris from soil contaminated with semi-volatile and volatile petroleum hydrocarbons and recycling the soil as aggregate in an asphalt sub-base material. Provided field oversight of the soil excavation, separation of C&D debris and processing of the contaminated soil into asphalt sub-base pursuant to the State beneficial use permit.

Brookhaven National Laboratories. Directed the installation of the recovery wells designed to capture the groundwater plume contaminated with tritium. Directed the preparation of the reports on the lithologic information, well construction details, development data, and well permits to document the installation.

Electronics manufacturer. Designed and managed the construction of the plant's wastewater pretreatment system. Negotiated permit limits with the sewer agency based on effluent dilution calculations for the sewer district's outfall. Developed monitoring programs for the process operations and treatment system. Designed the hazardous materials storage areas.

USEPA Superfund Site, New Jersey. Directed the preparation of the feasibility study for groundwater extraction, treatment, and recharge remedy for this site. Directed the field pilot scale treatability and recharge tests, and the design and construction of the groundwater remediation system using extraction wells and two granular activated carbon (GAC) treatment units.

Wire and cable manufacturer. Directed the site investigation to evaluate soil and groundwater conditions at this closed industrial facility. Reviewed the results of the sampling programs and directed the preparation of the data review and development of the site-specific cleanup levels using a risk assessment for the property. Reviewed the remediation work completed at the site and prepared the petition to delete the property from the New York State Registry of Inactive Waste Disposal Site. Prepared plans and cost estimates to decommission and remediate the site for demolition and redevelopment.

Martin Marietta Astronautics Group. Directed the feasibility study prepared to develop, evaluate and recommend soil and groundwater remediation alternatives for over twenty waste disposal areas at this 5200 acre Federal Superfund site. The study included bench scale and pilot tests of technologies to immobilize and treat inorganic and organic contamination soil and sediment contamination. Groundwater extraction methods including shallow and deep wells and interceptor trenches were designed and evaluated for recovery effectiveness and implementability. Prepared remediation cost estimates for 23 solid waste management units and shallow and deep groundwater remediation.

Pump and motor rebuilder. Directed the investigation, feasibility study and the design, construction and operation of the remediation system for soil and groundwater contaminated with solvents. The remediation system consisted of an air sparging system to strip solvents from the groundwater and a soil vapor extraction system to recover solvents from the soil column. The remediation system was installed in lieu of a conventional pump and treat system that would have generated a substantial volume of contaminated treatment system residue.

Negotiated the permit for the plant's wastewater discharge from the rebuild operations and obtained permits for hazardous materials storage and parts cleaning processes. Prepared the facility's closure plan.

Employment Experience

Principal, NAC CONSULTANTS, INC. 1995 to Present

Principal, Eder Associates. 1983 to 1995

Education

Bachelor of Science Environmental Engineering Rensselaer Polytechnic Institute (1979)
Master of Science studies Environmental Engineering, Rensselaer Polytechnic Institute

Professional Licenses and Associations

New York State Licensed Professional Engineer
Michigan State Licensed Professional Engineer
New York State Society of Professional Engineers

RENEE G. COHEN
2815 Covered Bridge Road
Merrick, NY 11566
516-223-9761 FAX 516-223-0983

EXPERIENCE

PREMIER ENVIRONMENTAL SERVICES, Merrick, New York

1993-Present Perform organic and inorganic data validation according to the various protocols from the USEPA EPA CLP, NYS ASP and USEPA Test Methods for the Evaluation of Solid Waste, Methods for the Chemical Analysis of Water and Waste and the Federal Register. Use the USEPA National Functional Guidelines for Organic and Inorganic Data Validation (where applicable) as well as State (NYS DEC ASP/DUSR) and EPA Region requirements to report on laboratory data quality and data usability. Review and write Quality Assurance Project Plans using Regional and State guidelines for Remedial Investigations, Ground Water Monitoring programs and Superfund Programs. Review data and work plans as they relate to project data quality objectives. Conducts seminars on client specific topics. Perform on-site laboratory QA/QC audits as required by the client and site-specific work plans. Has performed ASTM Phase 1 Assessments for engineering firms when requested.

ENVIRONMENTAL QUALITY SERVICES, INC., Farmingdale, New York

1/2011-8/11 QA Manager
(25 hrs/wk) Perform the data review and report compilation of organic and inorganic data for report preparation. Review data for compliance with method as well as data quality objectives for specific client work plans. Perform departmental audits in compliance with NELAC and internal lab mandates. Revise laboratory logbooks for bench chemists. Revised/updated laboratory SOP's for method compliance. Participate in on-site audits by both state representatives and commercial clients. Coordinate PT studies for analyte certification for laboratory certifications. Insure analyte certification for client project requirements. Responsible for the review of new and/or updated method and implementation of these methods within the laboratory.

ENVIRONMENTAL TESTING LABORATORIES, Farmingdale, New York

8/2010-12/2010 QA Manager
(25-30 hrs/wk) Perform the data review and report compilation of organic and inorganic data for report preparation. Perform departmental audits in compliance with NELAC and internal lab mandates. Revise laboratory logbooks for bench chemists. Revised/updated laboratory SOP's for method compliance. Participate in on-site audits by both state representatives and commercial clients. Coordinate PT studies for analyte certification for laboratory certifications. Insure analyte certification for client project requirements.

SOUTH MALL ANALYTICAL LABORATORIES, Plainview, New York

10/2004-12/2009 QA Manager (Part Time)
(10 hrs/wk) Responsible for the overall QA program at the laboratory. Revised, updated and prepared SOP's for method compliance. Wrote and prepared the annual updates to laboratory Quality Assurance Manual. Perform audits of laboratory systems and methods. Prepare corrective action reports and follow-up to audit deficiencies. Oversee client and agency on-site audits. Contact with clients to discuss sampling plans, regulations, and required analyses. Perform the data review and report compilation of organic and inorganic data for reporting. Revised all laboratory logbooks and methods to comply with EPA and method guidelines. Handled document control of logbooks, SOP's, QAPP's. Performed annual data integrity and ethics seminars for all employees. Report directly to senior management.

ENVIRONMENTAL TESTING LABORATORIES, Farmingdale, New York

5/2002-10/2003 QA Specialist

(20-24 hrs/wk) Performed the data review and report compilation of organic and inorganic data for report preparation. Performed departmental audits in compliance with NELAC and internal lab mandates. Helped to revise laboratory logbooks for bench chemists. Revised/updated laboratory SOP's for method compliance. Participated in on-site audits by both state representatives and commercial clients.

KEYSPAN LABORATORY SERVICES, Brooklyn, New York

2/1999-5/2002 Consultant

Developed laboratory QAPP (in accordance with NELAC) and Chemical Hygiene Plan. Modified and updated laboratory SOP's. Perform audits in the different work areas. Maintained the NYS DOH proficiency program for analytes of interest. Review data for completeness and QC criteria. Implemented client inquiry system. Performed QC training and method training for bench and field chemists. Developed protocols and documentation for field PCB wipe sampling. Responsible for update/maintenance of laboratory state certifications and approvals.

NYTEST ENVIRONMENTAL INC., Port Washington, New York

1994-1998 Quality Assurance Officer

Responsible for the overall quality program at the laboratory. This included the auditing test methods, systems and data reporting. Performed the review of 10% of all data reports prior to submission to client. Oversaw the training program of new employees. Maintain the documentation of the training records. Review and maintain state certification paperwork and SOP files. Update and file annual MDL datum. Worked with sales and customer service to insure that client needs are met. Respond to client data inquires. Work with state and federal auditors for review of laboratory to receive certification. Successfully lead the laboratory to an Army Corp of Engineer validation.

1989-1993 **ENSECO EAST, Somerset, New Jersey**

QA/QC Scientist - Performed organic and inorganic audits of the laboratory. Performed and coordinated corrections and revisions to data reports. Wrote and reviewed laboratory Quality Assurance Project plans (QAPjP's) for client specific projects. Developed and led seminars for both client and employees on a number of topics including; data quality objectives, data review vs. data validation and laboratory QC. Interacted with clients, project managers and state personnel for regulatory concerns and data/lab issues. Performed lab audits for method compliance and project specific requirements. Acted as the Technical Representative for Ensecos EPA 3/90 Organic CLP Contract.

1988-1989 **INTECH BIOLABS, East Brunswick, New Jersey**

QA/QC Manager - Responsible for the review of all organic and inorganic data. Performed general laboratory and safety audits. Recorded and charted all QA/QC data. Reviewed and assembled all CLP organic data reports.

1986-1988 **INTERNATIONAL TECHNOLOGIES CORPORATION, Edison, New Jersey**
Central Laboratory Chemist - REAC and EERU Contract for the Emergency Response Branch (ERB) of the USEPA. Responsible for the organic and inorganic extraction of environmental samples according to EPA Methods. This included both metals digestion as well as organic extraction's for semivolatiles, pesticides and PCB's. Performed Volatile Organic analyses using Gas Chromatography, Total Petroleum Hydrocarbon Analysis by IR, Metal Analyses by both Graphite Furnace AA and ICP. Field experience included s on site analyses for both metals and GC volatiles.

1985-1986 **U.S. TESTING COMPANY, Hoboken, New Jersey**
Chemist - Responsible for the digestion and analysis of both soil and aqueous samples for metals according to USEPA CLP and SW 846 protocols. Responsible for the analysis of sample digestates using the Varian Graphite Furnace Atomic Absorption Spectrophotometer and a Jerall Ash ICP-61.

Education

B.S. Environmental Science, December 1984
B.S. Biology, May 1984
Old Dominion University, Norfolk, Virginia

20 hours of Chemistry coursework

Graduate Coursework - Rutgers University, New Brunswick, New Jersey
Long Island University at C.W. Post, Glen Cove, New York

Continuing Education

Good Laboratory Practice (GLP) - June 1992, Center for Professional Development, East Brunswick, New Jersey

40 Hour Course, Region II-Edison, NJ (1987)
24 Hour Refresher Course (1988, 1989, 1991)

References

Available upon request.

