Remedial Investigation/ Feasibility Study Work Plan

Former Elka Chemical Corporation Site

NYSDEC Site Number: 152239

Prepared for:

**The New York State Department of Environmental Conservation,
Division of Environmental Remediation**

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This Remedial Investigation/Feasibility Study Work Plan for Former Elka Chemical Corporation Site, NYSDEC Site Number: 152239, was prepared by Eastern Environmental Solutions, Inc. / Dermody Consulting under the responsible charge of Dr. Ravi Korlipara, P.E.

3/1/18

Dr. Ravi Korlipara, P.E.

SECTION 1.0
INTRODUCTION

1.1 Purpose

This Remedial Investigation/Feasibility Study (RI/FS) Work Plan has been prepared by Eastern Environmental Solutions, Inc. and Dermody Consulting (jointly referred to as EES). The purpose of this work plan is to propose the investigation of the contamination at the property at 340 West Hoffman Avenue, Lindenhurst, New York (the "Site"). The Suffolk County Tax Map Number for the Site is District 103, Section 9, Block 1, and Lot 81.5.

The Site is listed on the New York State Department of Environmental Conservation (NYSDEC) Registry of Inactive Hazardous Waste Disposal Sites (Class 2) as Site No. 152239.

This RI/FS Work Plan will present project background information including an evaluation of the existing information from previous investigations regarding contamination in the soil, soil vapor, and groundwater. A sampling plan will be presented to supplement the existing data. The purpose of the proposed sampling is to characterize of the nature and extent of contamination in the soil, soil vapor, indoor air, and groundwater. In addition, an FS scope of work will be presented to define the procedures that will be used to evaluate potential remedies for the Site.

All work performed will be in substantial compliance with the NYSDEC Technical Guidance for Site Investigation and Remediation DER-10.

1.2 Site Background

The Site is located in a commercial/industrial area at the northwest corner of the intersection of West Hoffman and New York Avenues. The Site is approximately 0.5 acres in size and consists of a paved parking lot on its east end, a 4000-square-foot commercial/industrial building on its central portion, and an unpaved area on its west end. West Hoffman Avenue is a divided road with the Long Island Rail Road (LIRR) elevated tracks present in its median. For this work plan, the portion of West Hoffman Avenue to the north of the LIRR tracks will be referred to as "North WHA (West Hoffman Avenue)" and the portion to the south of the LIRR tracks will be referred to as

"South WHA." The Site location and properties boundaries are presented in Figure 1 and the Site survey is provided in Appendix A.

The building at the Site was previously occupied by Elka Chemical Corporation (Elka) from the 1920s until approximately 1985. From approximately 1985 to 2013, the Site was occupied by Roy's Auto Repair and a Volvo dealership that was known as Verness Motoring Co. In 2013, the Site was used as a gymnasium, and since 2014, the Site building and east parking lot has been occupied by the New Born Church of God. The unpaved western portion of the Site is currently occupied by a landscaping company and is used to store landscaping vehicles and wood.

The Site building and parking lot is occupied by the New Born Church of God. The Site contact is Pastor Margaret Douglas (631-842-9720).

The Site is owned by 340 West Hoffman Corporation. The Site owner contact is Mr. Albert Simeone, Jr. Mr. Simeone's mailing address is 640 West Hoffman Avenue, Lindenhurst, 11957 and his phone number is 516-807-7979.

SECTION 2.0
SITE SETTING AND ENVIRONMENTAL HISTORY

2.1 Geology and Hydrogeology

The regional geology of the Site area consists of a base of Precambrian crystalline bedrock predominantly composed of schist and gneiss overlain by the Lloyd Sand Member of the Cretaceous Raritan Formation. The clay member of the Raritan Formation overlies the Lloyd Sand Member, and acts as a confining unit. Overlying the Raritan Formation is the Cretaceous Magothy Formation which, in the Site area, is overlain by the Pleistocene Upper Glacial Formation that is composed of stratified medium to coarse-grained sand and gravel. The Upper Glacial deposits are estimated to be approximately 75 feet thick in the Site area. The soils at and in the area of the Site are classified by the US Department of Agriculture as consisting primarily of urban land soils, which contain a mix of sand, gravel, silt, clay, and fill material.

