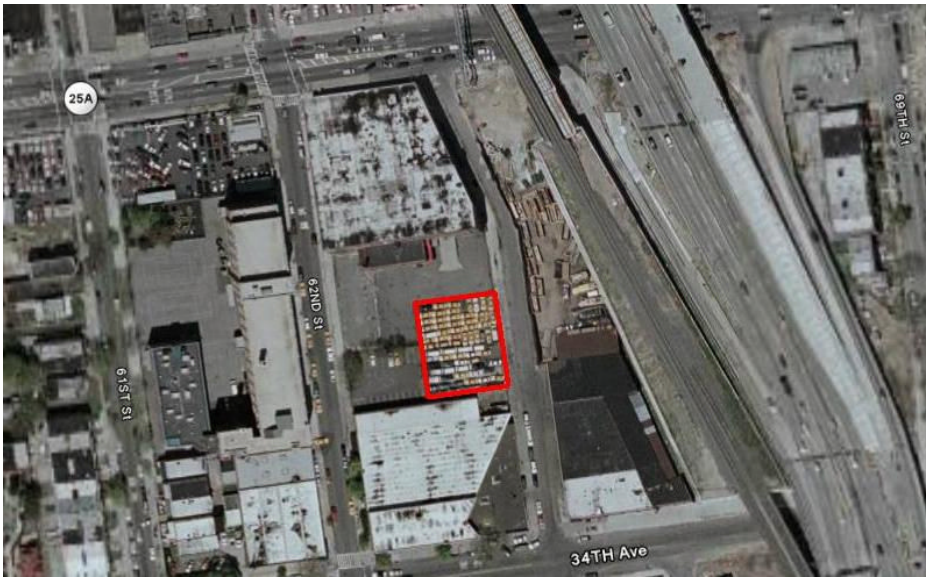
Reliant Consulting Services, Inc.

REMEDIAL INVESTIGATION WORK PLAN

Final Version

Brownfield Cleanup Program

64th Street
Project Identification Number
241106



Prepared on Behalf of:

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1.0 INTRODUCTION

Reliant Consulting Services Inc, (RELIANT) has prepared this Remedial Investigation Work Plan (RIWP) for the New York State Department of Environmental Conservation (NYSDEC) on behalf of the client, D & E Realty Inc. The purpose of this RIWP is to provide a detailed description of the proposed site investigation at 33-32 64th Street, Woodside, New York, the subject site. All activities relating to this investigation have been prepared in accordance with Section 3.3 (d) of DER-10 and other related guidance documents.

2.0 SITE DESCRIPTION & HISTORY

2.1 SITE LOCATION AND OWNERSHIP HISTORY

The site is located at 33-32 64th Street, Woodside, New York. This corresponds to the New York City tax Maps for Queens, Block 1185 and Lot 20. A map showing the exact location of the site is hereto attached in *Appendix A- Figures as Figure 1*. The site is approximately 100ft by 100ft square (10,000 sq. feet) totaling approximately.23 acres. It lies at approximately 40º 45‘11“latitude and 73º 53’ 58“longitude.

To the best knowledge of the applicant, a Phase I Site Assessment report was not conducted on the site. Preliminary soil and groundwater work was performed on the site by an adjacent property owner as part of the Due Diligence process. During the time directly before D&E Realty Inc. took possession of the property to the present, the site has been utilized as a taxi cab storage yard.

According to the NYC database ACRIS, Acme Metal Cap Co. Inc. is listed on a 1985 lease for the subject site with Petroform Products Corp., a real estate holding company. Petroform Products Corp was named on the 2002 Deed with D&E Realty, the current owner and applicant. This data suggests that Acme Metal Cap Co., Inc. was involved with the subject site from 1985 to 2002. The type of contamination detected on site is consistent with suspected historic operations of the site. Since the applicant has owned the site, the only use has been as a storage yard for taxi cabs. The use of the property was under a lease with the applicant prior to 2002. PCE and TCE are both chlorinated VOCs and have been historically used as solvents. One of the specific uses has been as a degreaser for metals.

2.2 ENVIRONMENTAL HISTORY

Based on the record search conducted by Advanced Site Restoration, one (1) environmental report was obtained on the Subject Site. Advanced Cleanup Technologies (ACT) of Farmingdale New York, working under a Due Diligence investigation for Toyota, the owner of the adjacent property, completed a Subsurface Investigation which included the applicant’s site. The field work was performed on July 24th and July 25th 2006.

ACT produced their findings in a report entitled *Taxi Storage Yard Investigation Report* on August 31, 2006. The goal of the ACT investigation was to look for a source area for the CVOCs that were detected in the groundwater at the adjacent property. The investigation consisted of the advancement of six (6) boreholes and the installation of six (6) temporary groundwater monitoring wells in the northwestern corner of the site. The groundwater table was located at approximately

ten (10) ft. below ground surface (bsg) and the groundwater flow was identified as being in a northeasterly direction.

During this Phase II Environmental Investigation concentrations of Chlorinated Volatile Organic Compounds (CVOCs) were identified in the unsaturated soil beneath the northwestern portion of the site and in groundwater beneath the northern portion of the site. The principal CVOC of concern was Tetrachloroethene (PCE) which was detected in the unsaturated soils and in the groundwater at the site. Trichloroethene was also detected in the unsaturated soils and the groundwater, however at much reduced concentrations.

According to the ACT report, six (6) soil borings were advanced at the subject site. Samples were field screened using a Photvac Microtip Photoionization Detector (PID) at 0'-5' bsg and 5'-10' bsg. Out of twelve (12) soil samples collected, three (3) were submitted to a laboratory for analysis. PCE was detected at the highest concentration in SB-01 from 0'-5' bsg at 19,600 ppb.

Six (6) groundwater samples were collected at the subject site from the temporary groundwater monitoring wells installed in the boreholes and submitted to a laboratory. The analysis indicated that TCE, PCE, and c-1, 2-Dichloroethene, were the three (3) contaminants tested which exceeded the "regulatory standard." These three (3) contaminants were detected in all six (6) monitoring well samples. The highest concentration of TCE was detected in TW-02 at 168 ppb. The highest concentration of PCE was also detected in TW-02 at 14,000 ppb.

In March of 2007, D&E Realty Inc. applied for entry into the NYSDEC Brownfield Cleanup Program. On September 4, 2008, the application for D&E Realty Inc. was accepted by the NYSDEC for entry into the Brown Field Cleanup Program.

Several other environmental investigations have taken place at and around the subject site. These reports are not attached, but are available in the NYSDEC files:

- In February 2005, Roux Associates completed a Phase I Environmental Site Assessment for 62-10 Northern Boulevard, the property owned by Toyota, just north of the subject site. The findings included historical manufacturing, an on-site filling station, and an abandoned fuel oil UST.

- In April 2005 ACT completed a Phase II Environmental Site Assessment also for 62-10 Northern Boulevard. Semi Volatile Organic Compounds (SVOCs) were detected in the soil around the fuel oil UST. The Chlorinated Volatile Organic Compounds (CVOCs) Tetrachloroethene, Trichloroethene, and cis-1,2-dichloroethene were detected in the groundwater.

- In May and July 2005, a subsurface investigation by Whitestone Associates Inc. confirmed the presence of CVOCs in the groundwater and the absence of CVOCs in the soil at 62-10 Northern Boulevard.

- In May 2006, ACT performed another subsurface investigation in the area around the subject site. Sampling results suggest the presence of low levels of CVOCs in the groundwater and the absence of CVOCs in the soil at Acme Metal Corp, the property just south of the subject site.

According to this supporting data, the range of TCE directly adjacent to the subject site ranges from non-detect in MW-4 (10' west of the site) to 0.633 PPM in MW-2 (5' north of the site). The

range of PCE directly adjacent to the subject site ranges from non-detect in MW-5 (5' south of the site) to 42.6 PPM in MW-2 (5' north of the site).

According to ACT, the data strongly suggests a relationship between the unsaturated soil contamination at the subject site and groundwater contamination at and around the subject site. Approximately 50% of the site has been investigated. These historic environmental reports were included in the Brownfield Application and are contained within the document repositories.

3.0 PROPOSED SCOPE OF WORK

The purpose of the Remedial investigation is to collect data of sufficient quality and quantity to supplement the previous investigations conducted at the site and to close gaps in the data necessary to adequately define the nature and extent of contamination in all media (soil, groundwater and soil vapor), identifying contaminant source areas, support development of an acceptable remedial work plan, evaluate contaminant migration, and quantify the potential exposure to the environment and human health. In order to delineate the groundwater contamination from the source area, and fully evaluate the site, RELIANT proposes the following work:

- A **geophysical survey** of the site will be performed to investigate areas where additional historic, undocumented, underground storage tanks or drums could be located. A mark out of underground utilities using a third party service.

- A **records search** for historic uses of the site and adjacent/area sources that may exist. The search shall address indications of historical contamination, spill, leaks or environmental issues both on and off of the Subject Property.

- The installation of **19 soil borings** to address potentially contaminated areas in a modified grid pattern across the Subject Site. These borings will be installed with a direct push drill rig. *See Addendum A, Figure – 3 Proposed Boring And Groundwater Monitoring Well Location Map.* Borings will be constructed as per section 4.0 below.

- **19 shallow soil samples** and **19 deep soil samples** will be obtained from these borings locations. One half of these soil samples, nine (9) shallow and nine (9) deep soil samples, will be analyzed for the full analytical suite: Total Available Leachate (TAL) Metals via EPA method 60 10B; Volatile Organic Compounds (VOCs) via EPA Method 8260; Semi Volatile Organic Compounds (SVOSs) via EPA Method 8270; Pesticides/Herbicides and Polychlorinated biphenyl (PBCs) Via EPA methods 8082, 8015 and 8081. The remaining ten (10) shallow and ten (10) deep soil samples, will be analyzed for Volatile Organic Compounds (VOCs) via EPA Method 8260 only. **A total of 38 soil samples will be collected in all.** Each boring will be screened with a PID calibrated for Tetrachloroethene (PCE). Soil samples will be collected as per section 5.1 below.

- **Groundwater** at the site will be sampled from **five (5) boring locations** during installation of the borings, as grab samples. **Six (6)** additional groundwater samples will be obtained from the **six (6) permanent groundwater** monitoring wells referenced below. All groundwater samples will be analyzed for Volatile Organic Compounds (VOCs) via EPA Method 8260 only. Four (4) of the representative samples will be analyzed for the full analytical suite, as listed above. Sampling procedures for these wells is outlined in 5.2 Soil and

Groundwater Sampling, below and QA/QC will be maintained as described in Section 7.0.

- **Six (6) permanent groundwater wells** will be installed during the boring process to allow for future on site groundwater monitoring. Two of these wells will be cluster wells consisting of deep and shallow monitoring points and located at the deep groundwater sapling points. Two additional groundwater wells will be installed, one along the 64th street side of the property, and one in the center of the property. *See Addendum A, Figure – 3 Proposed Boring And Groundwater Monitoring Well Location Map.* Groundwater monitoring wells will be constructed as per section 4.0 below. Samples from these wells will be obtained after installation.

- NYSDEC requires **historic groundwater observation well MW-4 (off site)** to be sampled for EPA Method 8260.

- **Historic fill materials** may exist on the subject property. This fill material will be documented and characterized for potential future disposal and included in boring log information as defined in Section 7.0.

- Approximately two (2) weeks after the installation and development, all **groundwater monitoring wells will be sampled**. Samples will be submitted to Phoenix Environmental Laboratories for analysis of Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs) and Metals using EPA Method 8260, EPA Method 8270, and TAL Metals Herbicides/pesticides and PCBs. All samples will be accompanied by a schedule B deliverable QA/QC package. Sampling procedures for these wells is outlined in 5.0 Soil and Groundwater Sampling, below.

- As a part of the investigation, a **Qualitative Exposure Assessment** will be conducted to evaluate the potential human health risks produced by residual contaminants on the subject property. The topics to be covered in this assessment are detailed below in Section 9.0 Qualitative Exposure Assessment.

- Due to the boring method used (direct push technology) RELIANT will not be utilizing Air monitoring during this investigation. The possibility exists that direct push technology will not be capable of installing the needed borings and well due to overburden. If this occurs, RELIANT will need to perform the work with an auger drill rig. At that time, RELIANT will implement the Community Air Monitoring Plan described in section 6.0.

- Subsequent to the installation of the groundwater observation wells mentioned above, a **site survey shall be performed** by a NYS Licensed Site Surveyor. This survey shall incorporate all the physical features on the site and identify both boring and groundwater observation well locations.

- The findings of the investigation will be detailed in a **Remedial Investigation Report** and submitted to the NYSDEC, as described in section 10.0.

Upon approval of the Investigation Work Plan, the investigation work on the site will be scheduled. RELIANT will provide the NYSDEC with a 10 day notice prior to the start of any field work.

All field activities must be conducted in accordance with the *Site Specific Health and Safety Plan (HASP),* hereto attached as *Appendix C*. All persons entering the site must read and sign the Hasp to acknowledge the hazard conditions at the site. Specifically, the work shall be divided into work zones to be determined. The Exclusion zones area shall be the immediate area of the direct push rig radiating out 10 feet from the back of the drill rig. Contamination reduction zone shall be from the entrance of the property to approximately 20 feet into the property. Support zones shall be in the area beyond. All zones will be marked with caution tape and Traffic cones. Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

Job Function: Sampling/Monitoring/Drilling/ Well Installation

Level of Protection: Level D. Work uniform, steel tip boots, hard hat, safety glasses, work cloths, work gloves or rubber (latex) gloves as needed, hearing protection. A Class B fire extinguisher must be present in the exclusion zone. Air-purifying respirators are not required for these outlined tasks. Periodic air monitoring will assure that the site remains a level D site. The primary hazards identified on the site are described below. Please review the HASP for more in-depth details of the hazards.

CHLORINATED HYDROCARBONS

Source: Environmental Contamination

Symptoms Following Exposure: Vapor can affect central nervous system and cause anesthesia. Liquid may irritate skin after prolonged contact. May irritate eyes but causes no injury.

NITRIC ACID

Source: Sample preservative

Symptoms Following Exposure: Vapors irritate eyes and respiratory tract; lung injury may not become apparent for several hours following exposure. Liquid may cause severe burns to eyes and skin.

4.0 BORING AND WELL INSTALLATION

Historic groundwater levels across the site are estimated at ten (10) feet bsg. RELIANT will contract with a direct push geoprobe type drill rig to installation 19 borings to approximately 17 feet bsg. Two (2) of these borings will be made into deep groundwater borings terminating at 32 feet bsg. Five (5) groundwater monitoring wells will also be installed during this work period, three (3) shallow wells and two (2) deep wells.

Continuous five (5) foot, split spoon sampling will be performed at each borehole. Soil samples will be classified, soils and wells will be logged, and soils will be field screened for the presence of VOCs using a Photo-ionization Detector (PID). RELIANT field personnel will note any observations of visual and olfactory signs of contamination. If no PID levels are encountered within the boring, one (1) sample will be collected at the groundwater interface and submitted for analysis. If contaminated soils are encountered, and elevated PID levers are documented, a

sample will be taken from the highest contaminated area within the vertical column. These samples will be sent to Phoenix Environmental Laboratories, Inc. an ELAP certified laboratory and analyzed as per section 5.0, Soil and Groundwater Sampling.

Six (6) groundwater observation wells will be installed, four (4) shallow wells and two (2) deep wells. The four (4) shallow wells will terminate at approximately (17) feet bsg. The wells will be constructed with five (5) feet of PVC riser pipe from the surface down. At the five (5) foot bsg level, ten (10) feet of two (2) inch diameter, 0.020 inch slot schedule forty (40) PVC screen will be added to insure that at least five (5) feet of screen exists above the water table and at least five (5) feet of screen extends below the groundwater level. At the fifteen (15) foot level, a two (2) foot blind, solid, sediment trap and terminal cap will be installed to a terminal depth of 17 feet bsg. All joints shall be flush threaded with no glue joints. A sand pack compatible with the well screen will be installed to a depth equal to one (1) foot above the top of the PVC screen. A one (1) foot thick bentonite seal will be installed above the sand pack followed by backfilling with uncontaminated cuttings to grade. A locking compression J-plug will be installed on the top of the well casing and finished off with a monitoring manhole cover flush mounted to grade.

Two (2) deep groundwater observation wells will be installed to a depth of 37 feet bsg. The wells will be constructed with 30 feet of solid PVC riser pipe from the surface down. At the 30 foot bsg level, five (5) feet of two (2) inch diameter, 0.020 inch slot schedule forty (40) PVC screen will be added to create a sampling zone between 30 and 35 feet bsg. At the 35 foot level, a two (2) foot blind, solid, sediment trap and terminal cap will be installed to a terminal depth of 37 feet bsg. All joints shall be flush threaded with no glue joints. A sand pack compatible with the well screen will be installed to a depth equal to one (1) foot above the top of the PVC screen. A one (1) foot thick bentonite seal will be installed above the sand pack followed by backfilling with alternating bentoinite and sand layers to grade. A locking compression J-plug will be installed on the top of the well casing and finished off with a monitoring manhole cover flush mounted to grade.

5.0 SOIL AND GROUNDWATER SAMPLING

5.1 SOIL SAMPLING

The investigation calls for the installation of 19 soil boring locations to address potentially contaminated areas in a modified grid pattern across the Subject Site. These borings will be installed with a direct push drill rig. *See Addendum A, Figure – 3 Proposed Boring And Groundwater Monitoring Well Location Map.* Each soil boring shall continuously screened with a Photo-ionization Detector (PID) to ground water and seven (7) feet below. The PID will be calibrated for Tetrachloroethene (PCE). Soil samples will be collected and analyzed from the first spoon, approximately from zero (0) feet bsg to one (1) foot bsg, from each of the borings. The remainder of the boring will be screened with the PID. Either the sample exhibiting the highest field concentration or the groundwater interface sample will be collected and analyzed. All site samples will be submitted to Phoenix Environmental Laboratories, 587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040 for analysis. All samples will be accompanied by a schedule B deliverable QA/QC package.

19 shallow soil samples and 19 deep soil samples will be obtained from these borings locations and will be transferred to appropriate sample containers, packed on ice, sent for analysis to an ELAP certified laboratory. All samples will be collected and managed in accordance with NYSDEC guidelines and protocols. All samples will be accompanied by a schedule B deliverable QA/QC package.

One half of these soil samples, nine (9) shallow and nine (9) deep soil samples (18 in total) will be analyzed for the full environmental suite:

- TAL Metals via EPA method 6010B
- Volatile Organic Compounds (VOCs) via EPA Method 8260
- Semi Volatile Organic Compounds (SVOSs) via EPA Method 8270
- Pesticides/Herbicides and PBCs Via EPA methods 8082, 8015 and 8081

The remaining ten (10) shallow and ten (10) deep soil samples (20 in total) will be analyzed for Volatile Organic Compounds (VOCs) via EPA Method 8260 only.