ATTACHMENT B - SOIL CLEAN-UP AND GROUNDWATER QUALITY STANDARDS

Part 375 Soil Cleanup Objectives and GA Groundwater Standards/Guidelines

Contaminant	CAS Number	Part 375 Soil Cleanup Objectives ppb Unrestricted Use	Groundwater Stds/GV ug/L GA Standards
Metals			
Arsenic	7440-38-2	13 [c]	25
Barium	7440-39-3	350 [c]	1000
Beryllium	7440-41-7	7.2	3
Cadmium	7440-43-9	2.5 [c]	5
Chromium, hexavalent	18540-29-9	1 [b]	50
Chromium, trivalent	16065-83-1	30 [c]	--
Copper	7440-50-8	50	200
Total Cyanide		27	200
Lead	7439-92-1	63 [c]	25
Manganese	7439-96-5	1600 [c]	300
Total Mercury		0.18 [c]	0.7
Nickel	7440-02-0	30	100
Selenium	7782-49-2	3.9 [c]	10
Silver	7440-22-4	2	50
Zinc	7440-66-6	109 [c]	2000 (GV)
PCBs/Pesticides			
2,4,5-TP Acid (Silvex) [f]	93-72-1	3.8	0.26
4,4'-DDE	72-55-9	0.0033 [b]	0.2
4,4'-DDT	50-29-3	0.0033 [b]	0.2
4,4'-DDD	72-54-8	0.0033 [b]	0.3
Aldrin	309-00-2	0.005 [c]	ND
alpha-BHC	319-84-6	0.02	0.01
beta-BHC	319-85-7	0.036	0.04
Chlordane (alpha)	5103-71-9	0.094	0.05
delta-BHC	319-86-8	0.04	0.04
Dibenzofuran	132-64-9	7	0.0000007
Dieldrin	60-57-1	0.005 [c]	0.004
Endosulfan I	959-98-8	2.4	--
Endosulfan II	33213-65-9	2.4	--
Endosulfan sulfate	1031-07-8	2.4	--
Endrin	72-20-8	0.014	ND
Heptachlor	76-44-8	0.042	0.04
Lindane	58-89-9	0.1	0.05
Polychlorinated biphenyls	1336-36-3	0.1	0.09

Part 375 Soil Cleanup Objectives and GA Groundwater Standards/Guidelines

Contaminant	CAS Number	Part 375 Soil Cleanup Objectives ppb Unrestricted Use	Groundwater Stds/GV ug/L GA Standards
Semivolatile organic compounds			
Acenaphthene	83-32-9	20	50 (GV)
Acenapthylene	208-96-8	100 [a]	
Anthracene	120-12-7	100 [a]	50 (GV)
Benz(a)anthracene	56-55-3	1[c]	0.002 (GV)
Benzo(a)pyrene	50-32-8	1[c]	ND
Benzo(b)fluoranthene	205-99-2	1[c]	0.002
Benzo(g,h,i)perylene	191-24-2	100	--
Benzo(k)fluoranthene	207-08-9	0.8 [c]	0.002
Chrysene	218-01-9	1[c]	0.002
Dibenz(a,h)anthracene	53-70-3	0.33 [b]	
Fluoranthene	206-44-0	100 [a]	50 (GV)
Fluorene	86-73-7	30	50 (GV)
Indeno(1,2,3-cd)pyrene	193-39-5	0.5 [c]	0.002 (GV)
m-Cresol	108-39-4	0.33 [b]	1
Naphthalene	91-20-3	12	10 (GV)
o-Cresol	95-48-7	0.33 [b]	1
p-Cresol	106-44-5	0.33 [b]	1
Pentachlorophenol	87-86-5	0.8[b]	1
Phenanthrene	85-01-8	100	50 (GV)
Phenol	108-95-2	0.33[b]	1
Pyrene	129-00-0	100	50 (GV)

Part 375 Soil Cleanup Objectives and GA Groundwater Standards/Guidelines

Contaminant	CAS Number	Part 375 Soil Cleanup Objectives ppb Unrestricted Use	Groundwater Stds/GV ug/L GA Standards
Volatile organic compounds			
1,1,1-Trichloroethane	71-55-6	0.68	5
1,1-Dichloroethane	75-34-3	0.27	5
1,1-Dichloroethene	75-35-4	0.33	5
1,2-Dichlorobenzene	95-50-1	1.1	3
1,2-Dichloroethane	107-06-2	0.02[c]	0.6
cis -1,2-Dichloroethene	156-59-2	0.25	5
trans-1,2-Dichloroethene	156-60-5	0.19	5
1,3-Dichlorobenzene	541-73-1	2.4	3
1,4-Dichlorobenzene	106-46-7	1.8	3
1,4-Dioxane	123-91-1	0.1 [b]	--
Acetone	67-64-1	0.05	50 (GV)
Benzene	71-43-2	0.06	1
n-Butylbenzene	104-51-8	12	5
Carbon tetrachloride	56-23-5	0.76	5
Chlorobenzene	108-90-7	1.1	5
Chloroform	67-66-3	0.37	7
Ethylbenzene	100-41-4	1	5
Hexachlorobenzene	118-74-1	0.33[b]	0.04
Methyl ethyl ketone	78-93-3	0.12	50 (GV)
Methyl tert-butyl ether	1634-04-4	0.93	10 (GV)
Methylene chloride	75-09-2	0.05	5
n - Propylbenzene	103-65-1	3.9	5
sec-Butylbenzene	135-98-8	11	5
tert-Butylbenzene	98-06-6	5.9	5
Tetrachloroethene	127-18-4	1.3	5
Toluene	108-88-3	0.7	5
Trichloroethene	79-01-6	0.47	5
1,2,4-Trimethylbenzene	95-63-6	3.6	5
1,3,5-Trimethylbenzene	108-67-8	8.4	5
Vinyl chloride	75-01-4	0.02	2
Xylene (mixed)	1330-20-7	0.26	5

GV = Guidance Value

ND = None Detected

see regulatory tables for footnote guidance

NYSDEC CP 51/SOIL CLEANUP GUIDANCE

Supplemental Soil Cleanup Objectives

(ppm)

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
METALS							
Aluminum	7429-90-5					10,000 [a,b]	
Antimony	7440–36-0					12[c]	
Boron	7440-42-8					0.5	
Calcium	7440-70-2					10,000 [a,b]	
Cobalt	7440-48-4	30				20	
Iron	7439-89-6	2,000					
Lithium	7439-93-2					2	
Molybdenum	7439-98-7					2	
Technetium	7440-26-8					0.2	
Thallium	7440-28-0					5 [c]	
Tin	7440-31-5					50	
Uranium	7440-61-1					5	
Vanadium	7440-62-2	100 [a]				39[b]	
PESTICIDES							
Biphenyl	92-52-4					60	
Chlordecone (Kepone)	143-50-0					0.06	
Dibenzofuran	132-64-9						6.2
2,4-D (2,4-Dichloro-phenoxyacetic acid)	94-75-7	100 [a]					0.5
Furan	110-00-9					600	
Gamma Chlordane	5103-74-2	0.54					14
Heptachlor Epoxide	1024-57-3	0.077					0.02
Methoxychlor	72-43-5	100 [a]				1.2	900

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
Parathion	56-38-2	100 [a]					1.2
2,4,5-T	93-76-5	100 [a]					1.9
2,3,7,8-TCDD	1746-01-6					0.000001	
2,3,7,8-TCDF	51207-31-9					0.000001	
SEMIVOLATILE ORGANIC COMPOUNDS							
Aniline	62-53-3	48	100[a]	500[a]	1000[a]		0.33[b]
Bis(2-ethylhexyl) phthalate	117-81-7	50				239	435
Benzoic Acid	65-85-0	100[a]					2.7
Butylbenzyl-phthalate	85-68-7	100 [a]					122
4-Chloroaniline	106-47-8	100 [a]					0.22
Chloroethane	75-00-3						1.9
2-Chlorophenol	95-57-8	100 [a]				0.8	
3-Chloroaniline	108-42-9					20	
3-Chlorophenol	108-43-0					7	
Di-n-butyl-phthalate	84-74-2	100 [a]				0.014	8.1
2,4-Dichlorophenol	120-83-2	100 [a]				20	0.40
3,4-Dichlorophenol	95-77-2					20	
Diethylphthalate	84-66-2	100 [a]				100	7.1
Di-*n*-hexyl-phthalate	84-75-3					0.91	
2,4-Dinitrophenol	51-28-5	100 [a]				20	0.2
Dimethylphthlate	131-11-3	100 [a]				200	27
Di-n-octylphthlate	117-84-0	100 [a]					120
1,2,3,6,7,8-HCDF	57117-44-9					0.00021	
Hexachloro-benzene	118-74-1	0.41					1.4
2,6-Dinitrotoluene	606-20-2	1.03					1.0
Isophorone	78-59-1	100 [a]					4.4

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
4-methyl-2-pentanone	108-10-1						1.0
2-methyl-naphthalene	91-57-6	0.41					36.4
2-Nitroaniline	88-74-4						0.4
3-Nitroaniline	99-09-2						0.5
Nitrobenzene	98-95-3	3.7	15	69	140	40	0.17[b]
2-Nitrophenol	88-75-5					7	0.3
4-Nitrophenol	100-02-7					7	0.1
Pentachloroaniline	527-20-8					100	
2,3,5,6-Tetrachloroaniline	3481-20-7					20	
2,3,4,5-Tetrachlorophenol	4901-51-3					20	
2,4,5-Trichloroaniline	636-30-6					20	
2,4,5-Trichlorophenol	95-95-4	100 [a]				4	0.1
2,4,6-Trichlorophenol	88-06-2					10	
VOLATILE ORGANIC COMPOUNDS							
2-Butanone	78-93-3	100 [a]					0.3
Carbon Disulfide	75-15-0	100 [a]					2.7
Chloroacetamide	79-07-2					2	
Dibromochloro-methane	124-48-1					10	
2,4-Dichloro aniline	554-00-7					100	
3,4-Dichloroaniline	95-76-1					20	
1,2-Dichloropropane	78-87-5					700	
1,3-Dichloropropane	142-28-9						0.3
2,6-Dinitrotoluene	606-20-2	1.03					0.17[b]
Ethylacetate	141-78-6					48	

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
4-methyl-2-pentanone	108-10-1						1.0
113 Freon (1,1,2- TFE)	76-13-1	100 [a]					6
isopropylbenzene	98-82-8	100 [a]					2.3
p-isopropyltoluene	99-87-6						10
Hexachlorocyclo-pentadiene	77-47-4					10	
Methanol	67-56-1					6.5	
N-nitrosodiphenyl-amine	86-30-6					20	
Pentachloro-benzene	608-93-5					20	
Pentachloronitro-benzene	82-68-8					10	
Styrene	100-42-5					300	
1,2,3,4-Tetrachlorobenzene	634-66-2					10	
1,1,2,2-Tetrachloroethane	79-34-5	35					0.6
1,1,2,2-Tetrachloroethylene	127-18-4					2	
1,2,3-Trichlorobenzene	87-61-6					20	
1,2,4-Trichlorobenzene	120-82-1					20	3.4
1,2,3-Trichloropropane	96-18-4	80					0.34

[a] SCOs for organic contaminants (volatile organic compounds, semivolatile organic compounds, and pesticides) are capped at 100 ppm for residential use, 500 ppm for commercial use, 1000 ppm for industrial use. SCOs for metals are capped at 10,000 ppm.

[b] Based on rural background study

[c] SCO limited by contract required quantitation limit.