Site-specific geology was recorded during a previous subsurface investigation at the Site. Based on the Site Characterization Report prepared by HRP Associates (2015), the geology was evaluated to a depth of 70 feet below grade. The boring logs from that report indicate that the Site geology generally consists of tan, medium-to-coarse-grained sand with some gravel and pebbles to a depth of at least 70 feet below grade. No clay or other potentially confining layers were identified.

Based on the Site Characterization Report and the US Geological Survey topographic quadrangle map (see Appendix B), the elevation at the Site is approximately 20 feet above mean sea level and is essentially flat. Groundwater beneath the Site occurs at approximately 5 feet below grade. The groundwater flow direction is to the south-southeast.

2.2 Environmental History

In 2001, Impact Environmental performed a groundwater investigation in the area downgradient of the Site. Impact Environmental was initially performing an investigation of a property on the south side of South WHA and detected groundwater contamination at that property. Therefore, they performed Geoprobe groundwater sampling at 5 locations downgradient of the Site along the north side of South WHA.

The results of the investigation showed that petroleum constituents were present in the groundwater downgradient of the Site. Based on this information, it was concluded that the contamination appeared to be emanating from the Site (see Appendix C for their Site figures and a summary of the sampling results).

In 2006, based on the Impact Environmental data, the Site was listed as a NYSDEC petroleum spill site (Site No. 0650126). See Appendix D for the NYSDEC spill report form.

In 2011, the Suffolk County Department of Health Services (SCDHS) prepared a summary report of their activities at the Site. The report stated that in 2001, the SCDHS visited the Site and observed the presence of "hundreds of solvent drums and a xylene tank." Also, in 2001, samples were obtained from "in front of the old Elka site." Samples were obtained from the water table and from a depth of 20 feet below the water table. The results for the shallow sample included 7,700 parts per billion (ppb) of xylene and the deeper sample showed 34 ppb of xylene.

In 2002, two adjacent groundwater monitoring wells, one shallow and one deep, were installed to the north of the Site on Akron Avenue at a location 100 feet west of New York Avenue (see Figure 2 for the layout and street names for the upgradient and downgradient groundwater areas). These upgradient wells were sampled and the results showed the presence of tetrachloroethylene and trichloroethylene (no xylene was detected) at concentrations above the NYSDEC Class GA groundwater standards. In 2010, the SDCHS stated that no public water supply wells existed in the area downgradient of the Site. There were also no private water supply wells identified in a downgradient area during a mail survey, however, three residents did not respond to the SCDHS. Public drinking water is supplied to the area by the Suffolk County Water Authority.

In 2011, the SCDHS performed 12 Geoprobe borings. Groundwater samples were obtained at various depth intervals to a maximum depth of 55 feet. The sampling was performed along the south side of South WHA and further south, along Kent Avenue. The wells were sampled and the results showed that groundwater in the downgradient area contains petroleum-related volatile organic compounds (VOCs) that included relatively elevated concentrations of xylene. The downgradient plume appears

to be substantially confined to the area between 11th and 12th Streets (see Appendix E for the SCDHS 2011 letter report, figures, and sampling results). The SCDHS concluded that the Elka Site was the source of the contamination.

The sampling results for the borings along South WHA showed that contamination was primarily confined to the shallowest groundwater sampling interval (5 to 10 feet below grade). At the locations further south, the contamination was detected at high concentrations in the zones from 15 to 20 feet and 25 to 30 feet. No contamination was detected in the zone from 35 to 40 feet.

In 2012, the NYSDEC contracted Environmental Assessment & Remediation (EAR) to perform two soil and groundwater investigations along the north side of North WHA and the north and south sides of South WHA. In addition, one soil vapor probe was installed and sampled on the south side of South WHA. The soil and groundwater samples were obtained at depths that ranged from 5 to 19 feet below grade.

The results generally showed the apparent presence of two groundwater plumes: one to the east and one to the west of the building at the Site. The west plume contained xylene levels as high as 18,000 ppb and total VOC concentrations as high as 25,378 ppb. Elevated levels of xylenes and VOCs were also present in the saturated soil at 10 to 12 feet below grade at locations adjacent and downgradient of the west side of the Site. The soil vapor investigation consisted of the installation of one soil gas probe adjacent and south of South WHA between 11th and 12th Streets. The probe was installed to a depth of 4.5 feet below grade. The sample obtained from the probe showed the presence, primarily, of tetrachloroethylene [180 micrograms per cubic meter (ug/m3)]; 1,1,1-trichloroethane (310 ug/m3); 1,1-dichloroethane (250 ug/m3); and trichloroethylene (42 ug/m3). The total BTEX (the sum of the concentrations of benzene, toluene, ethylbenzene, and xylene) was 3.5 ug/m3. As discussed above, the SCDHS detected the presence of chlorinated VOCs on Akron St., to the north and hydraulically upgradient of the Site. See Appendix F for the EAR pertinent figures and summary results tables.