5.2 GROUNDWATER SAMPLING

Groundwater at the site will be sampled from five (5) boring locations during installation of the borings as grab samples. Four (4) of the five (5) groundwater grab samples will be analyzed for Volatile Organic Compounds (VOCs) via EPA Method 8260 only. One (1) of the five (5) representative boring groundwater samples will be analyzed for the full analytical suite, as listed below.

Groundwater samples will also be collected from all of the six (6) permanent groundwater observation wells and also historic groundwater monitoring well MW-4 located between the site and the off-site dry cleaners. In order to prevent cross contamination, disposable sampling equipment will be used to extract water from the aquifer.

All groundwater quality sampling shall be done in accordance with EPA's Low-flow (minimal draw down) procedures. To attain this goal, disposable polyethylene tubing shall be used, and a peristaltic pump. Between the sampling of each well, the tubing will be discarded and new tubing attached. Purge water and development water will be drummed and properly disposed of. Development of the wells will be accomplished by removing groundwater until the wells reduce in turbidity to clear, or until three (3) to five (5) well volumes of groundwater are removed, whichever is achieved first. Wells will be allowed to stabilize for a minimum of one (1) week prior to sampling.

Prior to sampling, each well will be purged to remove 3 well volumes of water. The groundwater chemistry will be monitored every 5 minutes until the groundwater chemistry stabilizes. Monitoring shall consist of PH, Specific Conductivity, Redox Potential, Dissolved Oxygen and Turbidity. The well shall be considered stabilized and ready for sampling when the following parameters are reached and maintained.

+0.1 for PH
+3% for Specific Conductance (Conductivity)
+10 mv for Redox Potential
+10 % for Dissolved Oxygen
+10 % for Turbidity

Samples will be transferred to appropriate sample containers, packed on ice, sent for analysis to an ELAP certified laboratory. All samples will be collected and managed in accordance with NYSDEC guidelines and protocols. The following sample analysis shall be requested for *all four (4) shallow* permanent well groundwater samples, and one (1) boring grab sample:

- TAL Metals via EPA method 6010B
- Volatile Organic Compounds (VOCs) via EPA Method 8260
- Semi Volatile Organic Compounds (SVOSs) via EPA Method 8270

- Pesticides/Herbicides and PBCs Via EPA methods 8082, 8015 and 8081

The two (2) deep groundwater wells will be sampled for EPA method 8260 only.

All samples will be accompanied by a schedule B deliverable QA/QC package, and obtained and prepared in accordance with section *7.0 QUALITY ASSURANCE/QUALITY CONTROL PLAN.* All left over drill cuttings from soil boring advancement activities will stored on site in labeled United States Department of Transportation (USDOT) approved 55-gallon drums. Drums will be hauled off site to the appropriate disposal facility.

5.3 SAMPLING SUMMARY TABLE

Below is a table summarizing the samples to be taken from each boring location and permanent monitoring wells on the site. See *Addendum A, Figure – 3 Proposed Boring and Groundwater Monitoring Well Location Map* for actual sample locations.

Location Number	Matrix	Sample Depth	Analytical Parameters	Sampling Method	Rational
1A	Soil	0-2 feet	8260	Grab	Screen for Chlorinated organics only
1B	Soil	TBD	8260	Grab	Screen for Chlorinated organics only
2 A	Soil	0-2 feet	Full	Grab	Full sampling to characterize site soils
2 B	Soil	TBD	Full	Grab	Full sampling to characterize site soils
2 C	Water	Interface	8260	Grab	Screen for Chlorinated organics while boring
3 A	Soil	0-2 feet	Full	Grab	Full sampling to characterize site soils
3 B	Soil	TBD	Full	Grab	Full sampling to characterize site soils
3 C	Water	Shallow GW	Full	Grab	Sample from Permanent GW well to Fully characterize GW
3 D	Water	Deep GW	8260	Grab	Screen for Chlorinated organics only from permanent GW well
4 A	Soil	0-2 feet	8260	Grab	Screen for Chlorinated organics only
4 B	Soil	TBD	8260	Grab	Screen for Chlorinated organics only
5 A	Soil	0-2 feet	8260	Grab	Screen for Chlorinated organics only
5 B	Soil	TBD	8260	Grab	Screen for Chlorinated organics only
6 A	Soil	0-2 feet	Full	Grab	Full sampling to characterize site soils
6 B	Soil	TBD	Full	Grab	Full sampling to characterize site soils
6 C	Water	Interface	8260	Grab	Screen for Chlorinated organics only while boring
7 A	Soil	0-2 feet	Full	Grab	Full sampling to characterize site soils
7 B	Soil	TBD	Full	Grab	Full sampling to characterize site soils

Location Number	Matrix	Sample Depth	Analytical Parameters	Sampling Method	Rational
7 C	Water	Shallow GW	Full	Grab	Sample from Permanent GW well to Fully characterize GW
8 A	Soil	0-2 feet	8260	Grab	Screen for Chlorinated organics only
8 B	Soil	TBD	8260	Grab	Screen for Chlorinated organics only
9 A	Soil	0-2 feet	Full	Grab	Full sampling to characterize site soils
9 B	Soil	TBD	Full	Grab	Full sampling to characterize site soils
9 C	Water	Shallow GW	Full	Grab	Sample from Permanent GW well to Fully characterize GW
10 A	Soil	0-2 feet	8260	Grab	Screen for Chlorinated organics only
10 B	Soil	TBD	8260	Grab	Screen for Chlorinated organics only
11 A	Soil	0-2 feet	8260	Grab	Screen for Chlorinated organics only
11 B	Soil	TBD	Full	Grab	Screen for Chlorinated organics only
12 A	Soil	0-2 feet	Full	Grab	Full sampling to characterize site soils
12 B	Soil	TBD	Full	Grab	Full sampling to characterize site soils
12 C	Water	Interface	B260	Grab	Screen for Chlorinated organics only while boring
13 A	Soil	0-2 feet	8260	Grab	Screen for Chlorinated organics only
13 B	Soil	TBD	8260	Grab	Screen for Chlorinated organics only
14 A	Soil	0-2 feet	Full	Grab	Screen for Chlorinated organics only
14 B	Soil	TBD	Full	Grab	Screen for Chlorinated organics only
14 C	Water	Interface	Full	Grab	Full sampling to characterize site GW while boring
15 A	Soil	0-2 feet	8260	Grab	Screen for Chlorinated organics only
15 B	Soil	TBD	8260	Grab	Screen for Chlorinated organics only
16 A	Soil	0-2 feet	Full	Grab	Full sampling to characterize site soils
16 B	Soil	TBD	Full	Grab	Full sampling to characterize site soils
17 A	Soil	0-2 feet	8260	Grab	Screen for Chlorinated organics only
17 B	Soil	TBD	8260	Grab	Screen for Chlorinated organics only
17 C	Water	Interface	8260	Grab	Screen for Chlorinated organics while boring
18 A	Soil	0-2 feet	8260	Grab	Screen for Chlorinated organics only
18 B	Soil	TBD	8260	Grab	Screen for Chlorinated organics only

Location Number	Matrix	Sample Depth	Analytical Parameters	Sampling Method	Rational
19 A	Soil	0-2 feet	Full	Grab	Full sampling to characterize site soils
19 B	Soil	TBD	Full	Grab	Full sampling to characterize site soils
19 C	Water	Shallow GW	Full	Grab	Sample from Permanent GW well to Fully characterize GW
19 D	Water	Deep GW	8260	Grab	Screen for Chlorinated organics only from a permanent GW well
MW-4	Water	Shallow GW	8260	Grab	Sample from Permanent GW well to Fully characterize GW

Full=Full Sampling Suite:

- TAL Metals via EPA method 6010B
- Volatile Organic Compounds (VOCs) via EPA Method 8260
- Semi Volatile Organic Compounds (SVOSs) via EPA Method 8270
- Pesticides/Herbicides and PBCs Via EPA methods 8082, 8015 and 8081

TBD= Soil intervals will be screened with the PID. Either the sample exhibiting the highest field concentration or the groundwater interface sample will be collected and analyzed.

6.0 COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan (CAMP) requires real time monitoring for VOCs and particulates, i.e. contaminated dust, at a designated downwind location from a work site. Air samples are collected while activities such as drilling are in progress at a contaminated Site. A 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 downwind receptors from airborne contaminant releases as a direct result of investigator and remedial work. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shut down. Additionally, a CAMP helps to assure that work activities are not spreading contamination off-site through the air.

The ambient air at any sensitive receptors in the vicinity of the site will be monitored. Examples of such situations include curbs of a busy urban street, a public park, or a school or residence.

VOCs will be monitored with at the downwind perimeter of the immediate work area 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 will be conducted using a photo-ionization detector. The equipment will be calibrated daily. The equipment will be capable of calculating 15 minute running average concentrations, which will be compared to levels specified below:

If the ambient air concentration of total VOCs 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 VOC level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

If total VOC 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 the vapor identifies, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume, provided that the total VOC level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor, which ever is less – but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

If the VOC level is above 25 ppm at the perimeter of the work area, activities must be shut down.

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

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than the background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided the downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and proved no visible dust is migrating from the work area.

If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater then 150 mcg/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentrations to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

7.0 QUALITY ASSURANCE/QUALITY CONTROL PLAN (QA/QC)

QA/QC procedures will be followed to provide guidelines for accuracy, precision, sensitivity, completeness, and comparability associated with the sampling and analysis activities to be conducted as part of this investigation. Field QA/QC procedures will be used to ensure that the groundwater and soil samples collected are representative of the actual conditions. Field QA/QC will include the following procedures:

- ***The calibration of field equipment***. All field analytical equipment used including PIDs will be calibrated on a daily basis.

- ***The use of trip and collection field blank samples***. Trip blanks will be prepared by the ELAP-certified laboratory with de-ionized laboratory grade water and one (1) blank will accompany all sample shipments to the laboratory. The water used will be from the same source as that used for the laboratory method blank. The trip blank will be handled and transported in the same manner as the samples collected which it will accompany.

Trip blanks will be analyzed for VOCs to identify the presence of cross-contamination as a result of sample shipment, e.g. contaminated from the air, shipping containers, or from other items coming into contact with the sample bottles. The field blank will be collected by pouring de-ionized laboratory grade water over the decontaminated split spoons used to collect soil samples and gathering this water into appropriate sample containers preserved in the same manner as other aqueous matrix samples. The water used for the field blank will be from the same source as that used for the laboratory method blank. The field blank will be analyzed in accordance with ASP 95-1, to determine whether the field sampling equipment is cross-contaminating samples. Duplicate and MS/MSD samples shall be collected on every 10 outside samples and on every 3 inside samples.

- ***The use of dedicated and disposable field sampling equipment***. Dedicated HDPE tubing and check valves will be used in all monitoring wells to eliminate the possibility of cross-contamination during groundwater sampling activities. Disposable sampling equipment including latex gloves and disposable bailers will be used to prevent cross-contamination between samples. Split-spoons used to collect soil samples during monitoring well installation as well as field screening equipment will be decontaminated after each sample by washing them with laboratory grade Alconox detergent and de-ionized water, and thoroughly air-drying equipment. All drilling equipment that contacts contaminated material will be decontaminated according to NYSDEC Protocol.

- ***The proper sample handling and preservation*** For each of the analytical parameters analyzed, a sufficient sample volume will be collected to allow the specified analytical method to be performed according to protocol, and to provide sufficient sample for reanalysis if necessary. Because plasticizers and other organic compounds inherent in plastic containers may contaminate samples requiring organic analysis, these samples will be collected in glass containers. Appropriate sample preservation techniques, including cold temperature storage at 4° C, will be utilized to ensure that the analytical parameters in the samples analyzed by the laboratory have not changed from the time the sample was collected in the field. Samples will be analyzed prior to the respective holding time for each of the analytical parameters to ensure the integrity of the analytical results.

- ***The proper sample chain of custody documentation.*** Sample handling in the field will conform to appropriate sample custody procedures. Field custody procedures include proper sample identification, chain-of-custody forms, and packaging and shipping procedures. Sample labels will be attached to all sampling bottles before field activities begin to ensure proper sample identification. Each label will identify the site and sample location. Proposed sampling locations are indicated in the Sample Location Plan. Actual sampling locations, if different than proposed, will be marked on the Sample Location Plan which will be revised accordingly. Each cooler will be lined with two (2) 6-mil thick plastic bags. Styrofoam or bubble wrap will be used to absorb shock and prevent breakage of sample containers. VOC vials will be packaged inside a plastic “Ziplock” bag prior to placement inside the cooler. Ice or ice packs will be placed in between the plastic bags for sample preservation purposes. After each sample is collected and appropriately identified, the following information will be entered into the chain-of-custody form: 1) site name and address; 2) sampler(s)’ name(s) and signature(s); 3) names and signatures of persons involved in the chain of possession of samples; 4) sample number; 5) number of containers; 6) sample location; 7) date and time of collection; 8) type of sample, sample matrix and analyses requested; 9) preservation used (if any); and 10) any pertinent field data collected (pH, temperature, conductivity, DO). The sampler will sign and date the

"Relinquished" blank space prior to removing one (1) copy of the custody form and sealing the remaining copies of the form in a Ziplock plastic bag taped to the underside of the sample cooler lid. After sample containers are sufficiently packed and the chain-of-custody form completed, the 6-mil plastic bags will be sealed around the samples by twisting the top and securely taping the bag closed to prevent leakage. A sample custody seal will be placed around the neck of the bag which will include the signature of the project manager, and/or his designee, and the date. The sample cooler will be sealed with tape prior to delivery or shipment to the laboratory. Additionally, sample custody seals will be placed around the cooler lid to detect unauthorized tampering with samples following collection and prior to the time of analysis. The seals will be attached in such a way that it will be necessary to break them in order to open the container. Seals will be affixed at the time of sample packaging and will include the signature of the project manager and/or his designee and the date.

- ***The completion of report logs***. The following project logs will be completed during the course of this investigation: 1) field logs; 2) boring logs; 3) monitoring well development purging and sampling data logs; and 4) monitoring well installation details. A field log will be completed on a daily basis which will describe all field activities including: 1) project number, name, manager, and address; 2) date; 3) weather; 4) attendees on-site and associated affiliations; 5) description of field activities; and 6) all pertinent sample collection information including sample identification numbers, description of samples, location of sampling points, number of samples taken, method of sample collection and any factors that may affect its quality, time of sample collection, name of collector, and field screening results. A boring log will be completed for each boring advanced and each monitoring well drilled. The following information will be included on each boring log: 1) project number, name, manager, and location; 2) date; 3) drilling company and method used; 4) boring number; 5) total and water table depths; and 6) all pertinent soil sample information including sample number, interval, depth, amount recovered, color, composition, percent moisture, visual and olfactory observations of contamination, and field screening readings. Historic fill materials may be found on the site. The presence or absence of this material will be noted on boring logs. All boring logs will identify the vertical extent of fill material.

- ***The completion of monitoring well logs.*** A monitoring well development, purging and sampling data log will be completed following development, purging and sampling of each monitoring well. For both development as well as purging and sampling activities, the following information will be recorded: 1) project number, name, manager, and location; 2) monitoring well number; 3) well casing diameter and stick-up height; 4) depth of well from top of well and road box casings; 5) date; 6) time; and 7) water analyzer used. Additionally, for development activities, the following information will be recorded: 1) distance from top of well casing to water and free product; 2) height of water column; 3) volume factor and well volume, and 4) volume of groundwater removed during development. Also, for purging and sampling activities, the following information will be recorded: 1) distance from top of well casing to water and free product; and 2) the pH, temperature, conductivity, and dissolved oxygen content associated with the number of well volumes removed. A monitoring well installation detail will be completed for each new monitoring well installed. The following information will be recorded on each detail: 1) project name, number, and manager; 2) monitoring well number; 3) driller; 4) date installed; 5) top of casing, ground surface, well point, and bottom of boring elevations, 6) borehole diameter, 7) type of well cover/cap, 8) type of protective casing and collar; 9) type of well casing and screen; 10) diameter of casing and screen; 11) type of backfill

material; 12) type of joint; 13) type of impermeable backfill; 14) type of screen packing; and 15) screen slot size.

- ***Data Validation***. In accordance with the NYSDEC ASP Category B Data Deliverables requirements of NYSDEC Division of Environmental Remediation Guidance Memorandum 10 (DER-10), A Data Usability Summary Report (DUSR) will be prepared from the ASP Category B Data Deliverable. This will be performed by a third party validator, H&S Environmental, Inc. 1257 Worcester Road #310, Framingham, MA 07101. A qualifications statement for the H&S Environmental is hereto attached as Addendum F, Data Validator Qualifications.

8.0 CITIZEN PARTICIPATION ACTIVITIES

CP activities that have already occurred and are planned during the investigation and remediation of the site under the BCP are identified in chart below: Identification of Citizen Participation Activities. These activities also are identified in the flowchart of the Citizen Participation Plan. The Citizen Participation Plan was developed and approved by the NYSDEC and has been deposited in the document repository for the project. *N*YSDEC will ensure that these CP activities are conducted, with appropriate assistance from the Applicant.

All CP activities are conducted to provide the public with significant information about site findings and planned remedial activities, and some activities announce comment periods and request public input about important draft documents such as the Remedial Work Plan.

All written materials developed for the public will be reviewed and approved by NYSDEC for clarity and accuracy before they are distributed.

NYSDEC and NYSDOH have determined that the 64th Street site poses a significant that to human health and/or the environment; a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying community group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the eligible site.

For more information about the TAG Program and the availability of TAGs, go online at: **www.dec.state.ny.us/website/der/guidance/tag/.**

Identification of Citizen Participation Activities

Required Citizen Participation (CP) Activities	CP Activities Occur at this Point
Application Process:	
• Prepare Brownfield site contact list (BSCL) • Establish document repositories	At time of preparation of application to participate in BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day comment period	When NYSDEC determines that BCP application is complete. The 30-day comment period begins on date of publication of notice in ENB. End date of comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice and notice to the BSCL should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement:	
• Prepare citizen participation (CP) plan	Draft CP Plan must be submitted within 20 days of entering Brownfield Site Cleanup Agreement. CP Plan must be approved by NYSDEC before distribution.
After Remedial Investigation (RI) Work Plan Received:	
• Mail fact sheet to BSCL about proposed RI activities and announcing 30-day public comment period on draft RI Work Plan	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, comment periods will be combined and public notice will include fact sheet. 30-day comment period begins/ends as per dates identified in fact sheet.
After RI Completion:	
• Mail fact sheet to BSCL describing results of RI	Before NYSDEC approves RI Report.
After Remedial Work Plan (RWP) Received:	
• Mail fact sheet to BSCL about proposed RWP and announcing 45-day comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager in consultation with other NYSDEC staff as appropriate)	Before NYSDEC approves RWP. 45-day comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day comment period.
After Approval of RWP:	
• Mail fact sheet to BSCL summarizing upcoming remedial construction	Before the start of remedial construction.
After Remedial Action Completed:	
• Mail fact sheet to BSCL announcing that remedial construction has been completed • Mail fact sheet to BSCL announcing issuance of Certificate of Completion (COC)	At the time NYSDEC approves Final Engineering Report. These two fact sheets should be combined when possible if there is not a delay in issuance of the COC.