Soil Cleanup Levels for Gasoline Contaminated Soils

Contaminant	CAS Registry Number	Soil Cleanup Level (ppm)
Benzene	71-43-2	0.06
n-Butylbenzene	104-51-8	12.0
sec-Butylbenzene	135-98-8	11.0
Ethylbenzene	100-41-4	1.0
Isopropylbenzene	98-82-8	2.3
p-Isopropyltoluene	99-87-6	10.0
Methyl-Tert-Butyl-Ether	1634-04-4	0.93
Naphthalene	91-20-3	12.0
n-Propylbenzene	103-65-1	3.9
Tert-Butylbenzene	98-06-6	5.9
Toluene	108-88-3	0.7
1,2,4-Trimethylbenzene	95-63-6	3.6
1,3,5-Trimethylbenzene	108-67-8	8.4
Xylene (Mixed)	1330-20-7	0.26

TABLE 1 - FACILITY CLOSURE WORK PLAN

ANALYTICAL METHODS/QA SUMMARY TABLE

Table 1 - Analytical Methods/Quality Assurance Summary Table
FORMER LABORATORY FURNITURE, INC. SITE
115 Old Country Road, Carle Place, NY
Facility Closure Work Plan

MATRIX: Soil	Frequency / Number of Samples	Sample Preservation	Sample Container	Holding Time
Volatile Organic Compounds (VOC) by USEPA Method 8260C (TCL+30)	18 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar (4oz.) with Septum Cap	14 Days
Target Analyte List (TAL) Metals (except Mercury) by USEPA Method 6010B	18 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar (8oz)	6 Months
Hexavalent Chromium (Cr^{+6}) by USEPA Method 3060A	18 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar (8oz)	30/7 Days
Mercury by USEPA Method 7471B	18 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar (8oz)	28 Days
Matrix Spike (VOC)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar with Septum Cap	7 Days
Matrix Spike Duplicate (VOC)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar (4oz.) with Septum Cap	6 Months
Matrix Spike (METALS)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar (8oz)	7 Days
Matrix Spike Duplicate (METALS)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar (8oz)	6 Months
Blind Duplicate Sample (VOC)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar (4oz.) with Septum Cap	7 Days
Blind Duplicate Sample (METALS)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar (8oz)	6 Months

MATRIX: Aqueous	Frequency / Number of Samples	Sample Preservation	Sample Container	Holding Time
Field Blank (VOC)	1 per Day	Cool, 4 ^{o}C, 4 Drops HCl	Glass Sample Vial with Septum Cap 40ml	14 Days
Field Blank (METALS)	1 per Day	HNO3, pH<2	Plastic Sample Jar with Cap 100ml	6 Months (Except Hg, Cr^{+6})
Field Blank Hexavalent Chromium (Cr^{+6}) by USEPA Method 7196A	1 per Day	Cool	Plastic Sample Jar with Cap 100ml	24 Hours
Field Blank Mercury (Hg) by USEPA Method 7471B	1 per Day	HNO3, pH<2	Plastic Sample Jar with Cap 8oz	28 Days
Trip Blank (VOC)	1 per Day per 20 Samples	Cool, 4 ^{o}C, 4 Drops HCl	Glass Sample Vial with Septum Cap 40ml	14 Days
Equipment Rinse Blank (VOC)	1 Per Day	Cool, 4 ^{o}C, 4 Drops HCl	Glass Sample Vial with Septum Cap 40ml	14 Days
Equipment Rinse Blank (METALS)	1 Per Day	HNO3, pH<2	Plastic Sample Jar with Cap 100ml	6 Months (Except Hg, Cr^{+6})

Note: 9 boring locations - 2 samples each

The holding times listed are technical holdingtimes and not ASP holding times which are calculated from time of sample receipt at the laboratory.

TABLE 2 - SITE CHARACTERIZATION WORK PLAN

ANALYTICAL METHODS/QA SUMMARY TABLE

Table 2 - Analytical Methods/Quality Assurance Summary Table

Site Characterization Work Plan
115 Old Country Road, Carle Place, NY Site

MATRIX: Soil	Frequency / Number of Samples	Sample Preservation	Sample Container	Holding Time
Volatile Organic Compounds (VOC) by USEPA Method 8260C (TCL+10)	11 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar with Septum Cap. 4oz	14 Days
Semi Volatile Organic Compounds (SVOC) by USEPA Method 8270 (TCL+20)	11 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar. 8oz.	14 Days
Polychlorinated Biphenyls by USEPA Method 8082	11 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar. 8oz.	14 Days
Pesticides by USEPA Method 8081A	11 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar. 8oz.	14 Days
Metals (except Mercury) by USEPA Method 6010B	11 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar. 8oz.	6 Months
Mercury (Hg) by USEPA Method 7471B	11 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar. 8oz.	28 Days
Hexavalent Chromium (Cr^{+6}) by USEPA Method 3060A	11 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar. 8oz.	30/7 Days
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods by USEPA Method SW-846	11 Samples	Cool, 4 ^{o}C		
Matrix Spike (VOC)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar with Septum Cap. 4oz	14 Days
Matrix Spike Duplicate (VOC)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar with Septum Cap. 4oz	14 Days
Matrix Spike (METALS)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar. 8oz.	6 Months
Matrix Spike Duplicate (METALS)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar. 8oz.	6 Months
Blind Duplicate Sample (VOC)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar with Septum Cap. 4oz	14 Days
Blind Duplicate Sample (METALS)	1 per 20 Samples	Cool, 4 ^{o}C	Wide Mouth Glass Sample Jar. 8oz.	6 Months

Table 2 continued - Analytical Methods/Quality Assurance Summary Table
Site Characterization Work Plan
115 Old Country Road, Carle Place, NY Site

MATRIX: Aqueous	Frequency / Number of Samples	Sample Preservation	Sample Container	Holding Time
Volatile Organic Compounds (VOC) by USEPA Method 8260C (TCL+10)	4 Samples	Cool, 4 ^{o}C, 4 Drops HCl	Glass Sample Vial with Septum Cap. 40ml	14 Days
Semi Volatile Organic Compounds (SVOC) by USEPA Method 8270C (TCL+20)	4 Samples	Cool, 4 ^{o}C, 0.008% $Na_2S_2O_3$ if residual chlorine present	Glass Amber Sample Jar PTFE lined Cap. 1000ml	7 Days Days to Extract, 40 Days After Extract
Polychlorinated Biphenyls by USEPA Method 8082	4 Samples	Cool, 4 ^{o}C, 0.008% $Na_2S_2O_3$, H_2SO_4 to pH2 -3,Store in Dark	Glass Amber Sample Jar PTFE lined Cap. 1000ml	7 Days to Extract, 40 Days After Extract
Pesticides by USEPA Method 8081A	4 Samples	Cool, 4 oC, 0.008% $Na_2S_2O_3$ if residual chlorine present, If aldrin is to be determined bind to pH 5-9	Glass Amber Sample Jar PTFE lined Cap. 1000ml	7 Days to Extract, 40 Days After Extract
Mercury (Hg) by USEPA Method 7471B	4 Samples	HNO_3, pH<2	Plastic Sample Jar with Cap. 8oz	28 Days
Hexavalent Chromium (Cr^{+6}) by USEPA Method 7196A	4 Samples	Cool, 4 ^{o}C	Plastic Sample Jar with Cap. 100ml	24 Hours
Target Analyte List (TAL) Metals by USEPA Method 6010B	4 Samples	HNO_3, pH<2	Plastic Sample Jar with Cap. 100ml	6 Months (Except Hg, Cr^{+6})
Matrix Spike (VOC)	1 per 20 Samples	Cool, 4 ^{o}C, 4 Drops HCl	Glass Sample Jar with Septum Cap. 40ml	14 Days
Matrix Spike Duplicate (VOC)	1 per 20 Samples	Cool, 4 ^{o}C, 4 Drops HCl	Glass Sample Vial with Septum Cap. 40ml	14 Days
Matrix Spike (METALS)	1 per 20 Samples	HNO_3, pH<2	Plastic Sample Jar with Cap. 100ml	6 Months (Except Hg, Cr^{+6})
Matrix Spike Duplicate (METALS)	1 per 20 Samples	HNO_3, pH<2	Plastic Sample Jar with Cap. 100ml	6 Months (Except Hg, Cr+6)
Blind Duplicate Sample (VOC)	1 per 20 Samples	Cool, 4 ^{o}C, 4 Drops HCl	Glass Sample Vial with Septum Cap. 40ml	14 Days
Blind Duplicate Sample (METALS)	1 per 20 Samples	HNO_3, pH<2	Plastic Sample Jar with Cap. 100ml	6 Months (Except Hg, Cr^{+6})
Field Blank (VOC)	1 per Day	Cool, 4 ^{o}C, 4 Drops HCl	Glass Sample Vial with Septum Cap. 40ml	14 Days
Field Blank (METALS)	1 per Day	HNO_3, pH<2	Plastic Sample Jar with Cap. 100ml	6 Months (Except Hg, Cr^{+6})
Trip Blank (VOC)	1 per Day per 20 Samples	Cool, 4 ^{o}C, 4 Drops HCl	Glass Sample Vial with Septum Cap. 40ml	14 Days
Equipment Rinse Blank (VOC)	1 Per Day	Cool, 4 ^{o}C, 4 Drops HCl	Glass Sample Vial with Septum Cap. 40ml.	14 Days
Equipment Rinse Blank (METALS)	1 Per Day	HNO3, pH<2	Plastic Sample Jar with Cap. 100ml	6 Months (Except Hg, Cr^{+6})

Note:
The holding times listed are technical holding times and not ASP holding times which are calculated from time of sample receipt at the laboratory.