The HRP Site Characterization Report (2015) provided information from the on-Site sampling of soil, groundwater, and soil vapor. Figures and summary tables of the results of the investigation are provided in Appendix G.

The investigation including the performance of 12 borings including saturated soil samples and groundwater samples obtained starting at the water table interface (approximately 5 feet below grade) and at 10-foot intervals thereafter. Samples were obtained at depths of up to 70 feet below grade and showed contamination. Piezometers were installed at three locations. Shallow soil samples and soil vapor samples were also obtained.

The results showed elevated concentrations of xylene and other petroleum constituents in most areas from the water table interface to a depth of 70 feet. The boring logs for 11 of the 12 locations showed gray-stained soil and elevated photoionization detector (PID) readings in the soil just below the water table. Four surface soil samples (SS-1 through SS-4) were obtained at depth intervals of 0 to 6 inches. SS-1 was obtained adjacent to soil boring SB-8, SS-2 was obtained adjacent to SB-11, SS-3 was obtained adjacent to SB-9, and SS-4 was obtained adjacent to SB-10. The results of the sampling showed no detections of petroleum constituents and trace concentrations of tetrachloroethylene and trichloroethylene. Based on this information, as well as the soil borings which reported no soil staining in the vadose zone at any of the 12 locations (although there were relatively low PID readings and minor petroleum odors at 3 of the 12 boring locations), the entry point of the petroleum constituents into the subsurface is not known.

Three piezometers were installed at the Site. The piezometers were installed to depths ranging from approximately 30 to 33 feet below grade. The screen lengths are not known. The piezometers were sampled for semi-volatile organic compounds (SVOCs) and metals. The results showed a minor exceedance of the NYSDEC Class GA groundwater standards for bis(2-ethylhexyl)phthalate at one location (PZ-1). The metals results showed exceedances for iron and minor exceedances for sodium. Iron is found naturally at high concentrations in Long Island groundwater.

Six soil vapor probe samples were obtained at the Site. Soil vapor probe sample SVP-1 was obtained adjacent to soil boring SB-3, SVP-2 was obtained adjacent to SB-7, SVP-3 was obtained adjacent to SB-8, SVP-4 was obtained adjacent to SB-6 (this location is inferred since the Site Characterization Report is unclear on the location), SVP-5 was obtained at SB-9, and SVP-6 was obtained at SB-10. The results of the

sampling showed the presence of elevated concentrations of chlorinated and non-chlorinated VOCs.

Based on the Site Characterization Report, information that a xylene tank was present during Elka's occupancy of the Site, and the detection of elevated concentrations of xylene in the groundwater, the NYSDEC listed the Site as a Class 2 Inactive Hazardous Waste Disposal Site.

The complete reports and other information that were used to assist in the preparation of the Site's environmental history are provided in the compact disc in Appendix H.

A review of the Sanborn Fire Insurance Maps for the Site area for the years 1915, 1925, 1933, 1949, and 1968 provides historical information for the Site. The information was derived from the Site Characterization Report.

1915 Sanborn Fire Insurance Map

The Site is not fully shown on the map. To the north of the Site across 4th Street (Grant Avenue, currently Akron Street), the map depicts two structures labeled "Sheds", and two additional buildings. Across Madison Street (currently New York Avenue) to the east is unimproved.

1925 Sanborn Fire Insurance Map

The Site is not fully shown but does not appear to have been improved. The Site to the north of 4th Street (now Akron Street) is identified as Suffolk Plating Works. Across Thusnelda Avenue (currently New York Avenue) to the east is unimproved. Additional details are not included on the map.

1933 Sanborn Fire Insurance Map

The Site is not depicted on the map. To the north of Akron Street is an unidentified building. To the south of the Site is West Hoffman Avenue, the LIRR, followed by the Imperial Machine and Foundry Corp., the area to the east and the west are not shown on the map.