9.0 QUALITATIVE EXPOSURE ASSESSMENT

Information obtained from the site investigation will be used to assist in the development of a qualitative exposure assessment for the site. A Qualitative Exposure Assessment is conducted to evaluate the potential human health risks produced by residual contaminants on the subject property. The following list of items will be included in the assessment report.

Site Description
Surrounding Land Use
Sensitive Receptor Survey
Site History
Subsurface Conditions
Site Geology
Site Hydrogeology
Source Area Removal
Subsurface Soil Quality
Groundwater Quality
Chemicals of Concern
Exposure Point Concentrations
Exposure Pathways
Site Specific Minimum Clean-up Goals
Method Assumptions

10.0 REPORTING AND SCHEDULING

Information collected during the site investigation will be submitted in report form following the guidelines in Section 3.10 of the Draft Brownfield Cleanup Program Guide and Section 3.14 of DER 10 and will include the following:

A. Include the remedial investigation data, detailed engineering and geological interpretations of the data, and conclusions appropriate to the site.

B. Compare the site data to Standards, Criteria and Guidelines used by the Department and/or the soil cleanup levels developed for the BCP or pursuant to the Guidance for Tracks 3 and 4.

C. Characterize the nature and extent of contamination which has migrated from the Site.

D. Include an on and off-site exposure assessment, described in 4.6 of this guidance; and.

E. Include a recommendation as to whether the Applicant believes that remediation is required.

After the approval of this RIWP, work will commence at the site approximately 10 days after notification is made to NYSDEC, or as scheduling allows.

ANTICIPATED TIME LINE

April 2009- Submittal of the Draft Remedial Investigation Work Plan for review by NYSDEC.
July 24, 2009 - Submission of the Revised Citizen Participation Plan for review by NYSDEC.
July 27, 2009-Approval of the Revised Citizen Participation Plan for review by NYSDEC.
October 16, 2009- Approval of the Draft Remedial Investigation Work Plan dated April 2009 by NYSDEC
December 15, 2009- Submittal of Final version of the Remedial Investigation Work Plan to NYSDEC
January 11, 2010 – January 29th, 2009 – Site Investigation Work.
April 30, 2010 – Draft Remedial Investigation Report (RIR) to NYSDEC.
April 30, 2010 – May 15, 2010- NYSDEC review of RIR

July 15, 2010 – Submittal of Alternative Analysis/Remedial Work Plan (AA/RWP) to NYSDEC
July 15, 2010-Sept 1, 2010- NYSDEC Review of the AA/RWP.
September 15, 2010 Final approval of the AA/RWP by NYSDEC.

11.0 ON AND OFF SITE FISH AND WILD LIFE ASSESSMENT

As a function of the Brownfield Cleanup program, all applicants must perform an On and Off Site Fish and Wild Life Assessment in accordance with NYSDEC protocols found in Division of Environmental Remediation Technical Guidance Memo 10 (DER-10). DER -10 contains a yes /no Fish and Wild Life Resources Impact Analysis Decision Key attached as Appendix 3C. Site specific answer to these questions determine the level of analysis needed for the specific site to determine if there is the potential of impacts to fish and wild life from the contamination present or suspected at the site. RELIANT has followed the matrices of the analysis decision key and was lead to the specific direction in section 13 of the key to “contact NYSDEC for information regarding endangered species”.

NYSDEC Region 2 was contacted for a list of potential endangered species at the site. It was determined, through conversations with the Division of Fish and Wild Life, that due to the nature of the site (urban, commercial, developed, asphalt capped) that site specific endangered species should not be a concern, but that the final decision on local area endangered species can only be made by a review of the New York Natural Heritage Program database with respect to endangered species in the area of the site. RELIANT corresponded with the NY Natural Heritage Program and requested a search of the Natural Heritage Database for Endangered Area species. As a response to our inquiry, RELIANT received a letter dated February 9, 2009 from Ms. Tara Salerno of information Services for the NY Natural Heritage Program. This letter is hereto attached as Appendix D. In this letter, NYSDEC indicated that “we have no records of known occurrences of rare or state-listed animals of plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of your site”.

12.0 SIGNIFICANT PROJECT PERSONS

The following persons will be involved in this project. Curriculum Vita for these people are included in Appendix E, Personnel Information. Their titles and responsibilities are as follows:

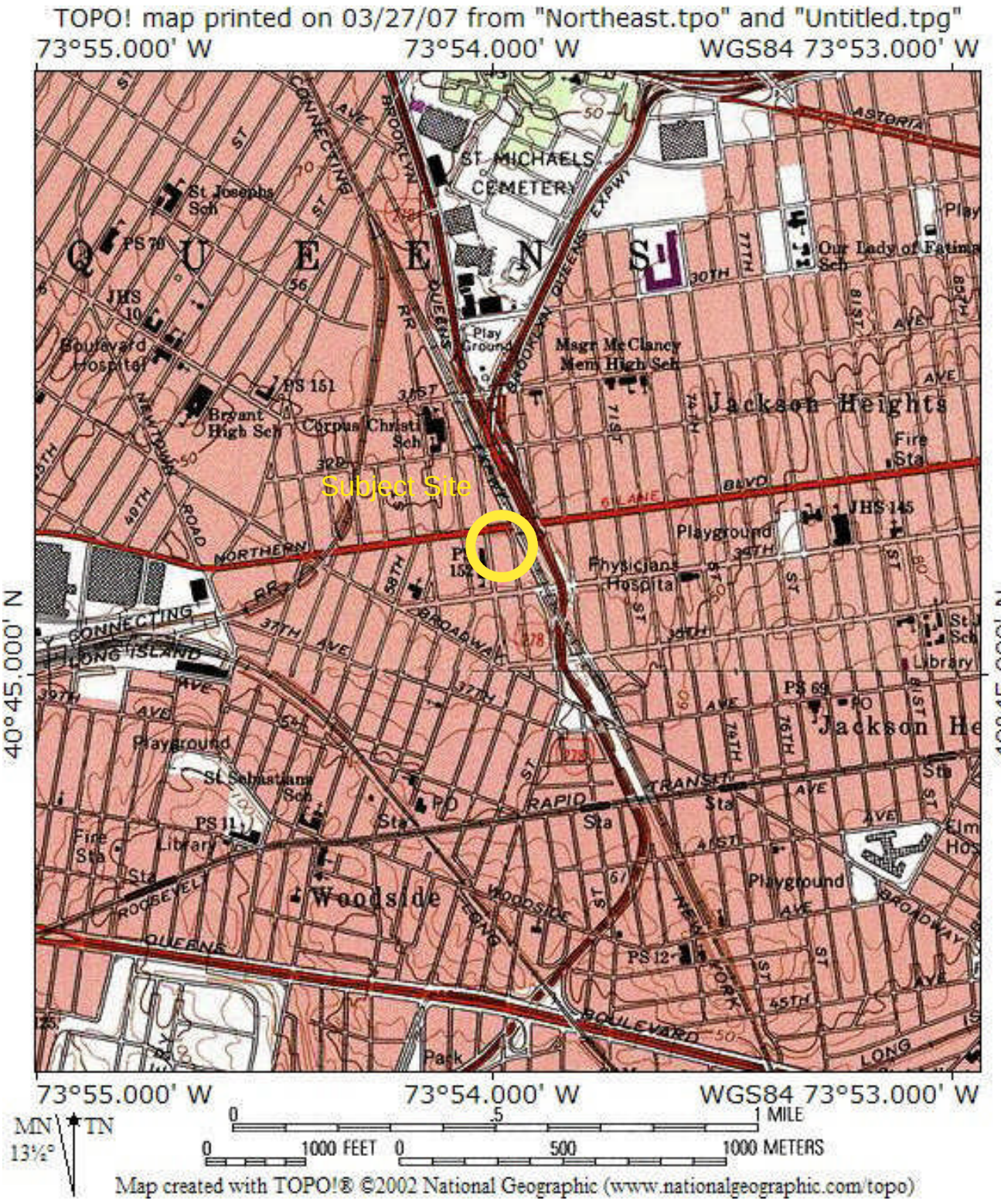
Name	Title	Responsibilities
Christopher P. Tomasello	Project Manager	Coordination, record keeping, personnel
Steven Muller	Project Professional	Project Geologist/Contractor
John Rhodes, P.E.	Project Engineer	QAQC for the project

Reliant Consulting Services, Inc.

APPENDIX – A

FIGURES

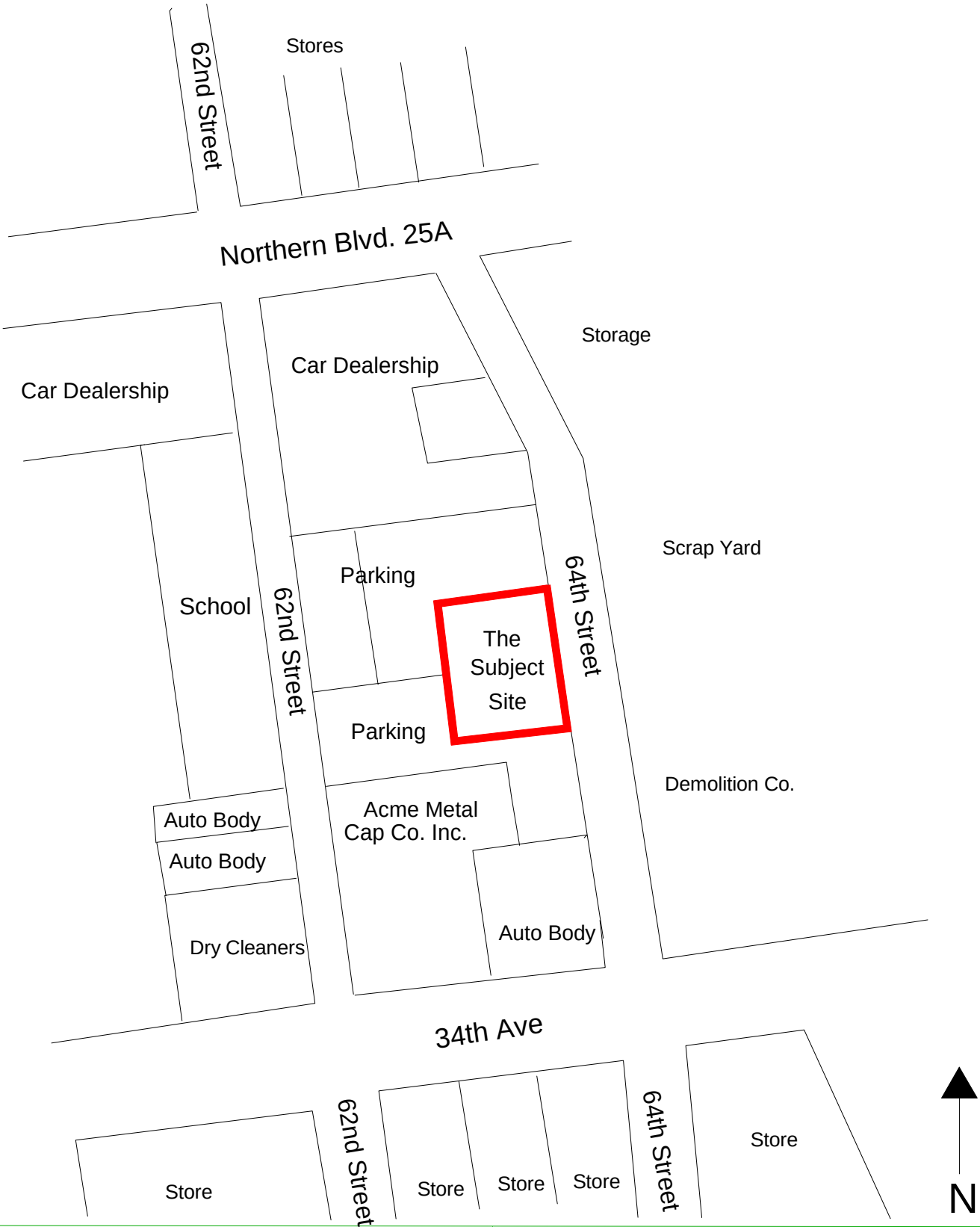
2450 Lakeside Drive, Baldwin, New York 11510
TEL and Fax: 516 632 9707, Cell 516 233 7944



Reliant Consulting Services, Inc.
2450 Lakeside Drive
Baldwin, NY 11510
TEL/FAX: 516-632-9707 **cell: 516-233-7944**

Figure 1 Location Map

33-32 64th Street
Queens, New York 11377



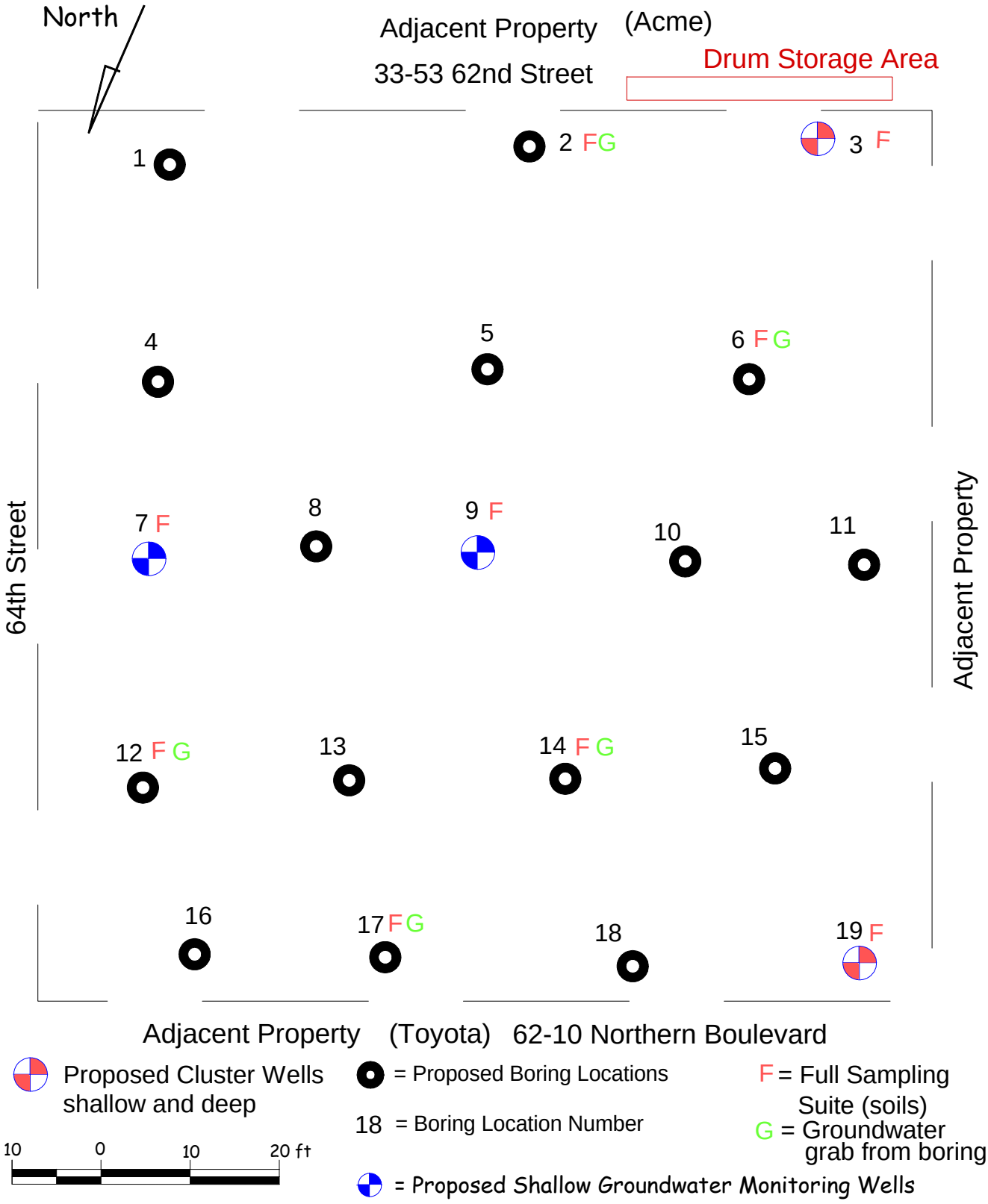
Reliant Consulting Services, Inc.
2450 Lakeside Drive
Baldwin NY 11510
Office/Fax 516-632-9707 Field 516-233-7944

Figure - 2

Surrounding Land Use Map

33-54 62nd Street

Queens, New York 11377



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2450 Lakeside Drive
Baldwin NY 11510
Office/Fax 516-632-9707
Field 516-233-7944

11/14/08

FIGURE - 3

PROPOSED BORING AND GROUNDWATER MONITORING WELL LOCATION MAP

33-32 64th Street ,Queens, New York 11377

Reliant Consulting Services, Inc.

APPENDIX – B

GLOSSARY OF REMEDIATION TERMS

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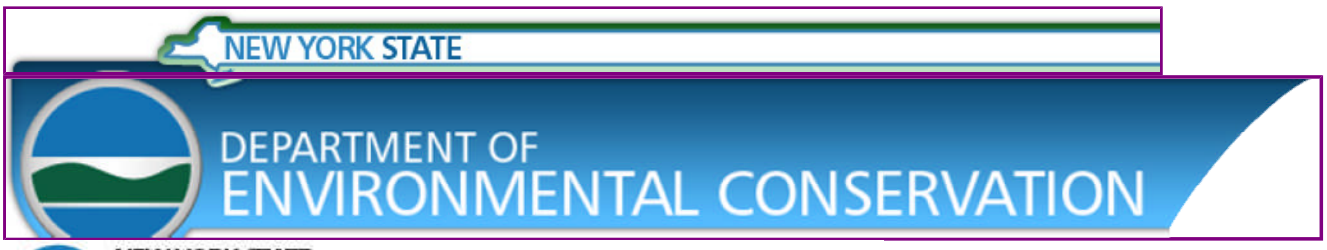

NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

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Home » Chemical & Pollution Control » Environmental Cleanup & Brownfields » Environmental Site Database Search » Glossary - Site Remediation Terms

Skip to main navigation

Glossary - Site Remediation Terms

The record for each site listed is composed of a series of fields that contain specific information about each site. To help the reader interpret the information provided in this on-line data base, the alphabetical list below gives definitions and descriptions for the fields.