TABLE 3 - ANALYTICAL PARAMETER AND REPORTING LIMITS

TAL METALS - COMPOUNDS AND REPORTING LIMITS

		Chemtech Reporting Limit for Method 6010 and 7470/7471	
		Water (ug/L)	Soil (mg/Kg)
Aluminum	7429-90-5	50	5
Antimony	7440-36-0	25	2.5
Arsenic	7440-38-2	10	1
Barium	7440-39-3	50	5
Beryllium	7440-41-7	3	0.3
Cadmium	7440-43-9	3	0.3
Calcium	7440-70-2	1000	100
Chromium	7440-47-3	5	0.5
Cobalt	7440-48-4	15	1.5
Copper	7440-50-8	10	1
Iron	7439-89-6	50	5
Lead	7439-92-1	6	0.6
Magnesium	7439-95-4	1000	100
Manganese	7439-96-5	10	1
Mercury	7439-97-6	0.2	0.01
Nickel	7440-02-0	20	2
Potassium	9/7/7440	1000	100
Selenium	7782-49-2	10	1
Silver	7440-22-4	5	0.5
Sodium	7440-23-5	1000	100
Thallium	7440-28-0	20	2
Vanadium	7440-62-2	20	2
Zinc	7440-66-6	20	2

Hexavalent Chromium	18540-29-9	10	0.4
Trivalent Chromium	16065-83-1	5	0.5

TCL VOLATILE ORGANIC COMPOUNDS AND REPORTING LIMITS

Parameter	CAS Number	Chemtech Reporting Limit for Method 8260	
		Water (ug/L)	Soil (ug/Kg)
1,1,1-Trichloroethane	71-55-6	5	5
1,1,2,2-Tetrachloroethane	79-34-5	5	5
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	5	5
1,1,2-Trichloroethane	79-00-5	5	5
1,1-Dichloroethane	75-34-3	5	5
1,1-Dichloroethene	75-35-4	5	5
1,2,3-Trichlorobenzene	87-61-6	5	5
1,2,4-Trichlorobenzene	120-82-1	5	5
1,2-Dibromo-3-chloropropane	96-12-8	5	5
1,2-Dibromoethane	106-93-4	5	5
1,2-Dichlorobenzene	95-50-1	5	5
1,2-Dichloroethane	107-06-2	5	5
1,2-Dichloropropane	78-87-5	5	5
1,3-Dichlorobenzene	541-73-1	5	5
1,4-Dichlorobenzene	106-46-7	5	5
1,4-Dioxane	123-91-1	100	100
2-Butanone	78-93-3	25	25
2-Hexanone	591-78-6	25	25
4-Methyl-2-Pentanone	108-10-1	25	25
Acetone	67-64-1	25	25
Benzene	71-43-2	5	5
Bromochloromethane	74-97-5	5	5
Bromodichloromethane	75-27-4	5	5
Bromoform	75-25-2	5	5
Bromomethane	74-83-9	5	5
Carbon Disulfide	75-15-0	5	5
Carbon Tetrachloride	56-23-5	5	5
Chlorobenzene	108-90-7	5	5
Chloroethane	75-00-3	5	5
Chloroform	67-66-3	5	5
Chloromethane	74-87-3	5	5
cis-1,2-dichloroethene	156-59-2	5	5
cis-1,3-dichloropropene	10061-01-5	5	5
Cyclohexane	110-82-7	5	5
Dibromochloromethane	124-48-1	5	5
Dichlorodifluoromethane	75-71-8	5	5
Ethylbenzene	100-41-4	5	5
isopropylbenzene	98-82-8	5	5
m&p-Xylene	179601-23-1	10	10
Methyl Acetate	79-20-9	5	5
Methyl Tert-butyl Ether	1634-04-4	5	5
Methylcyclohexane	108-87-2	5	5
Methylene Chloride	75-09-2	5	5
o-Xylene	95-47-6	5	5
Styrene	100-42-5	5	5

t-1,3-Dichloropropene	10061-02-6	5	5
Tetrachloroethene	127-18-4	5	5
Toluene	108-88-3	5	5
trans-1,2-Dichloroethene	156-60-5	5	5
Trichloroethene	79-01-6	5	5
Trichlorofluoromethane	75-69-4	5	5
Vinyl Chloride	75-01-4	5	5
n-Butylbenzene	104-51-8	5	5
n-propylbenze	103-65-1	5	5
sec-Butylbenzene	135-65-1	5	5
tert-Butylbenzene	98-06-6	5	5
1,2,4 Trimethylbenzene	95-63-6	5	5
1,3,5-Trimethlybenzene	108-67-8	5	5
Xylenes (total)	1330-20-7	15	15

TCL SEMI-VOLATILE ORGANIC COMPOUNDS AND REPORTING LIMITS

Parameter	CAS Number	Chemtech Reporting Limit for Method 8270 Water (ug/L)	Soil (ug/Kg)
1,1-Biphenyl	92-52-4	10	330
1,2,4,5-Tetrachlorobenzene	95-94-3	10	330
2,3,4,6-Tetrachlorophenol	58-90-2	10	330
2,4,5-Trichlorophenol	95-95-4	10	330
2,4,6-Trichlorophenol	88-06-2	10	330
2,4-Dichlorophenol	120-83-2	10	330
2,4-Dimethylphenol	105-67-9	10	330
2,4-Dinitrophenol	51-28-5	10	330
2,4-Dinitrotoluene	121-14-2	10	330
2,6-Dinitrotoluene	606-20-2	10	330
2-Chloronaphthalene	91-58-7	10	330
2-Chlorophenol	95-57-8	10	330
2-Methylnaphthalene	91-57-6	10	330
2-Methylphenol	95-48-7	10	330
2-Nitroaniline	88-74-4	10	330
2-Nitrophenol	88-75-5	10	330
3+4-Methyphenols	65794-96-9	10	330
3,3'-Dichlorobenzidine	91-94-1	10	330
3-Nitroaniline	99-09-2	10	330
4,6-Dinitro-2-methylphenol	534-52-1	10	330
4-Bromophenyl Phenyl Ether	101-55-3	10	330
4-Chloro-3-methylphenol	59-50-7	10	330
4-Chloroaniline	106-47-8	10	330
4-Chlorophenyl phenylether	7005-72-3	10	330
4-Nitroaniline	100-01-6	10	330
4-Nitrophenol	100-02-7	30	330
Acenaphthene	83-32-9	10	330
Acenaphthylene	208-96-8	10	330
Acetophenone	98-86-2	10	330
Anthracence	120-12-7	10	330
Atrazine	1912-24-9	10	330
Benz(a)anthracene	56-55-3	10	330
Benzaldehyde	100-52-7	10	330
Benzo(a)pyrene	50-32-8	10	330
Benzo(b)fluoranthene	205-99-2	10	330
Benzo(g,h,i)perylene	191-24-2	10	330
Benzo(k)fluoranthene	207-08-9	10	330
bis(2-Chloroethoxy)methane	111-91-1	10	330
bis(2-Chloroethyl)ether	111-44-4	10	330
bis(2-chloroisopropyl)ether	108-60-1	10	330
bis(2-Ehtylhexyl)phthalate	117-81-7	10	330
Butyl Benzyl Phthalate	85-68-7	10	330

Caprolactam	105-60-2	30	330
Carbazole	86-74-8	10	330
Chrysene	218-01-9	10	330
Di-n-butylphthalate	84-74-2	20	330
Di-n-octyl Phthalate	117-84-0	10	330
Dibenz[a,h]anthracene	53-70-3	10	330
Dibenzofuran	132-64-9	10	330
Diethylphthalate	84-66-2	10	330
Dimethylphthalate	131-11-3	10	330
Fluoranthene	206-44-0	10	330
Fluorene	86-73-7	10	330
Hexachlorbenzene	118-74-1	10	330
Hexachlorobutadiene	87-68-3	10	330
Hexachlorocyclopentadiene	77-47-4	10	330
Hexachloroethane	67-72-1	10	330
Indeno(1,2,3-cd)pyrene	193-39-5	10	330
Isophorone	78-59-1	10	330
n-Nitroso-di-n-propylamine	621-64-7	10	330
N-Nitrosodiphenylamine	86-30-6	10	330
Naphthalene	91-20-3	10	330
Nitrobenzene	98-95-3	10	330
Pentachlorophenol	87-86-5	10	330
Phenanthrene	85-01-8	10	330
Phenol	108-95-2	10	330
Pyrene	129-00-0	10	330
3+4-Methyphenols65794-96-9	108-39-4	10	330
Dibenzofuran	132-64-9	10	330

PESTICIDES AND HERBICIDES - COMPOUNDS AND REPORTING LIMITS

Pesticides		Chemtech Reporting Limit for Method 8081	
Parameter	CAS Number	Water (ug/L)	Soil (ug/Kg)
4,4'-DDD	72-54-8	0.05	1.7
4,4'-DDE	72-55-9	0.05	1.7
4,4'-DDT	50-29-3	0.05	1.7
Aldrin	309-00-2	0.05	1.7
alpha-BHC	319-84-6	0.05	1.7
alpha-Chlordane	5103-71-9	0.05	1.7
beta-BHC	319-85-7	0.05	1.7
delta-BHC	319-86-8	0.05	1.7
Dieldrin	60-57-1	0.05	1.7
Endosulfan I	959-98-8	0.05	1.7
Endosulfan II	33213-65-9	0.05	1.7
Endosulfan Sulfate	1031-07-8	0.05	1.7
Endrin	72-20-8	0.05	1.7
Endrin aldehyde	7421-93-4	0.05	1.7
Endrin ketone	53494-70-5	0.05	1.7
gamma-BHC (Lindane)	58-89-9	0.05	1.7
gamma-chlordane	5103-74-2	0.05	1.7
Heptachlor	76-44-8	0.05	1.7
Heptachlor epoxide	1024-57-3	0.05	1.7
Methoxychlor	72-43-5	0.05	1.7
Toxaphene	8001-35-2	0.5	17

Herbicides		Chemtech Reporting Limit for Water (ug/L)	Soil (ug/Kg)
2,4,5-TP (Silvex)	93-72-1	2	67

POLYCHLORINATED BIPHENYLS - COMPOUNDS AND REPORTING LIMITS

Parameter	CAS Number	Chemtech Reporting Limit for Method 8082 Water (ug/L)	Chemtech Reporting Limit for Method 8082 Soil (ug/Kg)
Aroclor-1016	12674-11-2	0.5	17
Aroclor-1221	11104-28-2	0.5	17
Aroclor-1232	11141-16-5	0.5	17
Aroclor-1242	53469-21-9	0.5	17
Aroclor-1248	12672-29-6	0.5	17
Aroclor-1254	11097-69-1	0.5	17
Aroclor-1260	11096-82-5	0.5	17
Total PCBs		3.5	120

Appendix B Addendum
QUALITY ASSURANCE PROJECT PLAN: SUB-SLAB SOIL VAPOR AND AIR SAMPLING

QUALITY ASSURANCE PROJECT PLAN
SUB-SLAB SOIL VAPOR AND AIR SAMPLING

Sub-slab soil vapor and indoor and ambient air samples will be collected in accordance with the protocols described in the NYSDOH ***October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York*** guidance document.

The sub-slab vapor samples will be collected from temporary sampling points installed in the floor slab. A 3/4" diameter hole will be drilled through the concrete floor slab. The temporary point will be drilled using a rotary hammer drill. The boring will be initially advanced to the bottom of the concrete slab, to determine the thickness of the slab, and then advanced an additional inch into the sub-slab annulus to create an open cavity to prevent potential obstructions during sampling. A 1/4" I.D. Teflon tube will be inserted into the hole and sealed in place with clay. The Teflon tubing will be removed from the temporary point and the point will be sealed with concrete upon completion of the sampling. The quality control requirements, sub-slab soil vapor and air sampling procedures are described below.

A.1 Quality Control Requirements

Field quality control will be maintained during all field activities. All field quality control procedures will be followed according to this Quality Assurance Project Plan and documented in bound ledgers.

A.2 Field Measurements

Measurement data generated during field activities that are incidental to collection of samples for analytical testing or unrelated to sampling will be recorded in a bound field ledger book. These activities may include:

- Identify any CVOC-related products used at the facility;
- Record weather conditions, including precipitation, outdoor temperature, barometric pressure, wind speed and direction at least 24 to 48 hours prior to sampling;
- Prepare a sampling site map which will include the site building(s), sampling locations, location of potential interferences, compass orientations, building footings and paved areas;
- Record building ventilation conditions, such as an active heating system, at the time of sampling; and
- Record pertinent observations, such as odors and readings from field instrumentation, such as a Photoionization detector.