1949 Sanborn Fire Insurance Map

The Site is improved with a concrete block building with a concrete floor, steel beams, and plastered walls. Attached to the west of the building is a concrete addition,

but the Imperial Machine and Foundry Corp. is shown in the same configuration as on the 1933 Sanborn Fire Insurance Map.

1968 Sanborn Fire Insurance Map

The Site building is present and no changes were observed. To the west of the building is a small out building along West Hoffman Avenue. The unidentified building to the west of the Site is shown and is constructed with concrete block, concrete floors, and steel posts and beams. The areas to the east and northwest of the Site are not shown on the 1968 map. Russell Corp. Reinforced Plastics machine shop and a loft are shown to the south of the Site.

1915, 1925, 1933, 1949, and 1968 Sanborn Fire Insurance Maps

The Site is improved with a concrete building that contains ink preservative and point products, and an additional room exists to the west of the building. The areas to the north and east are not shown, to the south is West Hoffman Avenue, the LIRR, and miscellaneous businesses. To the west is an unidentified structure.

2.3 Site Inspection and Database Search Results

A Site and Site vicinity inspection was performed in August, 2017 by EES. The results of the inspection showed the following:

- There are two stormwater drainpools in the east parking lot at the Site. There is no information in the files reviewed to indicate that these drainpools were ever evaluated or sampled.
- The 2015 Site Characterization Report indicated that "Elevated PID readings were observed at each of the borings, with the highest the highest frequency of readings found on the borings on the north side of the site…" Based on this information, the area between the Site and Akron Avenue were visually evaluated and it was determined that the building adjacent and north of the Site building is occupied by Bruce Transmission & Motor Co. The lot to the east of this building is unpaved and contained several parked fuel oil delivery trucks. These properties may have contributed to the contamination at the Site. EES also reviewed the NYSDEC Spills Incident Database for Akron Ave., Lindenhurst, Suffolk County, and found no reported spills.
- The 3 piezometers at the Site remain present.

- 2 four-inch-diameter groundwater monitoring wells were found to be present in the median between North and South WHA. The wells are located generally to the south-southeast of the Site building. These wells were not discussed in any of the files reviewed and will be discussed later in this report and their sampling will be proposed.
- An environmental database report was obtained from EDR, Inc. Based on a review of that report (see Appendix I), there were several spills reported for the area within 0.5 miles of the Site. Four spills were reported for the area upgradient or adjacent to the Site, however, these spills were addressed to the satisfaction of the NYSDEC and were closed. No spills were reported for the downgradient area (see the maps on pp. 24 and 25 of the report in Appendix I).

2.4 Summary of Site Conditions

Based on the previous investigations, primarily the gray-stained soil with elevated PID readings in soil just below the water table, it appears that a smear zone is present throughout most areas of the Site where sampling occurred. The smear zone is an indication that floating product may have been present on the surface of the water table in the past. The smear zone soil and groundwater contamination consists of petroleum constituents, primarily BTEX.

Elka is reported to have vacated the Site in 1985. Therefore, the smear zone may be at least 32 years old and its gray color indicates that it is likely to be highly weathered. The Site Characterization Report showed the presence of groundwater contamination from the water table to approximately 65 feet below the water table (the water table occurs at approximately 5 feet below grade). However, due to the Site being located in a groundwater discharge area (where there is an upward component of groundwater flow), the lack of an apparent mechanism to transport contamination to the significant depths, and no deep contamination detected during the SCDHS investigation along South WHA, the deep groundwater contamination may have been the result of Geoprobe sampling rods passing through the smear zone and then contaminating the groundwater below the smear zone.

In the area downgradient of the Site, Geoprobe groundwater sampling has been performed on at least three occasions during the period from 2001 to 2012. Based on the

findings of these investigations, it was determined that petroleum constituents were detected in the groundwater. The groundwater contamination was primarily confined to the area between 11th and 12th Streets and, therefore, the groundwater flow direction appears to be generally south-southeast and parallel to 11th and 12th Streets.

The groundwater contamination on the south side of South WHA was confined to the shallow groundwater and as the plume travels southward to Kent Avenue, it was detected at deeper depths of up to 30 feet below grade. Kent Avenue is the southernmost location where groundwater sampling has been performed to date. Elevated concentrations of xylene and trimethylbenzenes, as well as other petroleum constituents, have been detected along Kent Avenue, which is approximately 650 feet downgradient of the Site.