Remediation Search Field Terms

Term	Definition
Address	The actual street listing associated with the Remediation Site. With city and zip, constitutes the complete physical address for the site.
Assessment of Environmental Problems	Summary of events and/or conditions at the Remediation Site that either have impacted the environment or pose an environmental threat.
Assessment of Health Problems	Summary of events and/or conditions at the Remediation Site that either have impacted or pose a threat to public health.
City	The actual municipal entity (according to zip code) where the Remediation Site is located. With street address and zip, constitutes the complete physical address for the site.
Class Code	Statutory or Administrative Classification of an Inactive Hazardous Waste Site - represents both a measure of threat to the environment and/or public health posed by existing site conditions, and the status of remedial efforts at the site.
Confirmed Hazardous Waste Disposal	Identifies specific hazardous waste materials confirmed to be present at the Remediation Site.
County	The particular County where the Remediation Site is located. New York State has sixty-two Counties.
Current Owner Name	Currently known or reported owner or owners of the Remediation Site.
Current Owner Address	Known or reported address of the current owner or owners of the Remediation Site.
Engineering Control (EC)	Means any physical barrier or method employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term

	effectiveness of a remedial program, or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.
EPA ID	The set of alpha-numeric characters assigned to a given parcel of property by the United States Environmental Protection Agency (USEPA or EPA) for consideration under the Federal Superfund Program. The EPA Id for the Remediation Site serves as a cross-reference between the Federal Superfund and State Superfund Programs.
Hazardous Waste Disposal Period	Known or reported time when wastes were being deposited at the Remediation Site.
Institutional Control (IC)	Means any non-physical means of enforcing a restriction on the use of real property that limits human and environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to a remedial site.
Latitude	Geographic position of the Remediation Site with respect to the Earth's Equator; expressed in degrees, minutes, and seconds. Used together with a measurement of longitude to identify a specific location on the earth's surface.
Longitude	Geographic position of the Remediation Site with respect to the Prime Meridian; expressed in degrees, minutes, and seconds. Used together with a measurement of latitude to identify a specific location on the earth's surface.
Oversight Document	Means any document the Department issues pursuant to each Remedial Program to define the role of a person participating in the investigation and/or remediation of a site or area(s) of concern. Examples for the various programs are: BCP (after approval of the BCP application by Department) - Brownfield Site Cleanup Agreement. ERP (after approval of the ERP application by Department) - State Assistance Contract. Federal Superfund Sites - Federal Consent Decrees, Administrative Orders on Consent or Unilateral Orders issued pursuant to CERCLA. Response Program - Order on Consent, or Stipulation pursuant to Article 12 of the Navigation Law (and the ECL). SSF Program - Administrative Consent Order, Record of Decision. VCP (after approval of the VCP application by Department) - Voluntary Cleanup Agreement. RCRA Corrective Action Sites- Federal Consent Decrees, Administrative Orders on Consent or permit conditions issued pursuant to RCRA.
Owner(s) during disposal	Known or reported owner or owners of the Remediation Site during the hazardous waste disposal period.
Property Owner	Means, for purposes of an IC/EC certification, the actual owner of a property. If the site has multiple properties with different owners, the Department requires that the owners be represented by a single representative to sign the IC/EC Certification.
Qualified Environmental Professional (QEP)	Means a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases to the surface or subsurface of a property or off-site areas, sufficient to meet the objectives and performance factors for the areas of practice identified by this Part. Such a person must:

	- hold a current professional engineer's or a professional geologist's license or registration issued by the State or another state, and have the equivalent of three years of full-time relevant experience in site investigation and remediation of the type detailed in this Part; or - be a site remediation professional licensed or certified by the federal government, a state or a recognized accrediting agency, to perform investigation or remediation tasks consistent with Department guidance, and have the equivalent of three years of full-time relevant experience.
Qualitative Exposure Assessment	Means a qualitative assessment to determine the route, intensity, frequency, and duration of actual or potential exposures of humans and/or fish and wildlife to contaminants.
Quantity	Known or reported amount of a specific hazardous waste material confirmed to be present at the Remediation Site.
Region	Geographic area of New York State where the Remediation Site is located. Nine Regions have been established by the NYSDEC. (The reader is directed to the NYSDEC Regional Office Map and Directory that shows the location of each Regional Office, illustrates the area of the State served by each Regional Office, and provides an appropriate telephone number and address for each Regional Office.)
Remedial Party	Means a person implementing a remedial program at a remedial site pursuant to an order, agreement or State assistance contract with the Department.
Site Code	A six digit number, sometimes followed by a letter, that uniquely identifies each Inactive Hazardous Waste Disposal Site. Site Codes are assigned by the NYSDEC.
Site Description	Details about the Remediation Site
Site Management (SM)	Means the activities undertaken as the last phase of the remedial program at a site, which continue after a Certificate of Completion is issued. Site management is conducted in accordance with a site management plan, which identifies and implements the IC/ECs required for a site, as well as any necessary monitoring and/or operation and maintenance of the remedy.
Site Management Plan (SMP)	Means a document which details the steps necessary to assure that the institutional and engineering controls required for a site are in-place, and any physical components of the remedy are operated, maintained and monitored to assure their continued effectiveness, developed pursuant to Section 6 of DER-10, Technical Guidance for Site Investigation and Remediation.
Site Name	The name assigned by the NYSDEC to an individual Inactive Hazardous Waste Disposal Site.
Site Owner	Means the actual owner of a site. If the site has multiple owners of multiple properties with ICs and/or ECs, the Department requires that the owners designate a single representative for IC/EC Certification activities.
Site Type	The overall physical nature of the disposal area or features of the Remediation Site
Zip	The five digit code assigned by the United States Postal Service for a particular address (in this case, one associated with the Remediation Site). With street address and city, constitutes the complete physical address for the site.

Common terms and acronyms that may appear in a Site Record include:

Definitions of Terms and Acronyms

Acronym	Description
6NYCRR	Title 6 of the Official Compilation of Codes, Rules and Regulations.
ACT	Actual, used to describe status of tracking dates.
AG	Attorney General of the State of New York
ARAR	Applicable or Relevant and Appropriate Requirements
ATSDR	Federal Agency for Toxic Substances and Disease Registry.
BCP	Brownfield Cleanup Program

BHC	Benzene hexachloride (synonymous with 1,2,3,4,5,6-hexachlorocyclohexane; gammexane; and hexachlorocyclohexane)
BTX	Benzene, toluene, and xylene
C&D	Construction and Demolition Debris
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980, also known as Federal Superfund
C.O.	Consent Order, or Order on Consent, an enforceable order of the New York State Commissioner of Environmental Conservation
COC	Certificate of Completion
DEC	New York State Department of Environmental Conservation
DEE	Division of Environmental Enforcement, DEC
DER	Division of Environmental Remediation, DEC
DER-10	DER Technical Guidance for Site Investigation and Remediation
DOE	United States Department of Energy
DOH	New York State Department of Health
DOT	New York State Department of Transportation
DPW	Department of Public Works (city, village, county)
DSHM	Division of Solid and Hazardous Materials, DEC
ECDEP	Erie County Department of Environment and Planning
EC	Engineering Control (see definition section)
ECL	Environmental Conservation Law
EMC	Environmental Management Council (advisory group at the county level)
EPA	United States Environmental Protection Agency (synonymous with USEPA)
EP Toxicity	A chemical test used to measure the leaching potential of certain hazardous substances
EQBA	New York State Environmental Quality Bond Act of 1986
ERP	Environmental Restoration Program
FER	Final Engineering Report
FSF	Federal Superfund (see CERCLA)
GW	Groundwater
HRS	Hazard Ranking System, a ranking system used by the EPA to establish the National Priorities List for federal Superfund cleanups
IC	Institutional Control (see definition section)
IC/EC	Institutional/Engineering Controls
IGP	Internal Guidance Procedure
IRM	Interim Remedial Measure, a remedial action that can be conducted without extensive investigation and evaluation; may be used for both emergency and non-emergency situations
MCL	Maximum Contaminant Limit
MEK	Methyl ethyl ketone (synonymous with 2-butanone, ethyl methyl ketone, and methyl acetone
MIBK	Methyl isobutyl ketone (synonymous with 4-methyl-2-pentanone, hexone, isobutyl methyl ketone, and isopropyl-acetone)
MW	Monitoring Well, a well used to observe groundwater conditions
MTA	Metropolitan Transportation Authority of New York City
MTBE	Methyl tert-butyl ether (synonymous with methyl t-butyl ether; methyl-1,1-dimethyl ethyl ether; t-butyl methy ether; tert-butyl methyl ether; and 2-methoxy-2-methylpropane)
NFTA	Niagara Frontier Transportation Authority

NPL	National Priorities List, used by the federal Superfund to designate inactive hazardous waste sites eligible for Federal Superfund cleanup
NYCDOS	New York City Department of Sanitation
NYCRR	New York Codes, Rules and Regulations, the official compilation of state regulations. Environmental regulations are cited as 6NYCRR.
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OGS	New York State Office of General Services
O&M	Operation and Maintenance
OU	Operational Unit
Part 212	6NYCRR Part 212, New York State Regulations for Air General Emission Sources
Part 360	6NYCRR Part 360, New York State Regulations for Solid Waste Facilities
Part 364	6NYCRR Part 364, New York State Regulations for Solid Waste Transportation
Part 371	6NYCRR Part 371, New York State Regulations regarding Identification of Hazardous Wastes
Part 373	6NYCRR Part 373, New York State Regulations for Hazardous Waste Facilities
Part 375	6NYCRR Part 375, New York State Regulations for Environmental Remediation Programs
Part 703	6NYCRR Part 703, New York State Regulations regarding Groundwater
P. A.	Preliminary Assessment, the first stage in evaluating and classifying an Remediation Site for Federal Superfund eligibility
PAHs	Polynuclear (or polycyclic) aromatic hydrocarbons, organic chemicals formed during the combustion of fossil fuel. A partial list of PAH compounds includes: benz[a]anthracene; benzo[a] pyrene; benzo[b]fluoranthene; benzo[ghi]perylene; benzo[j]fluoranthene; benzo[k]fluoranthene; dibenz[a,h]anthracene; fluoranthene; indeno[1,2,3-cd]pyrene; and pyrene.
PCBs	Polychlorinated biphenyls (synonymous with Aroclor; Chlorextol; Dykanol; Pyranol; and other Trade names), a group of synthetic organic chlorinated compounds.
PCE	1,1,2,2-tetrachloroethylene (synonymous with carbon bichloride; carbon dichloride; ethylene tetrachloride; perchloroethylene; perclene; tetrachloroethene; and tetrachloroethylene).
P.E.	Professional Engineer - An individual or firm licensed, or otherwise authorized under Article 145 of the Education Law of the State of New York, to practice engineering.
Perc	Another term for PCE
Phase I	A preliminary investigation conducted by DEC of site location and history
Phase II	A preliminary investigation conducted by DEC of site conditions that may include evaluations of the groundwater, surface water and soils at and near the site
PLN	Planned, used to describe status of tracking dates.
PM	DER Project Manager
PNAs	Polynuclear aromatic hydrocarbons, a class of organic compounds formed during the combustion of fossil fuel (see PAHs)
POTW	Publicly Owned Treatment Works, local facilities for treatment of sewage waste
ppb	Abbreviation for parts per billion, used to express contaminant concentration(1 ppb equals 1 part out of 1,000,000,000 parts)
ppm	Parts per million (1 ppm equals 1 part out of 1,000,000 parts)
ppt	Parts per trillion (1 ppt equals 1 part out of 1,000,000,000,000 parts)
PR	Periodic Review
PRAP	Proposed Remedial Action Plan, a publicly-available document prepared by DEC to lay out steps for site remediation
PRDCF	Periodic Review Data Collection Form

PRE	Periodic Review Evaluation
PR End Date	Date completed PR Evaluation is approved by the Project Manager's Supervisor
PRP	Potentially Responsible Party - a person, firm or unit of government that may be financially responsible for site remediation
PRR - Periodic Review Report	Report produced by RP or site ownder and sent to site PM. The report is to document status of the site, including certification of IC/ECs.
PRR 45-Day Reminder Notice	Notice sent to RP or site owner requesting PRR and IC/EC certification package which are used by site PM to complete a site PR evaluation
PRR Response Letter	Letter sent by site PM to RP or site owner detailing accepting or not accepting PRR
PR Start Date	Due date for the Periodic Review Report (includes the IC/EC Certification)
PSA	Preliminary Site Assessment, a publicly-available document prepared by DEC to document site conditions and the initial site investigation to determine State Superfund eligibility
QEP	Qualified Environmental Professional (see definition section)
RA	Remedial Action
RAMP	Remedial Action Management Plan
RCRA	Federal Resource Conservation and Recovery Act, which is administered in New York State by DEC's Division of Solid and Hazardous Materials
RD/RA	Remedial Design / Remedial Action, a publicly-available technical document prepared by DEC to report the Remedial Investigation and decision factors for remediation; summarized in the Proposed Remedial Action Plan
RI/FS	Remedial Investigation / Feasibility Study, a publicly-available document prepared by DEC to document the investigation determining the nature and extent of contamination at the site and feasible methods for remediation
ROD	Record of Decision, a publicly-available document prepared by DEC to document the department's decision on how the site will be handled
RP	Responsible Party, designated by DEC as having at least some financial responsibility for site remediation
RTK	Community Right To Know program, created under NYS Executive Order No. 33
SARA	Federal Superfund Amendments Reauthorization Act
S.I.	Site Investigation (USEPA)
Site Closeout	Closeout occurs when all investigation and/or remediation has been completed, and the DER no longer has any oversight responsibility for the site.
SM End Date	Date of letter approving closeout (termination) of Site Management.
SM Start Date	Date the COC is issued. COC is issued when RA of the final OU is complete.
SPDES	State Pollutant Discharge and Elimination System, New York's water pollution control permit program
SSF	State Superfund
STP	Sewage Treatment Plant
SW	Surface Water
SWMU	Solid Waste Management Unit
SVOCs	Semi-volatile Organic Compounds, a class of chemicals whose presence suggests the presence of hazardous waste; since some of these chemicals occur naturally, their presence is not conclusive evidence of contamination

TCA	1,1,1-trichloroethane (synonymous with chloroethene; methyl chloroform; methyltrichloromethane; and alpha-trichloroethane)
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin (synonymous with 2,3,7,8-TCDD and dioxin)
TCDF	2,3,7,8-tetrachlorodibenzofuran (synonymous with 2,3,7,8-TCDF)
TCE	Trichloroethylene (synonymous with acetylene trichloride; ethylene trichloride; trichloroethene; 1,1 -dichloro-2-chloroethylene; and 1,1,2-trichloroethylene)
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
THC	Total Halogenated Compounds
Title 3	The section of the Environmental Quality Bond Act of 1986 that authorizes Grants to Municipalities
TOCs	Total Organic Compounds, a rough indicator of the toxicity of contaminants; many organic compounds occur naturally
TSDF	Hazardous waste Treatment, Storage or Disposal Facility
USEPA	United States Environmental Protection Agency (synonymous with EPA)
USGS	United States Geological Survey
VOCs	Volatile Organic Compounds
WWTP	Waste Water Treatment Plant

- Contact for this Page:
- NYS DEC
  Environmental
  Remediation
  625 Broadway
  Albany, NY 12233-7012
  518-402-9764
  email us

Reliant Consulting Services, Inc.

APPENDIX – C

HEALTH & SAFETY PLAN

2450 Lakeside Drive, Baldwin, New York 11510
TEL and Fax: 516 632 9707, Cell 516 233 7944

Reliant Consulting Services, Inc.

DATE: November 14, 2008

SITE LOCATION: D & E, 33-32 64th Street, Woodside, New York

POTENTIAL HAZARDS:

CHEMICAL HAZARDS:

Chlorinated Hydrocarbons (see MSDS sheets attached). Environmental Contaminants found at the site during past environmental investigations, the source of which is unknown at this time. Chlorinated Hydrocarbon constituents such as Tetrachloroethene (PCE) and Trichloroethene (TCE) have been detected in the soil and the groundwater at the subject site.

Nitric Acid. (see MSDS sheets attached). For the purpose of preserving samples, the laboratory that provides the sample jars typically puts a solution of diluted preservative in them in the form of nitric acid. To insure that this solution does not come in contact with the field personnel, rubber gloves will be required at all times.

PHYSICAL HAZARDS:

Slips, trips, falls, heavy equipment, excavation hazards, heat and cold exposure, noise, vibration.

Topography: Generally flat with no obvious slope.

Weather Conditions:

ONSITE ORGANIZATION AND COORDINATION:

The following personnel are designated to carry out the stated job functions on site.

PROJECT TEAM LEADER:	Christopher Tomasello (516) 233-7944
SITE SAFETY OFFICER:	Christopher Tomasello
SECURITY OFFICER:	Christopher Tomasello
RECORDKEEPER:	Steven Muller (516) 395-5957
FIELD TEAM LEADER:	Steven Muller
FIELD TEAM MEMBERS:	
STATE ENVIRONMENTAL:	Mr. Javier Perez, NYSDEC (518)-402-9774

2450 Lakeside Drive, Baldwin, New York 11510
TEL and Fax: 516 632 9707, Cell 516 233 7944

STATE HEALTH: Mr. Christopher Doroski, NYSDOH
518-402-7860

All personnel arriving or departing the site should log in and out with the Record keeper. All activities on site must be cleared through the Project Team Leader.

ONSITE CONTROL

Richard Levato has been designated to coordinate access control and security on site. A safe perimeter has been established at the property line.

No unauthorized person should be within this area.

Control boundaries have been established, and the Exclusion Zone, Contamination Reduction Zone, and Support Zone have been identified and designated as follows:

SITE OPERATIONS:

The work shall be divided into work zones to be determined. The Exclusion Zone area shall be the immediate area of the drill rig radiating out 10 feet from the back of the drill rig. Contamination reduction zone shall be an additional 20 feet in diameter. Support zones shall be the area beyond that. All zones to be fully delineated with caution tape and Traffic cones.

HAZARD EVALUATION:

The following substance(s) are contaminants that have been confirmed to be present on site, via the sampling and testing of soil and groundwater. The primary hazards of each are identified.

SUBSTANCES AND PRIMARY HAZARDS:

CHLORINATED HYDROCARBONS

Symptoms Following Exposure: Vapor can affect central nervous system and cause anesthesia. Liquid may irritate skin after prolonged contact. May irritate eyes but causes no injury.

NITRIC ACID

Symptoms Following Exposure: Vapors irritate eyes and respiratory tract; lung injury may not become apparent for several hours following exposure. Liquid may cause severe burns to eyes and skin.

MSDS Sheets are attached on the following pages.

The following additional hazards are expected on site:

Slippery working surfaces- from weather conditions
Tripping-from equipment and work area inconsistencies
Electrical-from underground utilities and overhead wires
Heavy Equipment- from support vehicles and the drill rig

Material Safety Data Sheets for the involved substance(s) are available on site and will be retained at the command post and be available for medical and site personnel upon request, and are attached at the rear of the document for review and use.

PERSONAL PROTECTIVE EQUIPMENT:

Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

Job Function: Sampling/Monitoring/Drilling/ Well Installation

Level of Protection: Level D. Work uniform, steel tip boots, hard hat, safety glasses, work cloths, work gloves or rubber (latex) gloves as needed, hearing protection. A Class B fire extinguisher must be present in the exclusion zone.

Air-purifying respirators are not required for these outlined tasks.

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER AND THE PROJECT TEAM LEADER.