Field measurements will be recorded in a bound field logbook. Sample documentation will conform to the standard sampling handling requirements.

A.3 Tracer Gas Testing

Tracer gas field-testing using helium gas will be performed on all implants prior to sampling to verify the integrity of each implant seal and to limit the possibility of sample dilution from surface air.

The tracer gas field test will consist of sealing the area surrounding the implant with plastic sheeting or a plastic pail and introducing helium underneath the plastic to ensure that the area where the probe intersects the ground is immersed in the tracer gas. A helium detector will be connected to the soil vapor/sub-slab vapor implants, in accordance with Section 2.7.5 of the NYSDOH ***October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York*** document, and tracer gas concentrations in the well will be recorded in the sampling log sheet. This procedure will be duplicated at each implant prior to sample collection. The laboratory will confirm the field tracer gas tests by first analyzing approximately 85 to 90% of each sample canister for CVOCs via USEPA method TO-15 and then use a helium detector to analyze the remaining contents of the Summa Canisters.

The sampling logs with the recorded field tracer gas test measurements and the tracer gas measurements reported by the laboratory will be submitted to NYSDEC with the sampling results.

A.4 Sample Collection

The sub-slab vapor samples will be collected as follows for laboratory analyses:

- Enter the designated sample identification, collection date and time, and the name of the sample collector into a bound field logbook. Record the equipment used to collect the sample.
- Lay plastic sheeting over the sampling area to provide a clean surface.
- Insert Teflon tubing to each sampling point, seal it with clay, and allow approximately 12 inches to protrude from the ground.
- Seal the around over the sampling point with a plastic sheet or container and apply helium beneath the plastic sheeting/or container.
- Document the tracer gas concentration and repeat for each sampling location.
- Review the laboratory decontamination records for each of the “cleaned” Summa canisters prior to sampling. Ensure that the flow rate of all Summa Canister trains is less than 0.2 liters per minute.
- Evacuate a maximum of three implant volumes prior to sample collection and connect the tubing to a summa canister.
- Screen the purged soil vapor for VOCs using a PID and record the PID measurements on the

sampling chain of custody and in the sampling logs.

- Following the setup of all summa canisters, open each valve and record the time.

- Periodically check the pressure of each summa canister to ensure proper function.

- After 8 hours have elapsed, close each valve and record evacuation volume, sample volume and duration.

- Label the sample summa canisters, record the sample ID used for each sample, sample time and sample analyses in the laboratory chain of custody. Preserve the sample, as instructed in USEPA compendium method TO-15 and complete the laboratory chain of custody form.

- After equipment decontamination, properly discard the plastic sheeting and other expendable sampling materials.

- Deliver the sample Summa canisters to the analytical laboratory and retain a signed copy of the chain of custody.

A.5 Field Duplicate

A field duplicate from one of the sub-slab vapor implants will be collected and submitted to the analytical laboratory to provide a means to assess the quality of the data resulting from the field sampling program. The duplicate samples will be analyzed for sampling and analytical reproducibility and will be collected using the same procedures as outlined in section A.4.

A.6 Indoor Air and Outdoor Air Samples

An indoor air sample will be collected in the area where the sub-slab vapor sample is collected. One outdoor ambient air sample will be collected at a frequency of once per day during the soil vapor sampling round. The air samples will be collected in 6-liter summa canisters over an 8 hour period concurrently with the sub-slab soil vapor samples.

A.7 Laboratory Analyses

The samples will be delivered to an ELAP accredited environmental laboratory, for CVOC and tracer gas detection. CVOCs in the collected soil vapor samples will be analyzed by USEPA Compendium Method TO-15. The sampling data with the NYSDEC CAT B deliverables package will be submitted to NYSDEC.

An independent third party Data Usability Summary Report (DUSR) will accompany the submitted analytical data, in accordance with the New York Department of Environmental Conservation (NYSDEC) Analytical Services Protocol. Laboratory tracer gas testing results will be documented by the laboratory and submitted with the laboratory analyses.

All data quality objectives (DQOs) and acceptance criteria shall be consistent with the NYSDEC ASP. The minimum reporting limits for target CVOC analytes will be 0.5 mcg/m^3 or less, to allow for easy comparison of the results to regulatory and/or background level concentrations**.**

Appendix C - PROJECT SCHEDULE

115 Old Country Road Site: Project Schedule

Updated: July 2012

Activity	Days	Approximate Finish Dates
Submit SC Work Plan to DEC	0	July 13, 2012
DEC Review/Approval	30	August 12, 2012
Mobilization	30	September 11, 2012
Field Sampling Work	30	October 11, 2012
Laboratory TAT and QA Review	30	November 10, 2012
Prepare SC Report	45	December 25, 2012
DEC Review SC Report	45	February 8, 2013
DEC Approval	0	February 8, 2013

Appendix D - HASP/CAMP

Appendix D

HEALTH AND SAFETY PLAN

and

COMMUNITY AIR MONITORING PLAN

115 Old Country Road Site

115 Old Country Road

Carle Place, New York

Contents

INTRODUCTION 1
RESPONSIBILITIES 2
SITE DESCRIPTION 3
PLANNED FIELD ACTIVITIES 5
HAZARD EVALUATION 6
COMMUNITY AIR MONITORING PLAN 7
LEVELS OF PROTECTION 10
SITE CONTROL 12
EQUIPMENT DECONTAMINATION 13
SAFE WORK PRACTICES 15
EMERGENCY PLAN 16
EMERGENCY TELEPHONE NUMBERS 17
HOSPITAL LOCATION 18

ATTACHMENTS

1. Site Visitors Log
2. Tailgate Safety Meeting Form
3. Accident Reporting Form, OSHA 101
4. Utilities and Structures Checklist
5. Air Monitoring Log

INTRODUCTION

Edgewater Environmental and NAC Consultants, Inc. (NAC) will collect soil, soil vapor and groundwater samples as part of a New York State Department of Environmental Conservation (NYSDEC) required Site Characterization at the 115 Old Country Road Site in Carle Place, New York. This Health and Safety Plan (HASP) has been developed to address the potential physical and chemical hazards that employees may face while performing the planned field activities. This HASP establishes procedures to minimize worker's exposures through personal protective equipment and safe work practices. This HASP has been developed to meet the requirements of the Occupational Safety and Health Administration (OSHA) regulation, Title 29, Code of Federal Regulations, Part 1910.120 (20 CFR 1910.120), "Hazardous Waste Operations and Emergency Response" (OSHA 1989). It is intended for the protection of Consultant's employees. Anyone else, such as subcontractors, client, and visitors may review this HASP and follow its procedures if they so decide. Subcontractors and others working on the site must provide their own HASP to be followed by their personnel.

RESPONSIBILITIES

James Urbat (NAC) has been designated as the Site Safety Officer (SSO). He will be responsible for implementing the procedures and safe work practices established in this HASP. In the event that the SSO must leave the site while the work is in progress, an alternate SSO will be designated to ensure that the HASP will continue to be followed. The SSO will report all health and safety matters to Nicholas A. Andrianas, P.E. (NAC), who has responsibility for overseeing the planned field activities. Stephen Hix, an Edgewater Environmental principal, will also be available. Subcontractors and others that may be involved in the work must designate a SSO for their firm and the SSO shall enforce compliance with the subcontractors HASP.

SITE DESCRIPTION

The 115 Old Country Road Site is located at 115 Old Country Road, Carle Place, NY, on the north side of Old Country Road and west of Glen Cove Road. The site is located in Nassau County and the Town of North Hempstead, and is identified as Section 9 - Block 670 - Lot 55. The site is 4.65 acres and is currently a commercial shopping center. The 115 OCR Site is part of the larger Country Glen Shopping Center.

Country Glen Associates, a predecessor to Country Glen LLC purchased the site in 1977. Prior to the purchase, the Site had been owned/operated by the Laboratory Furniture Co, which appears to have operated at the site since the early 1950s, and ceased operations in 1985. Most of the original building was demolished by Country Glen in 2004 when the Barnes & Noble bookstore was constructed.

The current tenants in the shopping center at the 115 OCR Site include (starting from the west end):

- Art Cleaners
- Super Cuts Hair Cutting
- Spa
- Tiger Schulman Karate
- Old Country Wine and Liquor
- Standup MRI of Riverhead
- Verizon
- Louie's Pizza
- Bagel Boss Cafe
- Babi Nails

The site is generally flat with a strip shopping center facing Old Country Road surrounded by asphalt parking lots. The site is located approximately 106 feet above mean sea level. The upper glacial deposits are located directly below the surface and extend to a depth of 144 feet bgs. The soil consists primarily of coarse grained sand and is characteristic of outwash plain deposits. The water table is located at approximately 50 feet bgs, and the groundwater flows south-southeast. The Magothy aquifer lies below the upper glacial aquifer. This aquifer is 600 feet thick and consists of moderately to highly permeable sediments. The Magothy formation is a primary source of drinking water for this portion of Long Island. The Lloyd aquifer lies below the Magothy aquifer and is 350 feet thick. Below the Lloyd aquifer is bedrock.

The surrounding properties include:

North: LIRR Tracks, commercial buildings, and retail stores

South: Old Country Road, residential dwellings, and office buildings

East: Glen Cove Road, and shopping center

West: Five-story office building

PLANNED FIELD ACTIVITIES

The following is a brief description of the planned field activities:

- Drill shallow soil borings and collect soil samples below the outdoor pavement at areas in the North and South parking lots and sidewalks.
- Install three groundwater monitoring wells and collect groundwater samples in the north and south parking lots and conduct an aquifer profile.
- Collect soil vapor samples in the rear corridor and along the west wall of the existing building, and in the area of the former sanitary system.
- Conduct soil vapor intrusion sampling at two locations in the existing building, including sub-slab, indoor air and outdoor air sampling.

Additional details of each of locations and planned field activity are provided in the work plan.

HAZARD EVALUATION

The potential physical and chemical hazards associated with the planned field activities for this site are evaluated in this document.

The physical hazards associated with the planned field activities include the following: potential for being struck by flying and falling objects while working near the Geoprobe rig; slips and falls due to wet or uneven surfaces, pressurized gasses / pipes, electrical shock, lock-out tag-out, noise, and stored energy.

The chemical hazards associated with this site are based on the soil and groundwater sampling results obtained from the site investigation. Volatile organic compounds (VOCs) were detected in the soil and groundwater during this study. Based on this information, the following exposure pathways have been identified in order to minimize potential worker's exposure:

- Inhalation of vapors and gasses.
- Direct skin contact with and absorption of vapors, soil, and sediments.
- Accidental inhalation of contaminants.

COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

Real-time air monitoring for particulate levels at the perimeter of the exclusion zone or work area will be necessary. Particulate monitoring will be performed during well installation and during groundwater and soil sampling.

Continuous monitoring will be performed for all ground intrusive activities. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Even though VOC exposure is not anticipated, periodic monitoring for VOCs may be performed during non-intrusive activities such as the collection of soil and groundwater samples, based on field conditions. "Periodic" monitoring during sample collection will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil,

monitoring during well bailing/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOCs may be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate.

If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

If the organic vapor level is above 25 ppm over background at the perimeter of the work area, activities must be shutdown.

All 15-minute readings will be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

LEVELS OF PROTECTION

Based upon the hazard evaluation results, drilling the soil borings will be performed in Level D protection. In the event that the established action level is exceeded, the level of protection will be upgraded to Level C. The following is a description of the personal protective equipment required for each level:

Level D

- Disposable coveralls (optional).
- Hard hat (optional for all tasks except well drilling)
- Safety glasses, goggles, or face shield (optional).
- Steel-toe and shank, chemical-resistant boots.
- Chemical-resistant gloves (optional except when handling soil, sediment or surface water).
- Hearing protection, NRR of 35 decibels (optional).

Level C

- Hard hat (optional for all tasks except well drilling).
- Disposable coveralls (optional).
- Safety glasses, goggles, or face shield.
- Steel-toe and shank, chemical-resistant boots.
- Chemical-resistant gloves (optional except when handling soil, sediment or

ground water).

- Hearing protection, NRR of 35 decibels (optional).
- Full face air purifying respirator equipped with organic vapor cartridges.

To evaluate whether actual field conditions will require an upgrade in the level of protection, the following action level procedure based upon the existing data has been established for all planned field activities. Air monitoring will be conducted using an PID instrument during each task. A 5 part per million (ppm) reading for a sustained period of 5 minutes in the worker's breathing zone has been selected as an action level based on the presence of tetrachloroethylene. If this occurs, a second screening step using a Draeger tube specific for tetrachloroethylene will be done to confirm whether concentrations exceed 5 ppm in the worker's breathing zone. If the action level is exceeded, work will be discontinued, the work area will be permitted to vent while the workers move to an area upwind. Work will not resume until the tetrachloroethylene concentrations fall below 5 ppm. If after 30 minutes, the concentration of tetrachloroethylene does not fall below the action level, then the work will resume with the level of protection upgraded to Level C using a full face air purifying respirator equipped with an organic vapor canister. Once in Level C, tetrachloroethylene detection tubes will be drawn every 30 minutes to monitor its presence. When this monitoring indicates that the concentration is below the action level, then downgrading to Level D is possible. If the monitoring indicates that the tetrachloroethylene concentration exceeds 10 ppm, all work will be discontinued, and workers will move to an area upwind. Work will not be resumed until air monitoring results confirm that the levels are less than 10 ppm.

SITE CONTROL

Prior to the start of the field activities, the SSO will be responsible for the designation of the work zone, support zone, and clean zone. The work zone will be an area surrounding the immediate work being performed, where the greatest potential hazards exist. Only the necessary workers required to perform the work will be permitted in this zone. A support zone will be established for the storage of equipment.

EQUIPMENT DECONTAMINATION

The Geoprobe rods, tools, rig and any piece of equipment that comes in contact (directly or indirectly) with the formation, will be decontaminated on-site prior to drilling. Equipment will be cleaned at a specific decontamination area, between each borehole, and prior to leaving the site. All on-site cleaning activities will be monitored by the field hydrogeologist. In addition to the drilling and sampling equipment, the following equipment will be used during the drilling and sampling of boreholes.

- Alconox Laboratory Grade Detergent
- Brushes
- Plastic Buckets
- Distilled Water
- Potable Water
- Photo-ionization detector (PID)
- Health & Safety Equipment (As discussed in the Health & Safety Plan)
- Sample Containers

The drive rods and/or push rods will be decontaminated after completion of each boring installation. Disposable gloves will be worn while equipment is cleaned to avoid contamination, and the gloves will be changed frequently. The procedure for cleaning sampling equipment is as follows:

- A solution of Alconox and potable water will be prepared in a bucket
- The rods will be scrubbed and washed with the Alconox solution.
- All equipment will be scrubbed with a brush to remove any adhering particles.
- All equipment will be rinsed with potable water, followed by a final rinse with distilled or deionized water.
- The clean rods will be placed on clean plastic sheeting until it is needed. The rods will be handled only when clean gloves are being worn.

SAFE WORK PRACTICES

A pre-entry, tailgate safety meeting will be conducted prior to the start of each task to discuss the associated hazards. Attendees will be recorded on the Tailgate Safety Meeting Form (Attachment 2).

All utilities and structures will be cleared and marked out prior to the start of any ground intrusive work. Attachment 4 will be used to record this information.

The SSO will inform all subcontractors of the potential hazards associated with the site and the planned field activities. A copy of the HASP will be made available for their review.

No eating, drinking, or smoking will be permitted in the work and support zones.

No sources of ignition, such as matches or lighters will be permitted in the work and support zones.

Calls for help will be made via the cellular phone.

During hazardous weather conditions, such as lightning and thunder storms, work will cease immediately.

EMERGENCY PLAN

On-site verbal communications should not be a problem since all tasks will be performed in Level D protection. In the event that the action level is exceeded and personnel are upgraded to Level C protection, verbal communications may become difficult. A universal set of hand signals will then be used. They are as follows:

Hand gripping throat:	Can't breathe.
Grip partner's wrist or place hands around waist:	Leave work area immediately.
Hand on top of head:	Need assistance.
Thumbs up:	OK, I'm all right.
Thumbs down:	No, negative.

Communications from the site will be though a cellular telephone which will be brought to the site.

All job-related injuries and illnesses will be reported to the SSO. If medical attention is needed, the injured worker will be decontaminated, if possible, prior to leaving the site. The SSO will investigate the cause of the accident and corrective measures will be taken before the work can resume. It will be the responsibility of the SSO to complete the accident reporting form, OSHA

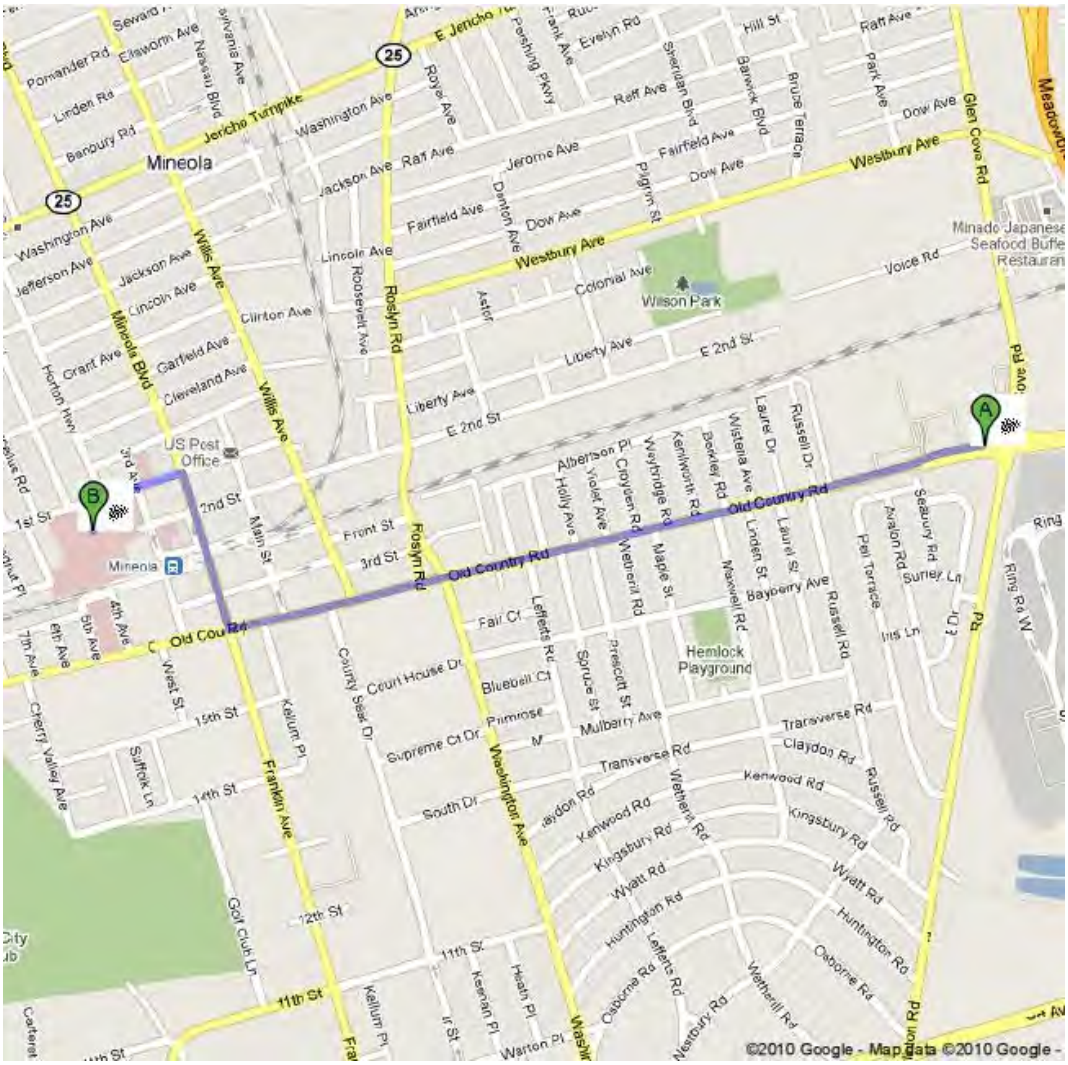
101, included in this report for all injuries. The completed OSHA 101 (Attachment 3) should be forwarded to the office health and safety manager within six days for recording into the OSHA 200 log. If there is a fatality, or if 5 or more workers are hospitalized as a result of a single incident, the SSO will contact the office health and safety manager immediately for OSHA reporting purposes.

EMERGENCY TELEPHONE NUMBERS

Police	911
Fire	911
Winthrop Hospital	(516) 663-0333
Chemtrec	(800) 424-9300
NYSDEC Spills	(800) 457-7362

HOSPITAL LOCATION

The closest hospital to the site is Winthrop University Hospital in Mineola, New York. To get to the hospital, head west on Old Country Road. Turn right onto Mineola Boulevard. Make a right onto 1st Street. The Hospital entrance is at 259 1st street on the left side.See map indicating the route.



ATTACHMENT 1

SITE VISITORS LOG

SITE VISITORS LOG

THE UNDERSIGNED VISITORS REQUIRE ENTRANCE TO THE EXCLUSION ZONE AND HAVE THOROUGHLY READ THE HEALTH AND SAFETY PLANS. I UNDERSTAND THE POTENTIAL HAZARDS AT THE SITE AND THE PROCEDURES TO MINIMIZE EXPOSURE TO THE HAZARDS, WILL FOLLOW THE DIRECTION OF THE SITE HEALTH AND SAFETY MANAGER, AND WILL ABIDE BY THE HEALTH AND SAFETY PLAN.