A soil vapor probe installed on the south side of South WHA showed elevated concentrations of chlorinated VOCs, and a trace concentration of xylene (3.5 ug/m3), which was the only BTEX constituent detected.

2.5 Wetlands

To evaluate the potential presence of wetlands on and in the vicinity of the Site, a Site inspection was performed. In addition, the NYSDEC Environmental Resource Mapper was evaluated to determine the presence of National Wetlands Inventory or NYSDEC regulated wetlands. Based on the evaluation, there are no wetlands present at the Site. The nearest wetlands to the Site is a National Wetlands Inventory freshwater wetlands and NYSDEC-regulated wetlands located 0.5 miles to the south-southeast of the Site that is associated with the headwaters of Strongs Creek.

The Environmental Database Report (see Appendix I) was also evaluated and confirmed the presence of the Strongs Creek federal and state wetlands present approximately 0.5 miles to the south-southeast of the Site (see the map on p. 24 of the Environmental Database Report).

2.6 Potential Human or Ecological Receptors

The contamination that is known to be associated with the Site based on previous investigations includes on-Site soil and groundwater contamination. In addition, groundwater contamination is known to be emanating from the Site and is travelling generally to the south-southeast.

The adjacent areas upgradient and cross-gradient contain commercial and industrial properties. The downgradient area is primarily a residential area. Also, the downgradient area contains a small multi-tenant commercial building on the south side of South WHA. A portion of the building is in the downgradient area of the Site and is occupied by Kid Esteem School. In addition, the Gates Avenue Elementary School is also present in the general downgradient area approximately 1750 feet from the Site.

As was discussed above, a freshwater wetland is present approximately 0.5 miles downgradient of the Site.

Based on the 2017 Water Quality Report from the Suffolk County Water Authority and the Environmental Database Report for the Site and vicinity, there are no public water supply wells in the area 0.25 miles upgradient of the Site, or 1 mile downgradient of the Site. 20 non-public water wells were listed within 0.5 miles of the Site. It appears that two of these wells are located in the downgradient (south-southeast) direction, and one well exists in the general upgradient direction within 0.25 miles (see page 366 of the Environmental Database Report in Appendix I for a map of the wells in the Site vicinity).

SECTION 3.0
PROPOSED SUPPLEMENTAL INVESTIGATION

Based on the previous investigations at the Site, there is an apparent smear zone in the soil at depths of approximately 5 to 15 feet below grade that is comprised of petroleum constituents.

The shallow groundwater throughout most of the Site has been impacted by the release and a plume is present in the area downgradient of the Site. The plume is generally confined to the area from 0 to 5 feet below the water table on the south side of South WHA, and the plume descends to a depth of up to 30 feet as it travels further downgradient to the area of Kent Avenue.

The groundwater sampling that was performed upgradient of the Site, on Akron Ave., showed the presence of elevated concentrations of chlorinated VOCs, but BTEX was not detected.

Therefore, an investigation is proposed to address the following issues (a Health and Safety Plan and Community Air Monitoring Plan for the proposed investigation is provided in Appendix J):

1. Only one previous soil/groundwater sample was obtained on the west side of the Site (to the west of the Site building) and, therefore, additional soil borings and samples are proposed to determine the extent of soil contamination in this area. Also, to determine the current groundwater conditions at the downgradient edge of the Site, multi-depth groundwater monitoring wells will be installed to determine if floating product is present on the water table, and provide a permanent groundwater monitoring well network.
2. Groundwater monitoring wells will be installed at two locations upgradient of the Site. The wells should be installed south of Akron Avenue and on the properties of where the transmission/motor shop is present and the lot where fuel oil trucks are stored to determine if there are contaminants in the upgradient groundwater. If these locations cannot be accessed, the wells should be installed along Akron Ave.

3. A multi-level groundwater monitoring well network should be installed to the south of the Site to determine current concentrations of contamination in the groundwater and to obtain groundwater contamination information further downgradient than the previous investigations had sampled to assist in determining the downgradient extent of contamination, and define the lateral and vertical extent of the plume.
4. The liquid and sediment in two stormwater drainpools in the east parking lot at the Site should be sampled.
5. The two existing groundwater monitoring wells (MW-1 and MW-2) in the median between North WHA and South WHA should be evaluated and sampled.

The proposed sampling investigation locations at the Site (and including downgradient monitoring wells MW-1 and MW-2) are presented in Figure 3 and the proposed off-Site sampling locations are presented in Figure 4.