ON SITE WORK PLANS:

Work party(s) consisting of persons will perform the following tasks:

Field Team Leader	Steven Muller
Work Party #1	JC Broderick Employees
Rescue Team	New York City Fire Department
Decontamination Team	NA-self decontamination is appropriate

The work party(s) must be briefed on the contents of this plan, and any revisions to the existing plan, at a safety meeting to be held prior to the start of each shift.

COMMUNICATION PROCEDURES:

Verbal communication, followed by Nextel radios, and cell phones shall be designated as the methods of communication for personnel in the Exclusion Zone.

"Red Alert" is the emergency signal to indicate that all personnel should leave the Exclusion Zone.

The following standard hand signals will be used **in high noise areas, or in cases of communications failure**:

Hand gripping throat	can't breathe
Grip partner's wrist or both hands around waist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	OK, I am all right, I understand
Thumbs down	No, negative

DECONTAMINATION PROCEDURES:

Personnel and equipment leaving the Exclusion Zone shall be thoroughly decontaminated or disposed of properly. The standard level D decontamination protocol shall be used.

A wash and rinse decontamination station shall be constructed on the site for any items to be removed or reused. This station shall consist of 5 gallon buckets, and brushes and shall be located in the contamination reduction zone, just out side of the Exclusion Zone. Decontamination reagents will be a mild alkaline detergent and water. All used disposable sampling items and PPE shall be

placed in the appropriate containers for disposal. Decontamination water must be properly disposed of.

EMERGENCY MEDICAL CARE:

The closest health care facility is NY Hospital Medical Center of Queens located at 56-45 Main street in Jackson Heights, NY (at 56th Street). The telephone number is (718)424-2788. A map with the route to the hospital is attached.

The directions to NY Hospital Medical Center of Queens from the Subject Site is as follows:

1. Start out going north on 64th street to Northern Blvd
2. Turn Right onto Northern Blvd/25A.
3. Turn Left onto 68th Street
4. 68th Street becomes the Brooklyn-Queens Expressway east
5. Brooklyn-Queens Expressway east becomes Astoria Boulevard
6. Merge onto the Grand Central Parkway toward Eastern Long Island
7. Take Grand Central Parkway to exit 10 E I-495 Long Island Expressway east
8. Take I-495 to exit 23 toward Main Street
9. Slight turn onto Horace Harding Expressway (LIE Service Road)
10. Slight turn onto 61st Road
11. End at 56-45 Main Street.

FIRST-AID EQUIPMENT IS AVAILABLE AT THE DECONTAMINATION AREA:

First-aid kit
Emergency Eyewash Station

EMERGENCY MEDICAL INFORMATION FOR SUBSTANCE PRESENT:

Substance Exposure Symptoms First-Aid Instructions

CHLORINATED HYDROCARBONS

General Description
A clear colorless volatile liquid having an ether-like odor. Noncombustible. Insoluble in water. Vapors heavier than air. Used as dry cleaning solvent, a degreasing solvent, a drying agent for metals, and in the manufacture of other chemicals.

Symptoms Following Exposure: Vapor can affect central nervous system and cause anesthesia. Liquid may irritate skin after prolonged contact. May irritate eyes but causes no injury.

Treatment of Exposure: EYES: First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center.
Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.
SKIN: IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. IMMEDIATELY call a hospital or poison control center even if no symptoms (such as redness or irritation) develop. IMMEDIATELY
transport the victim to a hospital for treatment after washing the affected areas.
INHALATION: IMMEDIATELY leave the contaminated area; take deep breaths of fresh air.
IMMEDIATELY call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing.
INGESTION: DO NOT INDUCE VOMITING. Corrosive chemicals will destroy the membranes of the mouth, throat, and esophagus and, in addition, have a high risk of being aspirated into the victim's lungs during vomiting which increases the medical problems. If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. Transport the victim IMMEDIATELY to a hospital.
OTHER: Since this chemical is a known or suspected carcinogen you should contact a physician for advice regarding the possible long term health effects and potential recommendation for medical monitoring. Recommendations from the physician will depend upon the specific compound, its chemical, physical and
toxicity properties, the exposure level, length of exposure, and the route of exposure. (NTP, 1992)

NITRIC ACID

Symptoms Following Exposure: Vapors irritate eyes and respiratory tract; lung injury may not become apparent for several hours following exposure. Liquid may cause severe burns to eyes and skin.

Treatment of Exposure: INHALATION: remove to fresh air, administer artificial respiration if required. INGESTION: drink large volumes of water; do NOT induce vomiting. SKIN OR EYES: flush with water for at least 15 min.

LIST OF EMERGENCY PHONE NUMBERS:

Agency/Facility	Phone #
Police	911
Fire	911
Hospital (NY Hospital medical Center)	(718) 424-2788.
EMS	911

EMERGENCY PROCEDURES:

Onsite personnel will use the following standard emergency procedures. The Site Safety Officer shall be notified of any onsite emergencies and be responsible for ensuring that the appropriate procedures are followed.

PERSONNEL INJURY IN THE EXCLUSION ZONE:

Upon notification of an injury in the Exclusion Zone, the designated emergency signal “RED ALERT” shall be sounded. The rescue team will be initiated by calling “911”. The Site Safety Officer and the Project Team Leader should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement off of the site. Contact should be made for an ambulance and with the designated medical facility. No persons shall reenter the Exclusion Zone until the cause of the injury or symptoms are determined.

PERSONNEL INJURY IN THE SUPPORT ZONE:

Upon notification of injury in the Support Zone, the Project Team Leader and Site Safety Officer will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operations may continue. The appropriate first aid measures, and necessary

follow-up as stated above, will be initiated. Activities on site will stop until the added risk is removed or minimized.

FIRE/EXPLOSION:

Upon notification of a fire or explosion on site, the designated emergency signal shall be sounded and all site personnel assembled at the decontamination line. The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

PERSONAL PROTECTIVE EQUIPMENT FAILURE:

If any site worker experiences a failure or altercation of protective equipment that affects the protection factors, that person and his/her buddy shall immediately leave the Exclusion Zone. Reentry shall not be permitted until the equipment has been repaired or replaced.

OTHER EQUIPMENT FAILURE:

If any other equipment on site fails to operate properly, the Project Team Leader and the Site Safety Officer shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan tasks, all personnel shall leave the Exclusion Zone until the situation is evaluated and appropriate actions taken.

In all situations, when an onsite emergency results in evacuation of the Exclusion Zone, personnel shall not reenter until:

The conditions resulting in the emergency have been corrected.
The hazards have been reassessed.
The Site Safety Plan has been reviewed.
Site personnel have been briefed on any changes in the Site Safety Plan.

PERSONAL MONITORING:

The following personal monitoring will be in effect on site:

No personnel monitoring is expected to be required. Photo Ionization Detector will be on site to monitor ambient concentrations periodically.

MEDICAL MONITORING:

All site personnel will have completed and annual physical prior to entering the contamination reduction zone and the exclusion zone. No additional medical monitoring is anticipated.

All site personnel have read the above plan and are familiar with its provisions.

Site Safety Officer X_____

Project Team Leader X_____

Other Site Personnel

Name/Date	Affiliation
X_____	X_____
X_____	X_____
X_____	X_____
X_____	X_____
X_____	X_____
X_____	X_____
X_____	X_____

MAPQUEST

Total Time: 12 minutes **Total Distance: 6.68 miles**

A: 3332 64th St, Woodside, NY 11377

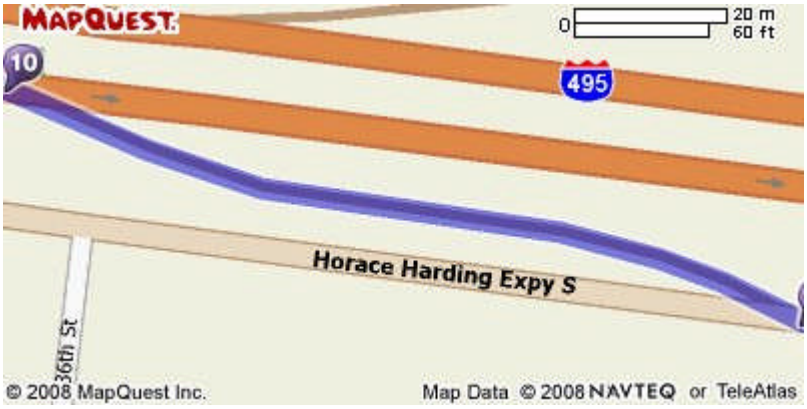
START **1:** Start out going NORTH on 64TH ST toward NORTHERN BLVD/NY-25A. 0.0 mi

2: Turn RIGHT onto NORTHERN BLVD/NY-25A. 0.1 mi

3: Turn LEFT onto 68TH ST. 0.4 mi

	4: 68TH ST becomes BROOKLYN QUEENS EXPY E.	0.5 mi

	5: BROOKLYN QUEENS EXPY E becomes ASTORIA BLVD.	0.1 mi
	6: Merge onto GRAND CENTRAL PKWY E via the ramp on the LEFT toward EASTERN L. I..	3.6 mi
EXIT	**7:** Take the I-495/LONG IS EXPWY exit, EXIT 10W-E, toward MANHATTAN/EASTERN LONG IS.	0.1 mi
EXIT	**8:** Take the I-495 E exit, EXIT 10E, on the LEFT toward EASTERN LONG IS/RIVERHEAD.	0.4 mi
EAST 495	**9:** Merge onto I-495 E/LONG ISLAND EXPY via the exit on the LEFT.	0.9 mi
EXIT	**10:** Take EXIT 23 toward MAIN ST.	0.1 mi



11: Turn SLIGHT LEFT onto HORACE HARDING EXPY S. 0.1 mi

12: Turn SLIGHT LEFT onto 61ST RD. 0.1 mi

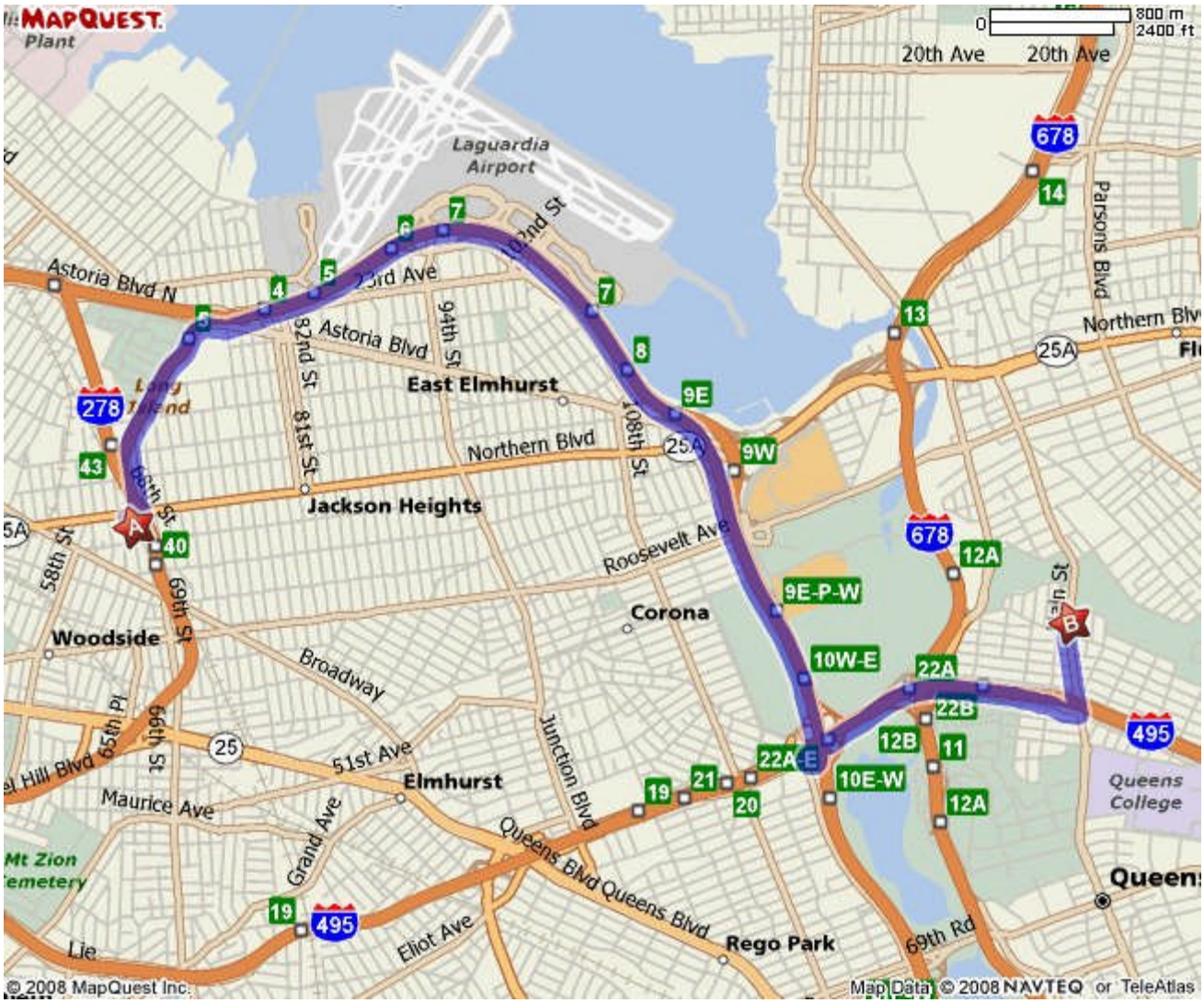
13: Turn LEFT onto MAIN ST. 0.4 mi

END **14:** End at 5645 Main St Flushing, NY 11355-5045

B: 5645 Main St, Flushing, NY 11355-5045

Total Time: 12 minutes Total Distance: 6.68 miles

Call **1-800-FREE411** (1-800-373-3411) and get MapQuest Directions via text message.



CAMEO Chemicals

Chemical Data Sheet

Chemical Name: PERCHLOROETHYLENE

Section 1 - Chemical Identifiers

CAS Number	UN/NA Number	STCC Number	CHRIS Code
127-18-4	1897	4925202	TTE

DOT Hazard Label: POISON

NFPA 704

Blue - Health Hazard - 2 - Hazardous - use breathing apparatus
Red - Flammability - 0 - Will not burn
Yellow - Reactivity - 0 - Normally stable
White - Special -

General Description

A clear colorless volatile liquid having an ether-like odor. Noncombustible. Insoluble in water. Vapors heavier than air. Density approximately 13.5 lb / gal. Used as dry cleaning solvent, a degreasing solvent, a drying agent for metals, and in the manufacture of other chemicals. (NOAA Reactivity 2007)

Section 2 - Hazards

Reactivity Alerts

none

Air & Water Reactions

Insoluble in water.

Fire Hazard

Special Hazards of Combustion Products: Toxic, irritating gases may be generated in fires. (USCG, 1999)

Health Hazard

Vapor can affect central nervous system and cause anesthesia. Liquid may irritate skin after prolonged contact. May irritate eyes but causes no injury. (USCG, 1999)

Reactivity Profile

PERCHLOROETHYLENE decomposes upon heating and exposure to UV light to give phosgene and HCl. Reacts violently with finely dispersed light metals (aluminum) and zinc. [Handling Chemicals Safely 1980 p. 887]. Mixtures with finely divided barium or lithium metal can detonate [ASESB Pot. Incid. 39. 1968; Chem. Eng. News 46(9):38. 1968]. Decomposes very slowly in water to form trichloroacetic acid and hydrochloric

acid (NOAA REACTIVITY, 2007)

Belongs to reactive group(s)

- Halogenated Organic Compounds

Section 3 - Response Recommendations

Fire Fighting

Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.) (© AAR, 2003)

Non-Fire Response

Keep material out of water sources and sewers. Build dikes to contain flow as necessary. Attempt to stop leak if without undue personnel hazard. Apply water spray or mist to knock down vapors. Vapor knockdown water is corrosive or toxic and should be diked for containment. Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Absorb bulk liquid with fly ash or cement powder. Water spill: If dissolved, in region of 10 ppm or greater concentration, apply activated carbon at ten times the spilled amount. Remove trapped material with suction hoses. (© AAR, 2003)

Protective Clothing

Skin: Wear appropriate personal protective clothing to prevent skin contact.

Eyes: Wear appropriate eye protection to prevent eye contact.

Wash skin: The worker should immediately wash the skin when it becomes contaminated.

Remove: Work clothing that becomes wet or significantly contaminated should be removed and replaced.

Change: No recommendation is made specifying the need for the worker to change clothing after the work shift.

Provide: Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substance; this is irrespective of the recommendation involving the wearing of eye protection. Facilities for quickly drenching the body should be provided within the immediate work area for emergency use where there is a possibility of exposure. [Note: It is intended that these facilities provide a sufficient quantity or flow of water to quickly remove the substance from any body areas likely to be exposed. The actual determination of what constitutes an adequate quick drench facility depends on the specific circumstances. In certain instances, a deluge shower should be readily available, whereas in others, the availability of water from a sink or hose could be considered adequate.] (NIOSH, 2003)

First Aid

EYES: First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

SKIN: IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. IMMEDIATELY call a hospital

or poison control center even if no symptoms (such as redness or irritation) develop. IMMEDIATELY transport the victim to a hospital for treatment after washing the affected areas.

INHALATION: IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. IMMEDIATELY call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing.

INGESTION: DO NOT INDUCE VOMITING. Corrosive chemicals will destroy the membranes of the mouth, throat, and esophagus and, in addition, have a high risk of being aspirated into the victim's lungs during vomiting which increases the medical problems. If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. Transport the victim IMMEDIATELY to a hospital.

OTHER: Since this chemical is a known or suspected carcinogen you should contact a physician for advice regarding the possible long term health effects and potential recommendation for medical monitoring. Recommendations from the physician will depend upon the specific compound, its chemical, physical and toxicity properties, the exposure level, length of exposure, and the route of exposure. (NTP, 1992)

Section 4 - Physical Properties

Molecular Formula: C2Cl4

Flash Point: data unavailable

Lower Explosive Limit: data unavailable

Upper Explosive Limit: data unavailable

Auto Ignition Temperature: Not flammable (USCG, 1999)

Melting Point: -2.0 ° F (NTP, 1992)

Vapor Pressure: 14.0 mm Hg at 68.0 ° F ; 15.8 mm Hg at 72° F (NTP, 1992)

Vapor Density: 5.83 (NTP, 1992)

Specific Gravity: 1.63 at 68.0 ° F (USCG, 1999)

Boiling Point: 250.0 ° F at 760 mm Hg (NTP, 1992)

Molecular Weight: 165.83 (NTP, 1992)

Water Solubility: <0.1 mg/mL at 63° F (NTP, 1992)

AEGL: data unavailable

ERPG-1	ERPG-2	ERPG-3
100.0 ppm (AIHA, 2003)	200.0 ppm	1000.0 ppm

TEEL: ERPG supersedes TEEL

IDLH: 150.0 ppm ; A potential human carcinogen. (NIOSH, 2003)

Section 5 - Regulatory Information

Regulatory Names

- PERCHLOROETHYLENE
- TETRACHLOROETHYLENE

CAA RMP: Not a regulated chemical.