NAME	COMPANY	DATE	SIGNATURE

NAME	COMPANY	DATE	SIGNATURE

ATTACHMENT 2

TAILGATE SAFETY MEETING FORM

TAILGATE SAFETY MEETING

Prepared by _____

Client _____

Project _____

Date _____

Project Number _____

Work Location _____

Type of Work to be Done _____

SAFETY TOPICS PRESENTED _____

Chemical Hazards _____

Physical Hazards/Underground Utilities _____

Protective Clothing/Equipment _____

Special Equipment _____

Emergency Procedures _____

Hospital/Clinic Phone ( ) _____

Paramedic Phone ( ) _____

Hospital Address _____

Other _____

ATTENDEES

NAME PRINTED SIGNATURE

ATTACHMENT 3

ACCIDENT REPORTING FORM, OSHA 101

OSHA FORM 101

SUPPLEMENTARY RECORD OF OCCUPATIONAL INJURIES AND ILLNESSES

EMPLOYER

1. Name _____
2. Mail Address _____
   (No. and street) (City or town) (State)
3. Location, if different from mail address _____

INJURED OR ILL EMPLOYEE

4. Name _____ Social Security No. _____
   (First name) (Middle name) (Last name)
5. Home Address _____
   (No. and street) (City or town) (State)
6. Age _____ 7. Sex: Male_____ Female_____ (Check one)
8. Occupation _____
   (Enter regular job title, not the specific activity he was performing at time of injury.)
9. Department _____
   (Enter name of department or division in which the injured person is regularly employed, even though he may have been temporarily working in another department at the time of injury.)

THE ACCIDENT OR EXPOSURE TO OCCUPATIONAL ILLNESS

10. Place of accident or exposure _____
    (No. and street) (City or town) (State)
    If accident or exposure occurred on employer's premises, give address of plant or establishment in which it occurred. Do not indicate department or division within the plant or establishment. If accident occurred outside employer's premises at an identifiable address, give that address. If it occurred on a public highway or at any other place which cannot be identified by number and street, please provide place references locating the place of injury as accurately as possible.
11. Was place of accident or exposure on employer's premises? _____ (Yes or No)
12. What was the employee doing when injured? _____
    (Be specific. If he was using tools or equipment or handling material, name them and tell what he was doing with them.)
13. How did the accident occur? _____
    (Describe fully the events which resulted in the injury or occupational illness. Tell what happened and how it happened. Name any objects or substances involved and tell how they were involved. Give full details on all factors which led or contributed to the accident. Use separate sheet for additional space.)

OCCUPATIONAL INJURY OR OCCUPATIONAL ILLNESS

14. Describe the injury or illness in detail and indicate the part of body affected _____
    (e.g: amputation of right index finger at second joint; fracture of ribs; lead poisoning; dermatitis of left hand, etc.)
15. Name the object or substance which directly injured the employee. (For example, the machine or thing he struck against or which struck him; the vapor or poison he inhaled or swallowed; the chemical or radiation which irritated his skin; or in cases of strains, hernias, etc., the thing he was lifting, pulling, etc.)
16. Date of injury or initial diagnosis of occupational illness _____
    (Date)
17. Did employee die? _____ (Yes or No)

OTHER

18. Name and address of physician _____
19. If hospitalized, name and address of hospital _____

Date of report _____ Prepared by _____

Official position _____

ATTACHMENT 4

UTILITIES AND STRUCTURES CHECKLIST

UTILITIES AND STRUCTURES CHECKLIST

Project: _____ **Prepared by:** _____

Location: _____ **Date:** _____

Instructions. This checklist has to be completed by a staff member as a safety measure to insure that all undergrounc utility lines, other underground structures as well as above-ground power lines are clearly marked out in the area selectec for boring or excavation. **DRILLING OR EXCAVATION WORK MAY NOT PROCEED UNTIL LINES ARE MARKED ANC THIS CHECKLIST HAS BEEN COMPLETED.** Arrangements for underground utility markouts are best made at the time o the preliminary site visit to allow client and/or utility company sufficient time. Keep completed checklist and maps onsite send copy to Project Manager.

Assignment of Responsibility. Client is responsible for having underground utilities and structures located and marked Preferably, the utilities themselves should mark out the lines.

Drilling or Excavation Sites. Attach a map of the property showing the proposed drilling or excavation site (or if sites are widely separated, several maps) clearly indicating the area(s) checked for underground utilities or underground structures and the location of above-ground power lines.

Utilities and Structures

Type	Not Present	Present	How Marked?[1]
Petroleum products line			
Natural gas line			
Steam line			
Water line			
Sewer line			
Storm drain			
Telephone cable			
Electric power line			
Product tank			
Septic tank/drain field			
Overhead power line			

1) Flags, paint on pavement, wooden stakes, etc.

Name and affiliation of person who marked out underground lines or structures.

_____ NAME _____ ORGANIZATION _____ PHONE

Emergency Procedures

Persons at site or facility to contact in case of emergency

1. _____ Phone _____

2. _____ Phone _____

Fire Dept.: Phone _____ Ambulance: Phone _____

Utility: Phone _____ Utility: Phone _____

Utility: Phone _____ Utility: Phone _____

Directions to nearest hospital (describe or attach map).

ATTACHMENT 5

AIR MONITORING LOG

Appendix E - Sub-Slab Depressurization System

MEMORANDUM

March 10, 2010

TO: Charlotte Biblow

FROM: Stephen Hix

SUBJECT: Country Glen - Sub-Slab Depressurization System Installation
EE007.002

This memorandum summarizes the work completed in regards to the sub-slab depressurization system (SSDS) installed in the 17 Old Country Road tenant space in the Country Glen Center. The system was installed in the vacant tenant space on February 4 and 5, 2010. The system that was installed was a standard blower-type system that is described below.

The construction of the SSDS is a follows:

- In general, two separate systems were installed; one along the east and one along the west walls in the tenant space with two separate extraction wells installed approximately 40 feet from the front wall.
- All piping was six-inch diameter PVC pipe.
- The extraction wells were constructed of slotted schedule 40 PVC pipe and hand-dug to a depth of approximately 40 inches below the slab. The annular spaces around the wells were packed with pea gravel and the slab grade finished with concrete. The installation work generated one drum of non-hazardous/non-RCRA regulated waste. A copy of the manifest is on file.
- The piping continued vertically along the walls and then above the drop ceiling toward the rear of the building.
- Two 220 CFM radon-type blowers were installed immediately outside the tenant space in the enclosed alleyway and the blowers exhausted to the roof level. The exhaust piping extends two feet above the roof line.
- Three flush-mount soil vapor probes were installed in the front of the tenant space and the vapor probe previously installed in the rear of the space was re-installed so it was flush to the slab and not causing a tripping hazard. These vapor probes were used to pilot test the system.

A pilot test was conducted on February 12, 2010. The purpose of the pilot test was to document the negative pressure beneath the slab. The new soil vapor probes were designated as A, B,

and C, and the previously installed probe was designated D. The approximate locations and designations are shown on the attached sketch.

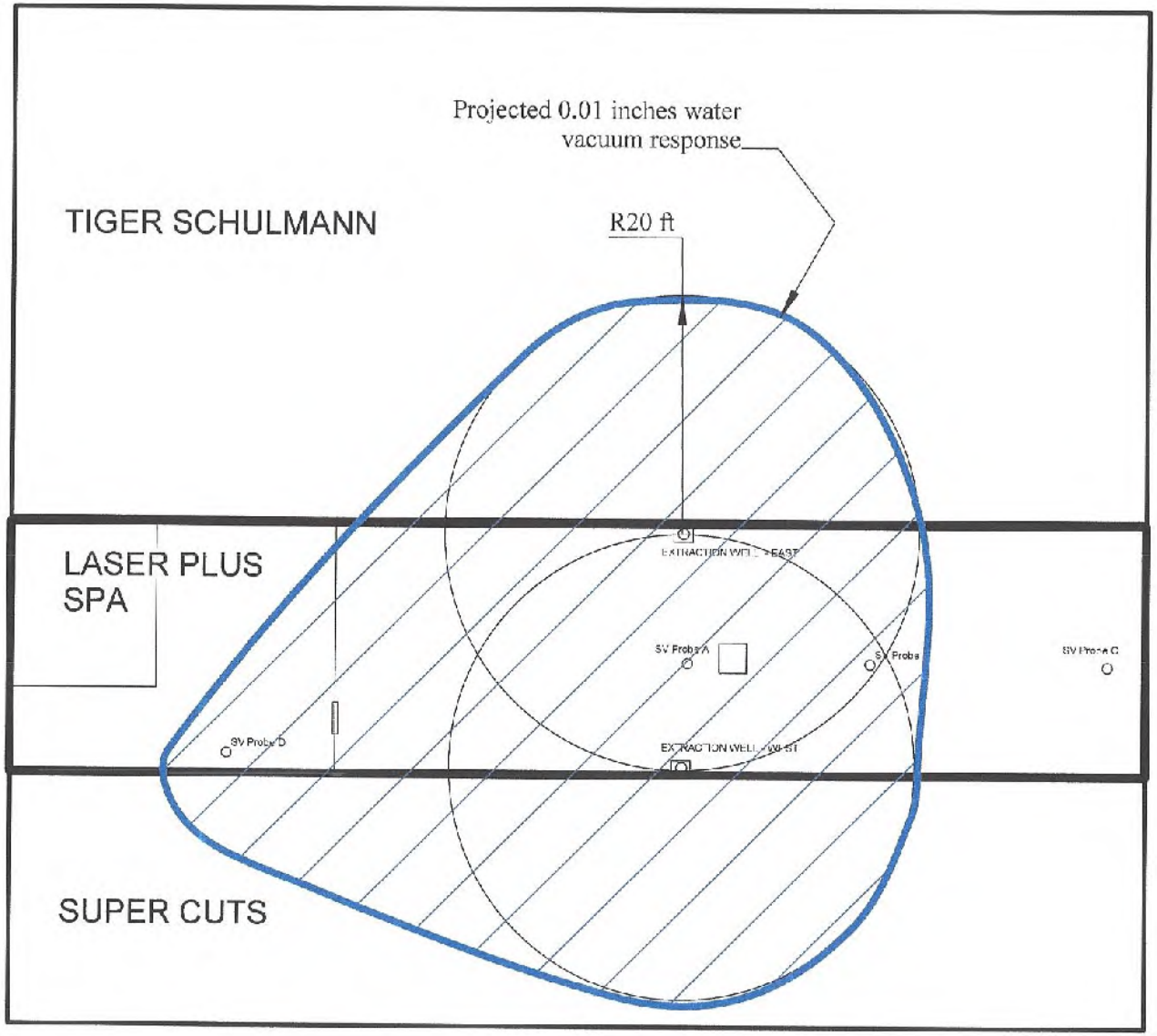
The vacuum readings were recorded with both blowers operating, and with each one operating separately. The ambient barometric pressure was steady at 1007 to 1008 millibars. The recorded vacuum readings are summarized in the table below:

Soil Vapor Probe	Distance from Wells (feet)	Both Blowers	West Blower Only	East Blower Only
A (middle)	10	0.07 - 0.10	0.03 - 0.04	0.04 - 0.05
B (front-middle)	22	0.02 - 0.03	0.01 - 0.02	0.02 - 0.03
C (front)	36	0.00	0.00	0.00
D (rear)	40	0.01 - 0.02	0.02	0.00 - 0.02

Vacuum readings are in inches of water.