CERCLA: Regulated chemical with a Reportable Quantity of 100 pounds.

EPCRA 302 EHS: Not a regulated chemical.

TRI (EPCRA 313): Regulated chemical.

RCRA chemical code: U210

NITRIC ACID

NAC

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Watery liquid Colorless to light brown Choking odor Sinks and mixes with water. Harmful vapor is produced.

Evacuate.
Keep people away. AVOID CONTACT WITH LIQUID AND VAPOR.
Avoid inhalation.
Wear chemical protective suit with self-contained breathing apparatus.
Notify local health and pollution control agencies.
Protect water intakes.

Fire	Not flammable. May cause fire on contact with combustibles. Flammable gas may be formed on contact with metals. Poisonous gases are produced when heated. Wear chemical protective suit with self-contained breathing apparatus. Cool exposed containers with water.
Exposure	CALL FOR MEDICAL AID. VAPOR Will burn eyes, nose and throat. If inhaled, will cause difficult breathing or loss of consciousness. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Will burn skin and eyes. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING.
Water Pollution	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge
Chemical and Physical Treatment:
Neutralize

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 3; Nitric acid
2.2 Formula: HNO_3-H_2O
2.3 IMO/UN Designation: 8.0/2031
2.4 DOT ID No.: 2031
2.5 CAS Registry No.: 7697-37-2
2.6 NAERG Guide No.: 157
2.7 Standard Industrial Trade Classification: 52233

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Air mask; rubber acid suit, hood, boots and gloves; chemical goggles; safety shower and eye bath.
3.2 Symptoms Following Exposure: Vapors irritate eyes and respiratory tract; lung injury may not become apparent for several hours following exposure. Liquid may cause severe burns to eyes and skin.
3.3 Treatment of Exposure: INHALATION: remove to fresh air, administer artificial respiration if required. INGESTION: drink large volumes of water; do NOT induce vomiting. SKIN OR EYES: flush with water for at least 15 min.
3.4 TLV-TWA: 2 ppm
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: 4 ppm
3.7 Toxicity by Ingestion: Grade 3; LD_{50} = 50 to 500 mg/kg
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: None
3.10 Vapor (Gas) Irritant Characteristics: 58-68%; Vapor is moderately irritating such that personnel will not usually tolerate moderate or high vapor concentrations. 95%: Vapors cause severe irritation of eye and throat and can cause eye and lung injury. They cannot be tolerated even at low concentrations.
3.11 Liquid or Solid Characteristics: Severe skin irritant. Causes second and third-degree burns on short contact and is very injurious to the eyes.
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: 25 ppm
3.14 OSHA PEL-TWA: 2 ppm
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: Not flammable
4.2 Flammable Limits in Air: Not flammable
4.3 Fire Extinguishing Agents: Use water on adjacent fires.
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: May give off poisonous oxides of nitrogen and acid fumes when heated in fires.
4.6 Behavior in Fire: Decomposes and gives off poisonous oxides of nitrogen.
4.7 Auto Ignition Temperature: Not flammable
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: Not pertinent
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: Not pertinent.
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): Not pertinent.
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: May heat up on mixing, but explosion or formation of steam unlikely.
5.2 Reactivity with Common Materials: Very corrosive to wood, paper, cloth and most metals. Toxic red oxides of nitrogen are formed.
5.3 Stability During Transport: When heated may give off toxic red oxides of nitrogen.
5.4 Neutralizing Agents for Acids and Caustics: Flush with water
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity:
72 ppm/96 hr/mosquito fish/TL_m/fresh water
330-1000 ppm/48 hr/cockle/LC_{50}/salt water
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): None
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: 2
Human Contact hazard: II
Reduction of amenities: X

7. SHIPPING INFORMATION

7.1 Grades of Purity: Various grades: 52-98%
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Open or pressure-vacuum
7.5 IMO Pollution Category: C
7.6 Ship Type: 2
7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Corrosive material
8.2 49 CFR Class: 8
8.3 49 CFR Package Group: I
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	3
Flammability (Red).....	0
Instability (Yellow).....	0
Special (White).....	OX

8.6 EPA Reportable Quantity: 1000 pounds
8.7 EPA Pollution Category: C
8.8 RCRA Waste Number: Not listed
8.9 EPA FWPCA List: Yes

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Liquid
9.2 Molecular Weight: Not pertinent
9.3 Boiling Point at 1 atm: 192.0°F = 88.9°C = 362.1°K
9.4 Freezing Point: –50°F = –45.6°C = 227.6°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.49 at 20°C (liquid)
9.8 Liquid Surface Tension: Not pertinent
9.9 Liquid Water Interfacial Tension: Not pertinent
9.10 Vapor (Gas) Specific Gravity: Not pertinent
9.11 Ratio of Specific Heats of Vapor (Gas): (est.) 1.248
9.12 Latent Heat of Vaporization: 214 Btu/lb = 119 cal/g = 4.98 X 10^5 J/kg
9.13 Heat of Combustion: Not pertinent
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: –205 Btu/lb = –114 cal/g = –4.76 X 10^5 J/kg
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: Currently not available
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: 1.9 psia

NOTES

NITRIC ACID

NAC

9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
35	95.139	51	0.470		N		N
40	94.830	52	0.471		O		O
45	94.520	53	0.472		T		T
50	94.209	54	0.472				
55	93.910	55	0.473		P		P
60	93.599	56	0.473		E		E
65	93.290	57	0.474		R		R
70	92.990	58	0.474		T		T
75	92.679	59	0.475		I		I
80	92.370	60	0.475		N		N
85	92.070	61	0.476		E		E
90	91.759	62	0.477		N		N
95	91.450	63	0.477		T		T
		64	0.478				
		65	0.478				
		66	0.479				
		67	0.479				
		68	0.480				
		69	0.480				
		70	0.481				
		71	0.482				
		72	0.482				
		73	0.483				
		74	0.483				
		75	0.484				
		76	0.484				

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	M	80	1.291	80	0.01404	0	0.206
	I	85	1.489	85	0.01605	10	0.209
	S	90	1.713	90	0.01829	20	0.213
	C	95	1.964	95	0.02078	30	0.216
	I	100	2.246	100	0.02355	40	0.219
	B	105	2.560	105	0.02662	50	0.223
	L	110	2.912	110	0.03000	60	0.226
	E	115	3.303	115	0.03374	70	0.229
		120	3.737	120	0.03784	80	0.232
		125	4.218	125	0.04235	90	0.236
		130	4.750	130	0.04728	100	0.239
		135	5.336	135	0.05267	110	0.242
		140	5.981	140	0.05855	120	0.246
		145	6.690	145	0.06494	130	0.249
		150	7.467	150	0.07189	140	0.252
		155	8.317	155	0.07943	150	0.255
		160	9.246	160	0.08758	160	0.259
		165	10.260	165	0.09640	170	0.262
		170	11.360	170	0.10590	180	0.265
		175	12.560	175	0.11610	190	0.269
		180	13.860	180	0.12720	200	0.272
						210	0.275
						220	0.278
						230	0.282
						240	0.285
						250	0.288

Reliant Consulting Services, Inc.

APPENDIX – D

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,DIVISION OF FISH, WILD LIFE & MARINE RESOURCES, NEW YORKNATURAL HERITAGE PROGRAM LETTER OF FEBURARY 9, 2009

2450 Lakeside Drive, Baldwin, New York 11510
TEL and Fax: 516 632 9707, Cell 516 233 7944

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925

Alexander B. Grannis
Commissioner

February 9, 2009

Christopher Tomasello
Advanced Site Restoration
62 William Street, 3rd Floor
New York, NY 10005

Dear Mr. Tomasello:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the proposed Remedial Investigation at Brownfield Program Cleanup Project, site as indicated on the map you provided, located at 33-32 64th Street, Woodside, Queens County.

We have no records of known occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain any information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. For these reasons, we cannot provide a definitive statement on t he presence or absence of rare or state-listed species, or of significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Data bases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

Sincerely,

Tara Salerno

Tara Salerno, Information Services
NY Natural Heritage Program

Enc.
cc: Reg. 2, Wildlife Mgr.

Reliant Consulting Services, Inc.

APPENDIX – E

PERSONELL INFORMATION

2450 Lakeside Drive, Baldwin, New York 11510
TEL and Fax: 516 632 9707, Cell 516 233 7944

Reliant Consulting Services, Inc.

Curriculum Vitae

Christopher P. Tomasello

Professional Areas of Practice

Regulatory Compliance
Remediation Strategies
Remediation Technologies
Health and Safety
Bio Remediation
Hazardous Materials
Project Coordination
Court Recognized Expert

Education

Hunter College, 695 Park Avenue, New York, NY
Masters in Environmental and Occupational Health and Safety (Industrial Hygiene), January 1995.

St. John's University, 1100 Utopia Parkway, Jamaica, NY
Bachelor of Sciences in Environmental Studies, January 1986.

Employment

Reliant Consulting Services, Inc.
2450 Lakeside Drive,
Baldwin, NY 11510
August 1, 2009 to present

Principal of Company

Reliant is an Environmental Consulting Company specializing in soils and groundwater remediation, Project Management and Coordination, Regulatory Strategies, Regulatory Compliance, Environmental Investigation, Phase I and II Environmental Site Assessments, Hazardous Materials Mitigation, Bioremediation, Air Monitoring, Soil Vapor Mitigation, Expert Court Testimony, Health and Safety monitoring.

Some of our clients are: Energy Tank and Environment; Advanced Site Restoration, LLC; Hicks Property Management; The Ambient

Group; McCormick & Company, Inc.; Rentar, Inc.; Fina Express; ProTest, Inc.; Bio-Rem International; Best Quality Services; Unique Sanitation Co., Inc.; The Rainer Group.; D&E Realty; AVF Development Corp.; and Paramount Construction; ASRI, Inc.

Advanced Site Restoration, LLC
62 William Street
New York, NY 10005
212-809-1110
May 23, 2004 to August 1, 2009

Principal of Company

Full Service Environmental Company dealing with all aspects of environmental investigations and remediations, Phase I and II Environmental Site Assessments, Environmental Monitoring disposal of hazardous materials, bio-remediation, and environmental consulting.

Some of our client were: Gaseteria Oil Corp; Haley & Aldrich; Plaza Construction Co.; Lowe Enterprises, Inc.; Periconie, LLP; The New York State Department of Environmental Conservation; and many others

Trade-Winds Environmental Restoration
100 Sweeneydale Avenue, Bay Shore, NY 11706
Contact Artie Baldwin, 631-435-8900
July, 22 2000 to May 23, 2004

SENIOR PROJECT COORDINATOR

- **Supervised crews** in the field in various aspects of environmental work ranging from surface oil spills to subsurface oil spills, hazardous materials incidents and general construction contracting. I was also responsible for Health & Safety on these sites.
- Conducted approximately 10 "**Anthrax" remediations** throughout the NY Area.
- Provided services to permanently close numerous **oil and chemical tanks** throughout NYC and Long Island.
- Performed over 20 **chemical screenings and lab pack removals** of mixed chemicals.
- **Project Supervisor** for a major freshwater wetland **lake restoration**. This included major excavation, disposal, water diversion, construction of concrete structures, erosion control countermeasures, native plant restoration.
- Company supervisor for the US Coast Guard working agreements (BOA and OSRO). I have also **Directly**

supervised 2 major oil spills (Douglaston Harbor and 15 miles of the North Shore from Prot Jefferson to Calverton).

- Provided **training** to Industry personnel for 40 hour "Haz Wopper", 8 hour Supervisors courses, and 8 hour awareness courses.
- Conducted **subsurface investigations, phase I and phase II site assessments,** and **Voluntary Clean-up** for both oil and hazardous material spills.
- Provide services as one of Trade-Wind's **Health & Safety** staff. I dealt with both field and in-house safety issues.
- **Project Supervisor** for the cleaning of Consolidated Edison's Tank Number 1 at the East River Generating Station. The Cleaning of this **5 million gallon tank** entailed the removal of 300,000 gallons of sludge from the bottom of the tank; supervision of 3 shifts of 10 man crews performing confined space entries into the tank, explosive atmosphere issues, and numerous disposal and logistical issues.

New York State Department of Environmental Conservation
Region 2 New York City, Division of Environmental Remediation
Bureau of Spill Management, 47-40 21 St Street, Long Island City, New York 11101, Contact: Randall Austin (718) 482-4949
Environmental Program Specialist II, February 9, 1987 to July 22, 2000

Section Chief of Spill Response and Remediation

- **Field Supervisor/Project Manager-Division of Environmental Remediation**: Supervisory authority over a staff of 22 spill responders, geologists, environmental engineers and clerical support staff. Second in charge of the Spills Bureau. I supervised staff in the performance of spill remediations, Petroleum and Chemical bulk storage inspections, and other day-to-day function issues. I worked with environmental consultants and contractors to develop the most cost effective remedial design to implement on both state funded and private clean-ups, on both oil and hazardous material spills.
- **Emergency Spill Response***:* I responded to oil and hazardous material spills in the New York City area. This included above ground, sub-surface and waterway spills. Responding to various spills has enabled me to work closely with **various other DEC programs,** such as: Chemical and Petroleum Bulk Storage Programs, Lake Eutrophication Program, Coastal Erosion Hazard Area Identification Program, Coastal Flood Zone Project, Marine Resources Program, Fish and Wildlife, Hazardous Waste Remediation and Hazardous Substance, and the Divisions of water and Solid Waste*.*

- **Regional Supervisor of State and Federally Funded Projects***:* Responsible for both N.Y.S. Oil Spill and Hazardous Material Fund spending. Financial oversight of contractors, investigative completeness of projects**,** identification of responsible parties**,** and cost recovery of the State's monies. Supervised over **250** recovery projects, utilizing approximately **4.5 million dollars** of State funds per year.
- **Court Recognized Expert** on "the remediation of oil spills and on the effects of oil spills on the environment." (State of NY vs Berman, Sara Frank incident, 1990.) Testified in over 20 different NYC cost recovery actions and numerous private cost recovery actions.
- **Regional Waterway Spill Coordinator**: Worked in conjunction with the U.S.C.G., N.O.A.A., N.J.D.E.P., E.P.A., and industry in a coordinated effort to address spills in New York Harbor. I have an extensive knowledge of wildlife management and ecosystem fundamentals.
- **Regional Representative to the Joint Terrorist Task** Force for the Department, attending numerous coordination meetings.

Regional Health and Safety Officer

- **Set and develop Regional and State-wide policy**: on respirator use, excavation safety, emergency vehicle use, confined space entry, ergonomics, building ventilation, urban safety, and others. Enforced policies and coordinated training for the NYC region.
- **Worked closely with P.E.S.H.A.** to maintain worker safety.
- **Coordinated closely with City and State Health Departments**: to perform indoor air sampling for hazardous chemicals and determine exposure of workers and building occupants to these chemicals. Supervised environmental sampling for contaminant levels.
- A **member** of the Division of Environmental Remediation Health and Safety Committee.

2450 Lakeside Drive, Baldwin, New York 11510
TEL and Fax: 516 632 9707, Cell 516 233 7944

Steven Muller
11 Hamilton Street
Lynbrook, New York 11563
212-809-1110 smuller@askasr.com

Curriculum Vitae

STEVEN WILLIAM MULLER, NYSCPG

Professional Areas of Practice

1. Simulation of Groundwater, Soil and Air Transport Processes
2. Groundwater Resources Engineering and Design
3. Applied Fate and Transport Based Risk Assessment
4. Petroleum/Chlorinated Hydrocarbon & Metals Assessment, Remediation and Monitoring
5. In Situ and Intrinsic Biodegradation Processes: Design and Evaluation
6. Cleanup Level Determination/Risk-Based Corrective Action (RBCA)
7. Soil and Groundwater Transport Evaluation
8. Regulatory Negotiations and Project Management
9. Emergency Response Management and Relations

Education

BS, Geology, Hofstra University, 1986
MS, Hydrogeology, SUNY, Stony Brook, *In Progress*

- Field GC training coarse instructed by EPA Region I, Lab Director, Thomas Spitler.
- NGWA-IBM PC Applications in Groundwater Pollution and Hydrology.
- Numerous attendance at NGWA Conference and Seminars on Groundwater Pollution and Remediation.
- Biostimulation of Aquifers using Oxygen Releasing Compound and other Additives.

Professional Positions

- Advanced Site Restoration, LLC, Member, Senior Environmental Scientist, New York, New York, December 2004 - Present

- Applied GeoSolutions, Inc., Principal Environmental Consultant
  Lynbrook, New York, March 2003 - December 2004

- Berninger Environmental, Inc., Vice President, Senior Technical Geologist,
  Bohemia, New York, 1994 - 2003

- Fenley & Nicol Environmental, inc., Senior Supervising Geologist
  Deer Park, New York, 1986-1994

Representative Professional Experience

Prepared an expert report in defense of litigation at a bus garage site in Bay Shore, New York. The report focused on the movement of petroleum contamination in groundwater and the contribution of various parties in the matter.

Designed and managed a groundwater dewatering and treatment system as part of the construction of an elevator shaft. The primary goal of the project was to lower the groundwater table 8 feet over approximately 400 square foot area inside a hospital until the piles and footings could be installed.

Designed and calibrated a groundwater and hydrocarbon flow model for the New York State Department of Environmental Conservation (NYSDEC) has part of a potable well head protection program. The model consisted of a groundwater flow model, a hydrocarbon flow model and a dissolved phase transport model that interfaces with a comprehensive database from several well fields. The model consists of a 5 square mile regional model that communicates to five smaller scale model domains (0.5 square miles) through boundary conditions. The model served two primary purposes: a. The NYSDEC used the results to identify future possible contaminate impact at regional well fields and b. The calibrated model is used to investigate a variety of specific remedial alternatives.

Designed a groundwater pump and treat system for the NYSDEC at a gasoline service station in Oceanside, New York. A variety of gasoline continuants and MtBE were present at the site distributed at varying depths into the groundwater aquifer. A multi-level groundwater pumping scheme was utilized to minimize the potential for further downgradient migration of the plume into a nearby stream. Fate and transport modeling was used to examine the effects of pumping would have on the position of the plume at varying depths below the water table.

Determined the performance of ORC® (Oxygen Release Compound) degradation of a gasoline plume in groundwater Ridge, New York. ORC® is mixed with sand (approximately 2-6% by weight), placed into socks of varying diameters and lengths and then placed down wells. The mass of oxygen and BTEX (benzene, toluene, ethylbenzene and xylenes) was calculated from sampling data via numerous data sets spaced days apart. The timed release of oxygen was verified and approximately 75% of the dissolved BTEX mass was removed in 100 days. There were instances throughout the demonstration project where additional mass of BTEX was supplied to the aquifer by changes in water table elevation.

Managed several in situ pilot tests of soil-vapor extraction, bioventing and air sparging. The results and analysis of the testing formed the basis of the design and operation of the remediation systems.

Directed regulatory negotiations for excavation of 50,000+ cubic yards of chlorinated solvent impacted soils at a dry cleaning equipment manufacture in Hicksville, New York. The NYSDEC Hazardous Waste Division were participants in the process.

Designed, managed and analyzed data from over thirty groundwater pumping tests. The results of the majority of the tests that were used in groundwater flow models to estimate the design parameters of pump and treat systems. The total flow rates of treatment plants eventually constructed varied in size from 15 to 10,000 gallons per minute.

Performed expert witness strategy development regarding soil and groundwater transport phenomena on numerous projects. A typical task would be the identification of the relevant data at the site followed by thorough technical evaluations. More often than not, analysis and presentation of relatively simple chemical and mass transfer concepts, along with the mass and volume distributions of the chemicals of concern, enabled a defensible portrayal of the key elements of the dispute.

Performed soil and groundwater transport modeling of 1-2 Dichloroethane (DCA), trichloroethylene (TCE), and vinyl chloride (VC) at a former dry cleaning facility in Brentwood, New York. The purpose of the modeling was to demonstrate limited mobility of the chemicals in soil, to calculate soil and groundwater cleanup levels and to examine the interaction of the various physiochemical processes occurring at the site.

Membership in Professional Societies

- New York State Council of Professional Geologists.
- Environmental Assessment Association – Certified Environmental Consultant – Member No.: 81228
- Long Island Geologists.
- National Groundwater Association - Association of Groundwater Scientists & Engineers - Member No.:201916.
- International Society of Environmental Forensics - Member No.:2560.
- Association for Environmental Health and Sciences
- NYSDEC Risk-Based Corrective Action "RBCA for Petroleum-Impacted Sites" Advisory Group Committee Member and Sub-Workgroup 3 - Natural Attenuation, Fate & Transport Member.

Training

OSHA 40-hour Certificate
OSHA 8-hour Supervisor Certificate
OSHA Confined Space Entry Certificate
OSHA Competent Persons in Excavation Certificate
Contractor's Guide to UST Closure.
BP Connect - Safety Passport Program

John A. Rhodes, P.E.

John Rhodes is President of CEUS Engineering, P.C. (CEUS). He brings more than 28 years of experience in environmental engineering and science related to soil, air, surface water and groundwater to the company. Mr. Rhodes also has expertise and a deep personal interest in risk management, business decision analysis, and issue resolution. He is dedicated to helping clients understand technology and has given seminars and written papers on probabilistic cost estimating, business decision analysis, SEC environmental liability estimating, fate and transport of contaminants, and other complex issues. Mr. Rhodes has been approved for teaching continuing education courses in Professional Engineering, Law and Insurance.

Trained in environmental engineering and science at the Massachusetts Institute of Technology (MIT), Mr. Rhodes has built an innovative, comprehensive, and client-oriented practice upon a foundation of remedial engineering, hydrology, aquatic chemistry, and mathematical analysis. Mr. Rhodes is experienced in engineering economics, risk assessment, and risk management tools. He is an expert in technical investigation and management decision analysis.

Before joining CEUS, Mr. Rhodes held executive and project management positions at GeoEngineering and Haley & Aldrich, a national environmental and geotechnical engineering firm. He is a graduate of the Haley & Aldrich leadership training program, an intensive two year course to sharpen communication, strategic thinking and other skills of value to clients.

Benefits to engaging Mr. Rhodes include:

- Communications
- Responsiveness
- Commitment to the needs of the client
- Understanding of science and technology
- Experience with a broad range of businesses and business issues
- Thought leadership

Education

Massachusetts Institute of Technology, Degree of Civil Engineer, Water Resources and Environmental Engineering Division, 1979

Massachusetts Institute of Technology, MS, Environmental Engineering, 1979

Bowdoin College, BA, Physics, 1972

Licenses

Licensed Professional Engineer
New Jersey, Pennsylvania, New York and Connecticut

Professional Affiliations

President, New Jersey Society of Professional Engineers

- Mentoring Task Force
- Diversity Task Force
- Future Directions Task Force
- Institute for Professional Leadership

Typical Client List

Petroleum:

Shell Oil/Motiva	PETRO Petroleum Distribution
Gaseteria Oil Corporation	Kimber Petroleum
Getty Petroleum Marketing	Luk Oil
Wholesale Fuels Distributors	RPC, Inc. (Ray Petroleum)

Financial/Risk Management:

State Farm Insurance	Hartford Insurance
AIG Insurance	High Point Insurance
Fireman's Fund Insurance	Chubb Insurance

CEUS Engineering, P.C.
62 William Street, 3rd Floor • New York, New York 10005 • Phone: 212.668.0249 • Fax 212.8091779

Sample Project Experience

BCF Oil Terminal Purchase Risk Analysis, Demolition, Remediation and Redevelopment
The BCF oil terminal clean-up and redevelopment is a high visibility project to clean up oil contaminated with PCBs adequately to return the property to New York City tax roles. The City of New York's office of Environmental Quality has been instrumental in the support of the project and included the project as a leading example of a practicable approach to reviving New York that was featured in the Mayors Plan for the City in 2020. NYS has assumed responsibility for remediation below ground allowing a private party to purchase the property, demolish the hazardous structures above ground and redevelop the property. Mr. Rhodes led all engineering and technical aspects of the decision to undertake the project including a cost and regulator analysis. He was a member of the negotiating team with the regulatory agencies and after approval, certified the demolition and above ground remediation work to the satisfaction of the NYSDEC. On behalf of the private party who purchased the site, he continues his involvement as a member of the Triad team lead by the NYSDEC that is applying a new approach to investigating the site.

Former MGP (Manufactured Gas Plant) and Fuel Oil Terminal on Hudson River, Tarrytown, New York
Mr. Rhodes was the Partner in charge of this project for which the client chose to redevelop a contaminated property, and gained all necessary permits and a remediation plan for the waterfront redevelopment of multiple contaminated properties creating a river walk, residential construction and access to riverfront in a formerly industrial area. Statistical cost analysis contributed to acquisition of cost cap and liability insurance policies and allowed property and liability transfer from the responsible utility company. A cooperative arrangement was established between the MGP responsible party, Developer, NYSDEC, Remediation Engineer, and Remediation Contractor, saving time and money and fueling the clean-up and development. Innovative risk-based remediation was developed including DNAPL barrier with recovery trench/slurry wall design using biodegradable slurry, saving over one million dollars while meeting NYSDEC requirements and site risk based standards. Approval of the remedial plan was obtained from the NYSDEC within six months, with no negative public comments. Remediation has been completed and accepted by the regulatory agencies and development is under construction.

EnCap Remediation and Redevelopment of Four Landfills in the New Jersey Meadowlands
The major and initial financial guarantor for this $183,000,000 project received sufficient understanding from Mr. Rhodes of the engineering and cost risks to guarantee the financing of the project and later to exit the project as the risk equation changed. The landfills were constructed in the lowlands of the New Jersey Meadowlands, which offered unique challenges to remediation and the stabilization of the fill and underlying materials to allow for residential and commercial construction. Technologies reviewed and evaluated included dynamic compaction of refuse, importation and use of processed dredge material for barrier layers and common fill, importation and use of recycled materials for common fill including sewage sludge, leachate and gas collection systems.

Construction Dispute Resolution, West End Avenue, NY
Lead the technical team to investigate and resolve a construction dispute over the party responsible for the cost of remediation of contamination encountered during the construction of a high rise tower at the location of a former gasoline service stations and auto repair facilities. Mr. Rhodes understanding of

construction and environmental issues was critical to the distinction of real from inflated costs, and the management of $3,000,000 that was at risk for the client.

Construction Dispute Resolution and Emergency Response Actions, Cresskill, NJ
Mr. Rhodes assisted the attorneys for the developer of a major, beneficial facility. The project had been halted by the discovery of petroleum contamination during the construction of the steel infrastructure and was being further delayed by a responsible party over the source of chlorinated groundwater contamination. Threatened losses were $40,000 per day. Mr. Rhodes used his knowledge of both construction and environmental issues to remove contamination from a structurally sensitive area, and to propose alternative and add on approaches to building construction that eliminated risk. The sizeable construction loan was preserved and building recommenced.

Environmental Liability Estimates for Security and Exchange Commission compliance
Environmental liabilities were estimated for several sites for a major utility in New England. Probabilistic procedures and quantitative interviews with company and outside engineers and counsel were used to develop a reasonable and defensible estimate. Estimates were defended before independent auditors.

Combe Fill South Hazardous Waste Landfill, Chester Township, New Jersey
Over a hundred responsible parties were able to understand and specify the cost of remediation and allocation of responsibility between them and other responsible parties leading to a reasonable settlement accepted by all parties. In the process, additional contaminants were detected and successfully attributed to the responsible party such that they did not add to the burden already born by clients.

Newport Development Project on Former Manufactured Gas Plant Site, Gasoline Station and Chromium Hazardous Waste Site, Jersey City, New Jersey
Mr. Rhodes engineered the excavated soil management plans, regulatory compliance of coal tar and chromium investigations and remediation, and construction dewatering services on 280-acre former MGP site. Project included investigation and remediation of chromium-contaminated fill, which, from discovery to completion, was remediated in six months, including New Jersey Department of Environmental Protection (NJDEP) approval. Mr. Rhodes researched and located all components and residuals of a former coal gasification plant, and managed associated contaminated soil and groundwater risks to allow construction of a major mall building in this development of condominiums, offices, and recreational facilities. A risk based program for construction soil management was designed, approved, and implemented using above ground treatment and careful testing to significantly reduce the volume of off-site soil disposal. Contaminated groundwater that was pumped for construction purposes was managed and treated with sufficient flexibility to allow construction in any portion of the site to go forward without delay.

Former Brass Foundry and CERCLA Site, Virginia
Mr. Rhodes was the engineer in responsible charge for a major CERCLA NPL-site, which was remediated for $15 million, well below the EPA projected cost of $30 million. Major component of remediation was the solidification and treatment of soil to allow less expensive on-site reuse and declassification of hazardous waste needing off-site disposal. Remediation included a community asset, which allowed for capping of contamination using a public facility, which, in turn, required the careful management of risk of exposure.

Additional contributions included a statistical analysis linking lead soil contamination to sources, and successful expert testimony in federal court regarding the divisibility of harm.

Kimber Petroleum Groundwater Cleanups, New Jersey
Mr. Rhodes managed and supervised the remediation of groundwater contamination stemming from several gasoline service stations. Highlights include an innovative collection system using the porous backfill of an existing sewer line and inexpensive bioremediation using the injection of oxygen-release compounds. Mr. Rhodes testified in New Jersey Superior Court regarding the timing and source of contamination at one of the stations.

Abex Corporation Foundry, Mahwah, New Jersey
A successful ECRA/ISRA closure of a large iron foundry containing over 330,000 tons of foundry sand used as landfill was completed by Mr. Rhodes, allowing property transfer and redevelopment. Activities included lagoons and underground storage tanks closures, decontamination of former foundry buildings, and vapor extraction soil treatment of a gasoline release (the first in New Jersey). Engineering and institutional controls were pioneered, and now the site is a recognized brownfields development example. Follow-up work included assistance to the new owner who modified the engineering controls following appropriate procedures without regulatory difficulty. Remediation costs reduced from an estimate in the tens of millions of dollars to $2 million.

Chemical Manufacturer, Northern New Jersey
Mr. Rhodes was the engineer in responsible charge of the investigation, assessment of risk and cleanup of DNAPL and PCB contamination alongside a northern New Jersey river and a potential contributor to the Lower Passaic River Superfund Site. A dilapidated treatment plant was resurrected and made to operate efficiently. Innovative in-situ remediation methods are being employed in preparation for the construction of a retail shopping mall on the property formerly occupied by several chemical operations.

Droyers Point Redevelopment Project, Jersey City, New Jersey
Directed the environmental portion of a major urban redevelopment project on a 40-acre site in which containment of chromium contaminated fill was implemented. Based on a risk analysis of hexavalent chromium, Mr. Rhodes designed and implemented engineering controls to stabilize and isolate the chromium-affected soil and groundwater from the remainder of the site including construction of a capillary break using porous fill and geo-membranes, soil and asphalt pavement covers and construction of a slurry cutoff wall for groundwater. The residential development was constructed.

Disaster Assessment at Critical Financial Center in Northern New Jersey, Confidential Client
Mr. Rhodes undertook an assessment of the likelihood of facility closure from man-made or natural disaster at a critical financial center for a major financial institution. Risks assessed included material transportation accidents, pipeline ruptures, terrorist acts and chemical releases. An evaluation was made of the potential to close the operation and appropriate measures to reduce risk.

Exxon Mobile Contaminated Property Redeveloped
Mr. Rhodes evaluated and defended remediation costs leading to a successful resolution of a dispute with Exxon Mobile over the progress of clean up of property in Manhattan that was to be developed. The

property was successfully sold based on Mr. Rhodes estimate and remediation and re-development are underway with a cooperative agreement.

Board of Adjusters Approval for Redevelopment of Contaminated Property as a Gasoline Service Station, RPC, Inc, Hanover, NJ

Mr. Rhodes designed and estimated the cost of cleanup of an abandoned gasoline service station, and testified regarding his findings before the Board of Adjusters in Hanover Township. Mr. Rhodes worked with a team offering to clean up the abandoned station in exchange for the right to develop the property as a modern and environmentally sound gasoline service station. The plan was approved and redevelopment has commenced for which Mr. Rhodes continues his service as the certifying Professional Engineer for compliance with the ruling of the Board of Adjusters.

Reliant Consulting Services, Inc.

APPENDIX – F

DATA VALIDATOR QUALIFICATIONS

2450 Lakeside Drive, Baldwin, New York 11510
TEL and Fax: 516 632 9707, Cell 516 233 7944

H&S ENVIRONMENTAL

Statement of Qualifications

H&S Environmental, Inc.
1257 Worcester Road #310
Framingham, MA 01701
phone (508) 405-0980 ❖ fax (508) 861-0305
www.hsenv.com

. . . a woman-owned company

CONTENTS SECTION

Company Profile and Capabilities

H&S Environmental, Inc. (H&S) is an 8(a) woman-owned, disadvantaged business enterprise certified by the Small Business Adminstration (SBA). H&S is also certified by Massachusetts SOMWBA – State Office of Minority and Women Business Enterprise and Connecticut Department of Transportation (DOT) as a woman-owned and disadvantaged business enterprise (WBE/DBE). H&S specializes in environmental consulting, data validation, engineering, assessment, remediation, and in long-term operations and maintenance of remedial systems.

One of H&S's specialties is to provide laboratory data review and validation services. Established in 2003, H&S has grown steadily in support of our client's environmental programs. We are committed to providing the highest quality data validation and data management service while maintaining a cost competitive advantage. Our staff has extensive experience in providing clear, concise, and comprehensive data validation reporting. We are able to meet specific client requests such as short turnaround times being sensitive to project specific review criteria. Our strength is our ability to provide high quality service following the National Functional Guidelines while maintaining a streamlined organization dedicated to our client's needs.

Technical Backgrounds

H&S Chemistry: Our chemists are required to have Bachelor of Science - through PhD. degrees in Chemistry or a related field with multiple years of experience. We are experienced in laboratory practices and procedures with hands-on experience performing chemical analyses using EPA methodologies, operating and maintaining laboratory instrumentation, and analyzing and interpreting the results. We are experienced in consulting practices and procedures, and have direct experience in field sampling using EPA approved protocols and following proper chain of custody procedures, coordinating with laboratories, analyzing analytical results, and preparing technical reports. As a result, our chemists have the practical knowledge in understanding the overall data validation process from sample collection through laboratory analysis and data quality assessment.

H&S Consulting: We pride ourselves in exceptional customer service and practical, cost-effective strategies to resolve environmental issues related to the investigation and remediation of contaminated soil and groundwater. H&S's founders each have provided skilled project management services and consulting advice to clients in a variety of industries for more than 15 years.

Using in-house resources and strategic partnerships, H&S coordinates and delivers services in these representative environmental areas:

- Data Validation
- Expert Testimony for Chemistry and Laboratory Support
- Data Usability

Other services include:

- Comprehensive Site Investigation
- Risk Assessment
- Remedial Investigation and Feasibility Studies
- Remediation System Design, Installation, and Operation
- Regulatory Compliance and Closure
- Environmental Sampling, Monitoring and analysis
- Water/WastewaterTreatment System Operation and Maintenance
- Compliance Auditing and Permitting
- Wetlands Delineation
- Waste Management, Transport, and Disposal
- Industrial Hygiene

Organizational Structure

H&S is a privately held Massachusetts-based corporation serving clients throughout the United States. The company was incorporated in 2003. H&S's leadership team comprises professionals experienced in both technical and business aspects of the environmental industry. This means that H&S customers can count on not only technical excellence in disciplines such as chemistry and environmental sciences, but also expertise in geology, hydrogeology, operations management, project management, and sales and marketing.

WBE and DBE Advantage

H&S is a SOMWBA (State Office of Minority and Woman Business Enterprise) and a Connecticut Department of Transportation certified company. In establishing the ownership allocations of the business, H&S founders aimed to meet the sustained and growing demand for Women Business Enterprise (WBE) and Disadvantaged Business Enterprise (DBE) participation on both public and commercial contracts. The WBE classification combined with its self-performance capabilities and geographic presence in New England sets H&S apart from other small businesses and opens "set-aside" business opportunities both as a direct supplier to end clients and as a teaming partner to Tier I contractors.

Validation Experience

The staff of H&S is experienced in validating organic, inorganic, and radiological laboratory data including CLP and non-CLP formats. Media types include water, soil, air, as well as tissue chemistry. We have validated data using EPA Methodologies (SW846) and non-traditional methodologies. Our chemists have been performing data review and validation for over ten years and are experienced in applying EPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic and Inorganic Data Review. In addition, they have validated data generated through numerous government environmental investigative programs including Navy (NFESC Guidelines), Air Force (AFCEE), US Army Corps of Engineers (USACE), and EPA programs including Regions I, II and III. We are also familiar with the many state and regional and program specific guidelines for performing data validation such as Maine, Connecticut, and Massachusetts methodologies for petroleum hydrocarbons, as well as sensitivity to our client supplied QAPP guidelines and their standard operating procedures (SOPs).

Site Name	Client	EPA Region	DoD QSM	National Functional Guidelines and SW-846	DOD Perchlorate Handbook	Validation Tier Level	No. of Samples	No. of SDGs	EDDs	Turnaround Time (days)	Success
Lake Ontario Ordnance Works	USACE Baltimore	2	✓	✓		4	406	63	✓	45	100%
Lower Passaic River Restoration Project	USACE NWK (Malcolm Pirnie)	2	✓	✓		3	133	7	✓	30	100%
New Bedford Harbor Superfund Site	USACE NAE (Battelle)	1	✓	✓		1&2	3,000	150	✓	5	100%
Army Reserve Centers	CDM Federal Programs	9	✓	✓		3&4	472	8	✓	30	100%
Hurricane Katrina Response	USACE New Orleans (ECC)	6	✓	✓		2	1,400	80	✓	14	100%
Atlas Tack Superfund Site	USACE NAE (Charter Env.)	1	✓	✓		2&3	460	10	✓	14	100%
Birch Hill	USACE NAE (Battelle)	1	✓	✓		1	20	2	✓	30	100%
Bedford, MA Navy Site	NAVFAC LantDiv (ECC)	1	✓	✓		2	33	5	✓	14	100%
Mass. Military Reservation	AEC (ECC)	1	✓	✓	✓	2&3	18,000	3,600	✓	7	100%
Various Sites, Maine	NACFAC LANTDIV (ECC)	1	✓	✓	✓	2&3	14	4	✓	10	100%
Naval SubBase New London	NAVFAC LantDiv (ECC)	1	✓	✓		2	100	8	✓	14	100%

Figure 1 – H&S's Representative Data Validation Project Experience

Why H&S?