With the exception of Probe C in the front of the store, sufficient vacuum (typically greater than 0.002 inches of water) was documented beneath the slab with the blowers operating in tandem or independently. The soil excavated for the well installation was a sandy loam, which was fairly tight. There still may be negative pressure greater than 0.002, beneath the slab in the front of the tenant space, however, this reading is below the sensitivity of the testing equipment.

Country Glen Center
Tenant Space - 17 Old Country Road



Country Glen
12-Feb-10
Pilot Test Results
Test Run One Both Blowers

Barametric pressure 10:00	1007
Barametric pressure 10:50	1008
Barametric pressure 11:35	1008
Barametric pressure 11:35	1008

Middle Point		
Time	Vaccum in (WC")	Notes
10:30	-0.07	
10:35	-0.09	
10:40	0.00	Blower off 10sec to get neg. pressure
10:45	-0.10	

Front Middle Point		
Time	Vaccum in (WC")	Notes
10:50	-0.02	Front Door opended Vaccum jumped -0.04
10:55	-0.02	
11:00	-0.03	Front Door opended Vaccum jumped -0.05
11:10	-0.02	

Back Room Point		
Time	Vaccum in (WC")	Notes
11:25	-0.01	Jumped to -0.03 with back Door Open
11:30	-0.02	
11:35	-0.02	
11:40	-0.02	

Front Point		
Time	Vaccum in (WC")	Notes
11:15	0.00	No negative pressure while both blowrs
11:20	0.00	on.

Exhaust Blowers	
West	200 F/M
East	150 F/M

Country Glen
12-Feb-10
Pilot Test Results
Test Run Two West Blower Only

Barametric pressure 10:00	1007
Barametric pressure 10:50	1008
Barametric pressure 11:35	1008
Barametric pressure 11:35	1008

Middle Point		
Time	Vaccum in (WC")	Notes
10:30	-0.03	
10:35	-0.04	
10:40	-0.04	
10:45	-0.03	

Front Middle Point		
Time	Vaccum in (WC")	Notes
10:50	-0.02	Fluctuating a lot from -0.00 and -0.04, Spends most of the time on -0.02 and -0.01
10:55	-0.02	
11:00	-0.01	
11:10	-0.02	

Back Room Point		
Time	Vaccum in (WC")	Notes
11:25	-0.02	
11:30	-0.02	
11:35	-0.02	
11:40	-0.02	

Exhaust Blowers	
West	200 F/M
East	150 F/M

Country Glen
12-Feb-10
Pilot Test Results
Test Run Three East Blower Only

Barametric pressure 10:00	1007
Barametric pressure 10:50	1008
Barametric pressure 11:35	1008
Barametric pressure 1:30	1006

Middle Point		
Time	Vaccum in (WC")	Notes
10:30	-0.04	
10:35	-0.05	
10:40	-0.04	
10:45	-0.05	

Front Middle Point		
Time	Vaccum in (WC")	Notes
10:50	-0.02	Fluctuating a lot from -0.03 and +0.02, Spends most of the time on -0.00 and -0.01
10:55	-0.02	
11:00	-0.03	
11:10	-0.02	

Back Room Point		
Time	Vaccum in (WC")	Notes
11:25	-0.01	
11:30	0.00	
11:35	-0.01	
11:40	-0.02	

Exhaust Blowers	
West	200 F/M
East	150 F/M

Appendix F - 2012 Soil Vapor Investigations

Edgewater Environmental, Inc.

10 Adams Place
Huntington Station, NY 11746

(631) 824-7036: Office
(631) 759-2919: Fax

May 15, 2012
EE007.003

Girish Desai, PE
New York State Department of Environmental Conservation
Division of Environmental Remediation
50 Loop Road
Stony Brook, NY 11790

Re: 115 Old Country Road, Carle Place, NY Site
Order on Consent: A1-0625-08-09
Site: 1-30-199

Dear Mr. Desai:

As a follow-up to our May 11, 2012 phone conservation, this letter is being sent to provide the results of the Soil Vapor Intrusion sampling that was conducted on March 8, 2012 and permitted to proceed prior to the approval of the SC Work Plan. Upon assessment of the sampling results from the Soil Vapor Intrusion sampling, we conducted a soil vapor screening survey to get a fuller understanding of soil vapor at the site. Based on the findings of the Soil Vapor Intrusion sampling coupled with the soil vapor field screening, we are proposing changes to the scope of the SC sampling to address the elevated soil vapor observed beneath two locations not previously identified. Importantly, the corresponding indoor air samples demonstrate that the elevated sub-surface soil vapor has not adversely impacted indoor air quality.

Soil Vapor Intrusion Investigation

As authorized in your February 24, 2012 e-mail, Edgewater Environmental, Inc. collected the soil vapor and air samples on March 8, 2012 to evaluate the soil vapor intrusion potential at the 115 Old Country Road Site. You may recall the procedure used, as you were present at the site on March 8th and observed some of the work. The sub-slab soil vapor and indoor air samples were collected in the Sprint (Samples SSV-1 and IA-1) and Tiger Schulmann tenant spaces (Samples SSV-2 and IA-2), and the outdoor ambient air sample (AA-1) was collected on the west side of the building containing these stores, near the property line. The duplicate soil vapor sample (FIELD DUPLICATE) was collected in the Sprint Store, and all sub-slab sample points were checked for leakage with a helium tracer gas. No helium was detected in the samples, confirming that there was no leakage. Pursuant to your instructions, the sub-slab depressurization system in the Day Spa tenant space was shut down on Monday, March 5th to allow for the required 48 hour downtime before the sampling work was performed.

The samples were collected in 6-liter summa canisters and analyzed by Chemtech Laboratories using EPA Method TO-15. Chemtech provided the Category B Deliverable and EQuIS Package. The summary of the volatile organic compounds of concern are summarized below.

	111-TCA	TCE	PCE
SPRINT STORE			
Sub-Slab Vapor			
SSV-1	2782	26.9	2169
SSV-1 duplicate	2564	32.2	1898
Indoor Air			
IA-1	0.49	ND	2.51
TIGER SCHULMANN			
Sub-Slab Vapor			
SSV-2	7638	29.6	949
Indoor Air			
IA-2	0.49	0.16	5.29
OUTDOOR (west end of building)			
AA-1	ND	0.16	56.3

All units: micrograms per cubic meter

Abbreviations

111-TCA:	111-Trichloroethane
TCE:	Trichloroethene
PCE:	Tetrachloroethene
ND:	None Detected

The indoor air concentrations were very low and were below the average concentrations for found compounds in office buildings provided in EPA's Building Assessment Survey and Evaluation (BASE) Study. However, some of the levels of certain VOCs detected in the sub-slab vapor samples fall with the monitor or mitigation ranges of the NYSDOH Vapor Intrusion Guidance Decision Matrices. See summary below.

SPRINT STORE

	MATRIX	SSV-1	SSV-1 (D)	IA-1	
111-TCA	2	2782	2564	0.49	MITIGATE
TCE	1	26.9	32.2	ND	NO FURTHER ACTION
PCE	2	2169	1898	2.51	MITIGATE

TIGER SCHULMANN

	MATRIX	SSV-2	--	IA-2	
111-TCA	2	7638	--	0.49	MITIGATE
TCE	1	29.6	--	0.16	NO FURTHER ACTION
PCE	2	949	--	5.29	MONITOR

Soil Vapor Screening

Based on soil vapor intrusion findings, Edgewater Environmental conducted a soil vapor (SV) screening survey to identify potential soil vapor areas of concern, while the NYSDEC completed its review of the SC Work Plan.

Temporary soil vapor implants were installed to a depth of approximately 18 inches below grade, the soil vapor was purged with a portable air sampling vacuum pump, and the extracted vapor was screened with a RAE ppbRAE 3000 VOC Monitor. The photoionization detector's range is 1 ppb to 10,000 ppm. The areas of concern were field screened. If an elevated reading was observed, then the additional samples were collected radially to bracket the initial reading.

The highest reading of the soil vapor screening (15 ppm) was found in the rear parking lot, about half-way from the rear of the building to the rear property line. The concentrations decrease radially outward from this point.

The findings are shown on the attached site sketch. The PID readings were broken down into order of magnitude concentrations (None detected, up to 1,000 ppb, and greater than 1,000 ppb). Thirty two locations were sampled. No VOCs were detected in 21 of the 32 locations sampled. A sample collected in the electrical room adjacent to the drycleaner had 6870 ppb. No VOC were found in the rear corridor and the area outside the west end of the building. These findings indicate that the soil vapor is likely confined under the slab and with the foundation walls, and a foundation wall cuts off the vapors from the rear corridor. As a result, we are proposing to change the location of our sub-soil vapor sampling from the rear corridor and replace it with sampling that would be better suited to evaluate elevated soil vapor intrusion at the site. This is consistent with comments initially received from both the NYSDEC and NYSDOH about the rear corridor sampling locations for soil vapor intrusion sampling.

Proposed SC Scope Changes

Based on these findings, the following revisions to the SC Work Plan are proposed. Since no VOC concentrations were observed in the soil vapor screening samples in certain areas of the site, we are proposing to eliminate the soil vapor samples taken in the rear corridor, the area west of the drycleaner, and the area of the former sanitary system. The other proposed sampling outlined in the SC Work Plan (and the RCRA Closure Work Plan) will be conducted.

As we discussed, Edgewater proposes to collect a vertical profile boring in the area of the rear parking lot with the elevated PID reading. The boring will be advanced to a depth of 20 feet and screened for VOCs, if elevated VOCs are observed the boring will be advanced until two consecutive intervals are collected that do not exhibit elevated VOCs.

We also propose collecting one soil sample from beneath the electrical room adjacent to the dry cleaner. Due to physical constraints this sample may need to be collected with a hand auger after core cutting the concrete floor.

If there are any comments or questions related to the screening work or the proposed revision to the SC scope, please give me a call.

Very truly yours,

Edgewater Environmental, Inc.

Stephen R. Hix

cc: Murray Miller
Charlotte Biblow

File: 115OCR Ltr G Desai 20120515

SOIL VAPOR SCREENING SURVEY
APRIL 19 + 20, 2012

DRAFT