H&S offers these competitive advantages:

- H&S is a woman owned and operated business
- H&S is a SOMWBA (State Office of Minority and Women Business Assistance) Certified company

Why Choose H&S Environmental

- ✓ Validated more than 23,000 samples using EPA National Guidelines including EPA Regions 2, 3, 4, 5, 6 & 9 SOPs and DOD QSM & USACE guidelines
- ✓ 100% success rate validating over 5,000 HTRW/OE Samples at Tier 1-4 levels
- ✓ Cost effectiveness and quality demonstrated by 100% repeat client rate
- ✓ SBA 8(a) certified WOSB whose staff have >45 years experience validating HTRW/OE data

- H&S is a Connecticut Department of Transportation certified woman-owned business and disadvantaged business enterprise (WBE/DBE)
- H&S combines small company service with large company expertise
- H&S offers sound consulting advice on a broad range of environmental matters
- H&S integrates staff members from diverse technical backgrounds
- H&S's chemists each have over 20 years of experience in the environmental chemisty field
- H&S has on staff Lisenced Site Professional (LSP), Licensed Environmental Professional (LEP), and Professional Geologist (PG) services
- H&S promotes effective internal communication and seamless service delivery
- H&S provides value-based solutions to site contamination-remediation projects
- H&S offers both a consulting and a contracting service capability
- H&S accelerates project completion by implementing turnkey, fixed-price solutions to environmental problems
- H&S reduces subcontracting costs through "self-performance" of field sampling and remediation system operation and maintenance tasks

SEMI-VOLATILE ORGANIC COMPOUNDS
USEPA Region II – Level IV Data Validation

Project Name: XXXXXXXXXXX

Location: XXXXXXXXXXX

Project Number: XXXXXXXXXXX

SDG #: XXXXXXXXXXX

Client: XXXXXXXXXXX

Date: XXXXXXXXXXX

Laboratory: XXXXXXXXXXX

Reviewer: XXXXXXXXXXX

Summary:

1. Level IV data validation was performed on the data for three (3) soil samples analyzed for Semi-volatiles by SW-846 Method 8270C.

2. The samples were collected on 07/10/2006. The samples were submitted to XXX Laboratories on 07/11/2006 for analysis.

3. The USEPA Region II SOP HW-22, Revision 2, June 2001: Validating Semi-volatile Organic Compounds by SW-846 Method 8270C was used in evaluating the Semi-volatiles data in this summary report.

4. In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformance of certain Quality Control criteria (See discussion below).

Samples:

The samples included in this review are listed below:

Client Sample ID	Laboratory Sample ID	Analysis	Matrix
C7-SOM-SO-X01-UN01-1	607075-001	SVOA	Soil
C7-SOM-SO-X02-UN01-1	607075-002	SVOA	Soil
C7-SOM-SO-X02-UN02-4	607075-003	SVOA	Soil

Sample Conditions/Problems:

1. The Traffic Reports/Chain-of-Custody Records, Sampling Report and/or Laboratory Case Narrative did not indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data. No qualifications were required.

Holding Times:

1. All soil samples were extracted within 14days from sample collection and analyzed within 40days following sample extraction. No qualifications were required.

GC/MS Tuning:

1. All of the DFTPP tunes in the initial and continuing calibrations met the percent relative abundance criteria No qualifications were required.

Initial Calibration:

1. Initial calibration curve analyzed on 07/24/2006 exhibited acceptable %RSD (≤30%) for CCC compounds and average RRF values for SPCC (0.050) compounds. Also %RSD's for all other compounds were ≤15% and average RRF (>0.050) with the following exceptions:

    1.1 Benzo(g,h,i)perylene (15.5%RSD), Dibenz(a,h)anthracene (20.5%RSD), Indeno(1,2,3-cd)pyrene (19.2%RSD). Positive results were qualified as estimated (J).

    1.2 Several analytes exhibited %RSD values that were > 15%, however, the associated samples were non-detect for these analytes. No qualification was required.

Client Sample ID	Laboratory Sample ID	Compound	Action
C7-SOM-SO-X01-UN01-1	607075-001	Benzo(g,h,i)perylene	J
		Dibenz(a,h)anthracene	J
		Indeno(1,2,3-cd)pyrene	J

2. Initial calibration curve analyzed on 08/01/06 exhibited acceptable %RSD (≤30%) for CCC compounds and average RRF values for SPCC (0.050) compounds. Also %RSD's for all other compounds were ≤15% and average RRF (>0.050) with the following exceptions:

    2.1 Di-n-butyl phthalate (16.7%). Associated samples were qualified due to blank contamination, therefore, no further qualifications were required.

Continuing Calibration Verification (CCV):

1. The CCV analyzed on 07/31/06 exhibited acceptable %D (≤20%) for CCC compounds and RRF values > 0.05 for SPCC compounds. Also %D's for all other compounds were ≤20% with the following exceptions:

    1.1 Hexachlorocyclopentadiene (20.1%D). All positive results were qualified as estimated (J) and all non-detect results were qualified as estimated (UJ).

Client Sample ID	Laboratory Sample ID	Compound	Action
C7-SOM-SO-X01-UN01-1	607075-001	Hexachlorocyclopentadiene	UJ

2. The CCV analyzed on 08/02/06 exhibited acceptable %D (≤20%) for CCC compounds and RRF values for 0.05 for SPCC compounds. Also %D's for all other compounds were ≤20% with the following exceptions:

2.1 Hexachlorocyclopentadiene (20.1%D), hexachlorobezene (23%D), benzo(g,h,i)perylene (32%D), Dibenz(a,h)anthracene (22%D), Indeno(1,2,3-cd)pyrene (30%D). All positive results were qualified as estimated (J) and all non-detect results were qualified as estimated (UJ).

Client Sample ID	Laboratory Sample ID	Compound	Action
C7-SOM-SO-X02-UN01-1	607075-002	Hexachlorocyclopentadiene Hexachlorobenzene Benzo(g,h,i)perylene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene	UJ UJ J J J
C7-SOM-SO-X02-UN02-4	607075-003	Hexachlorocyclopentadiene Hexachlorobenzene Benzo(g,h,i)perylene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene	UJ UJ J J J

Method, Field, Equipment (Rinsate) Blank:

1. All Method Blanks were free of contamination.

2. Rinse Blank SO-SL-RB-1 exhibited the following contamination.

Blank ID	Compound	Results (µg/L)	Action Level (10x) (µg/kg)	Sample Affected	Action
SO-SL-RB-1	Diethyl phthalate	0.16	53	None	Samples ND
SO-SL-RB-1	Bis(2-ethylhexyl) phthalate	6.3	2100	C7-SOM-SO-X01-UN01-1 C7-SOM-SO-X02-UN01-1 C7-SOM-SO-X02-UN02-4	U U U
SO-SL-RB-1	di-n-Butyl phthalate	0.27	90	C7-SOM-SO-X01-UN01-1 C7-SOM-SO-X02-UN01-1 C7-SOM-SO-X02-UN02-4	U U U

Surrogates:

1. All surrogate %REC values were within the laboratory control limits. No qualifications were required.

Internal Standard (IS) Area Performance:

1. All samples exhibited acceptable area count for all six internal standards. No qualifications were required.

Laboratory Control Sample (LCS)/ Laboratory Control Sample Duplicate (LCSD):

1. Laboratory Control Sample (82668) exhibited %R values for 2 analytes that exceeded the upper acceptance limits. The associated samples were non-detect for these analytes, therefore, no qualifications were required.

Field Duplicate:

1. Field Duplicate was not submitted with this SDG.

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

1. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) sample C7-SOM-SO-X01-UN01-1 exhibited acceptable %R and RPD values for all analytes with exception of the following.

MS/MSD Sample ID	Compound	%R/%R/RPD	Action
C7-SOM-SO-X01-UN01-1	Pyrene	**OK/10%/148%**	J

Compound Quantitation and Reported Detection Limits:

1. Manual calculation was performed on sample C7-SOM-SO-X01-UN01-1. No errors were detected.

Comments:

1. %Solids for all soil samples in this SDG were >50%. No qualifications were required

2. The following information was entered into EDD for SDG607075: Validation Qualifier (s) and Validation Reason Code(s).

Certifications:

As required by various governing federal, state, and local regulations, H&S possesses the following licenses, certifications, and registrations:

- Small Business Administration 8(a) and Small Disadvantaged Business Enterprise Certification
- Women Business Enterprise and Disadvantaged Business Enterprise - Commonwealth of Massachusetts State Office of Minority and Woman Business Assistance (SOMWBA) certified (WBE/DBE)
- Connecticut Department of Transportation certified Disadvantaged Business Enterprise (DBE)
- State of New Hampshire Department of Transportation certified Disadvantaged Business Enterprise (DBE)
- State of Pennsylvania and the City of Philadelphia Department of Transporation certified Disadvantaged Business Enterprise (DBE)
- Licensed Site Professional (LSP) Commonwealth of Massachusetts, Board certified
- Licensed Environmental Professional (LEP) State of Connecticut, Board certified
- Professional Geologist - State of New Hampshire, Board certified
- Certified Hazardous Materials Manager, Board certified
- Hazardous Waste Operations - OSHA certified
- Industrial/Municipal Wastewater Treatment System Operations, Massachusetts and Rhode Island licensed Grades III, IV and V
- Central Contractor Registration (CCR) - US Department of Defense, registered

Debi Heims, Project Manager

Company Name

H&S Environmental

Yrs of Experience in Position

20 years

Education

B.S. Business, University of Maryland, 1987
Graduate Studies Biology and Chemistry, Texas Tech University

Training

OSHA 1910.120 HAZWOPER 40 hours training

OSHA 1910.120 HAZWOPER 8 hour refresher

Roadway Worker Protection

Role on Reference Projects

1. Lake Ontario Ordnance Works – Project Manager
2. Massachusetts Military Reservation - Project Manager
3. US Army Reserve Center Project Manager
4. New Bedford Harbor – Project Manager
5. Passaic River – Project Manager
6. Hurricane Katrina Response – Project Manager

Highlights of Qualifications

- ✓ Over 10 years project management experience and 17 years chemical QC and data validation experience for HTRW/OE TOs projects implementing National Functional Guidelines and EPA SW-846 QC Criteria
- ✓ Expertise managing data validation projects in compliance with U.S. EPA data review guidelines including many EPA Regions Data Validation Standard Operating Procedures
- ✓ Performed QA/QC and data management for over 2,500 HTRW samples following EPA SOPs

Received USACE NAD Commander's Coin from W.B. Temple, Brigadier General for Outstanding Service to the USACE NAD

Relevant Project Experience

Project Manager, Lake Ontario Ordnance Works, USACE Baltimore, 2007 – Manages level IV data validation services for metals, CN, VOCs, SVOCs, explosives, PCBs, and pesticides in accordance with EPA SW-846 methods. Directs QA and validation activities of five chemists processing over 60 records of laboratory whole raw data packages developing data review and validation reports. Ensures staff receives data packages on time to allow thorough reviews and 100% validation and internal QC review prior to submitting to USACE CENAB.

Project Manager, New Bedford Harbor Superfund Site, New Bedford, MA, USACE NAE (subcontract to Battelle) 2004 – Present – Manages all aspects of Tier 1 and 2 data validation following National Function Guidelines and EPA SW-846 QC Criteria for organic and inorganic data review including PCB Congeners and homologues. Directs assessment of whole raw data packages and preparation of Data Review and Validation Reports. Completes QA and validation services within a 5 days; completes air samples in 2 days.

"H&S has done an excellent job validating 100% of data generated for New Bedford Harbor…" – **Lisa Lefkovitz, Battelle**

Project Manager, Passaic River Restoration, Passaic, NJ, USACE NWK (subcontract to Malcolm Pirnie), 2005 – 2007 – Directs chemists performing level 3 data validation of samples for the Passaic River restoration in EPA Region 2. Oversees contract negotiations, cost/schedule performance, and technical quality for 100% validation of sample results in compliance with National Functional Guidelines and EPA Region 2 SOPs.

Project Manager, Hurricane Katrina Response, New Orleans, LA, USACE MVN (subcontract to ECC), 2006- Present – Directing staff and technical quality for Tier 2 data validation for pre- and post-operation samples. Directs validation in compliance with DQOs for>1,400 debris, soil, surface water, groundwater, sediment, and discharge water samples in compliance with DoD QSM for VOCs, SVOCs, herbicides, petroleum organics, PCBs/pesticides, metals and cyanide.

- 100% compliance with 14 day turnaround time for validation

Samir A. Naguib, Quality Assurance Chemist

Company Name

H&S Environmental

Yrs of Experience in Position

23 years

Education

M.S. Analytical Chemistry, Sam Houston State University, TX, 1983

B.S. Chemistry, Ain Shams University, Cairo, Egypt, 1979

Role on Reference Projects

1. Lake Ontario Ordnance Works – Lead Chemist/Data Validator
2. Massachusetts Military Reservation – Data Validator
3. US Army Reserve Center - Data Validataor
4. New Bedford Harbor – Data Validator
5. Passaic River – Data Validator
6. Hurricane Katrina Response – Data Validator

Highlights of Qualifications

- ✓ Over 23years experience with analytical chemistry including >14 years of data validation and >10 years as QA officer validating and enforcing National Functional Guidelines and SW-846 QC Criteria
- ✓ Validated over 10,000 soil, water, sludge, and groundwater samples to EPA Region 1, 2, 3, 4, 6, and 9 with 100% reliability
- ✓ Performed laboratory QA on over 5,000 HTRW soil and water samples following various EPA Regions SOPs
- ✓ Experienced with DOD Perchlorate Handbook and validation
- ✓ Expertise verifying and validating organic and inorganic data related to CERCLA and RCRA using USEPA National Functional Guidelines

Relevant Project Experience

Senior QA Chemist/Data Validator, Lake Ontario Ordnance Works, USACE NAB, 2007 – Providing QC review of Tier IVdata validation performed by H&S Data Validation Specialists. Reviews validation to ensure compliance with DoD QSM, EPA Region 2 SOPs, National Functional Guidelines, EPA SW 846 QC criteria. Prepares and submits final Data Review and Validation Reports.

Data Validation Specialist, New Bedford Harbor Superfund Site, New Bedford, MA, USACE NAE (under subcontract to Battelle), 2004 – Present – Performs Tier 1 and Tier 2 data validation applying USEPA CLP National Functional, Region 1 Guidelines for Organic and Inorganic Data Review, Engineer Manual (EM) 200-1-3, February 2001, and project specific DQOs on sediment, soil, surface water, treatment water, and air samples. Reviewed over 3,000 PCB congener samples including over 210 air samples using method 1668A. Organizes and reports EDD packages using MS Excel and MS Access. Prepares deliverables including EPA Region I worksheets, a hard copy data validation report, annotated Form I's, and EDDs. Completes validation within a 5-day turnaround time and air samples completed within 2 days.

Data Validation Specialist, Hurricane Katrina Response, New Orleans, LA, USACE MVN (under subcontract to ECC), 2006-Present – Performs Tier 2 data validation for pre-operation samples**.** Validating > 1,400 samples in various media including debris, soil, surface water, groundwater, sludge, sediment, and discharge water for the full suite of parameters: VOCs, SVOCs, PCBs, pesticides, herbicides, TPH, metals and TCLP analyses. Posts validated data on secure FTP site allowing USACE and FEMA 24/7 access to review data. -Received a commendation from Jackson Kiker, ECC Project Manager: *"Samir's expertise is greatly appreciated, his added-value comments and assistance has provided us with more information than we planned on receiving"*

Data Validation Specialist and Synetics® Data Management Reviewer, Massachusetts Military Reservation USACE NED (under subcontract to ECC) ongoing- Performs Tier 1 and 2 data validation for hundreds of explosives and perchlorates groundwater samples following the DOD Perchlorate handbook and other USACE protocols. Works with ADR/EDMS Synetics® Management System.

Christine Garvey, Data Validator

Company Name
H&S Environmental

Yrs of Experience in Position
23 years

Education

B.S. Toxicology, Northeastern University, 1986

Role on Reference Projects

1. Lake Ontario Ordnance Works, Data Validator
4. New Bedford Harbor – QA Chemist/ Technical Reviewer

Highlights of Qualifications

- ✓ Over 20 years experience with analytical chemistry including 18 years performing data validation and QA/QC for analytical laboratories
- ✓ Validated over 7,250 soil, water, sludge, and groundwater samples to EPA Region 1, 2, 3, 4, and 5 with 100% reliability
- ✓ Expertise in verification and validation of organic and inorganic data related USEPA National Functional Guideline Standards and Regional SOPs

Relevant Project Experience

Data Validator, Lake Ontario Ordnance Works, USACE NAB, 2007 – Performing 100% data **v**alidation for over 30 raw data packages and 100 samples for soil, water, and sediment samples. Validating analyses for VOC's, SVOCs, Explosives, PCB, and pesticides in compliance with EPA SOPs for SW 846 criteria and SOPs for explosives and metals. Preparing data validation reports including return of EDDs with newly populated validated qualifier fields and summary narratives of validation results for each analytical group within each SDG/EDD.

- Completed validation of >100 samples in 20 days to meet USACE mandated schedule

Nancy Toole, Data Validator

Company Name
H&S Environmental

Yrs of Experience in Position
31 years

Education

B.S. Environmental Health Science, 1978

Role on Reference Projects

1. Lake Ontario Ordnance Works, Data Validator

Highlights of Qualifications

- ✓ Over 30 years experience with analytical chemistry including >19 years of data validation and QC in EPA Regions 4, 5, 6, and 7
- ✓ Validated over 5,200 soil, water, sludge, and groundwater samples to 100% reliability
- ✓ Extensive experience verifying and validating organic and inorganic data for CERCLA and RCRA sites using USEPA National Functional Guideline Standards and DoD QSM and predecessor guidelines

Relevant Project Experience

Data Validator, Lake Ontario Ordnance Works, USACE NAB, 2007 – Performing 100% data **v**alidation for over 10 raw data packages and 100 samples for soil, water, and sediment samples. Validating analyses for VOC's, SVOCs, Explosives, PCB, and pesticides in compliance with EPA SOPs for SW 846 criteria and SOPs for explosives and metals. Preparing data validation reports including return of EDDs with newly populated validated qualifier fields and summary narratives of validation results for each analytical group within each SDG/EDD.

- Completed validation of >100 samples in 20 days to meet USACE mandated schedule

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