3.1 Supplemental Soil and Groundwater On-Site Investigation

To address the completion of the investigation of the Site, 20 Geoprobe borings (GP-1 through GP-20, as shown on Figure 3) will be performed. Prior to commencing these borings, a surface soil sample will be obtained from unpaved areas (GP-1 through GP-10) at a depth of 0 to 2 inches below any vegetative level from each of these locations. Then, continuous soil cores will be obtained from grade to 20 feet for GP-1 to GP-16. The samples at GP-16 to GP-20 will be obtained from beneath the Site building and will be obtained using a Geoprobe to pierce the concrete and obtain soil cores from grade to 3 feet below grade. Soil samples will be obtained from 1 to 3 feet beneath the underlying the concrete.

The soil cores will be inspected to determine if the gray-stained soil is present, to obtain PID readings from the cores, and obtain soil samples from 1 to 3 feet below grade. At four selected locations (generally one from each quadrant of the Site where the smear zone is confirmed to be present), soil samples will be obtained from within the smear zone to determine the current concentrations of contaminants. All soil samples obtained will be submitted for laboratory analysis.

In addition, 2 one-inch-diameter PVC wells will be installed at boring locations GP-2, GP-6, GP-7, GP-8, GP-10, GP-12, GP-14, GP-15, and GP-16. The locations will each contain one shallow and one deeper well. The shallow well will contain a 7-foot-long, 0.01-inch slotted PVC screen and a three-foot riser pipe that extends to grade. The wells will be gravel packed with No. 1 Morie size gravel to a depth of three feet below grade. Then a one-foot layer of hydrated bentonite will be installed above the gravel pack. A lockable H-plug will be installed on each well and a flush-mounted well manhole well be concreted in place over the well. The deeper wells will be installed using the same procedures, but will contain a five-foot screen from 15 to 20 feet below grade.

In addition, to determine if there is evidence of deeper contamination at the Site, two deep borings/piezometers (MW-3 and MW-4) will be installed near the south border on the Site where HRP Associates detected significant soil contamination at depths up to 60 feet at their sampling locations SB-7 (that was located along the southern building of the Site and 15 feet east of the building) and SB-9 (that was located along the southern border near the southwest corner of the building). See Appendix K for the HRP analytical data and sampling locations.

At boring/well locations MW-3 and MW-4, six-inch PVC casing will be installed from grade to a depth of 20 feet below grade. The casing will be installed with a hollow-stem auger and concreted in place. The purpose of the casing is to segregate the smear zone and allow a Geoprobe to pass through the smear zone and install groundwater wells.

At each location, 2 one-inch-diameter, 0.01-inch-slot PVC groundwater monitoring wells will be installed at depths of 40 and 60 feet below grade and will contain a five-foot screen from 35 to 40 feet and from 55 to 60 feet. Each well will also contain a riser pipe that extends to grade. The wells will be gravel packed with No. 1 Morie size gravel to a depth of three feet above the screen. Then a one-foot layer of hydrated bentonite will be installed above the gravel pack. A lockable H-plug will be installed on each well and a flush-mounted well manhole well be concreted in place over the well.

For the upgradient sampling locations (GW-1 and GW-2 as shown on Figure 4), a Geoprobe will be used to install one-inch-diameter PVC groundwater monitoring wells at

each of the two locations. One well will be installed within the transmission/motor building, and the other will be installed in the unpaved parking area to the east of the transmission/motor building. The wells will be installed to a depth of 10 feet below grade and will contain a 7-foot-long, 0.01-inch slotted PVC screen and a three-foot riser pipe that extends to grade. The wells will be gravel packed with No. 1 Morie size gravel to a depth of two feet below grade. Then a one-foot layer of hydrated bentonite will be installed above the gravel pack. A lockable H-plug will be installed on each well and a flush-mounted well manhole well be concreted in place over the well. Both wells will be installed approximately 15 feet to the north of the property line between those properties and the Site. For each boring location, soil cores will be obtained to a depth of 15 feet below grade and will follow the screening and sampling procedures discussed above.

In the event that access to these properties is not granted, the upgradient wells will be obtained along Akron Ave.

Following installation, the wells will be developed by purging water using a well pump and dedicated polyethylene tubing. The well clarity goal will be 50 nephelometric turbidity units. The development water will be collected in 55-gallon drums, sealed when filled, and stored on Site for sampling and off-Site disposal. The soil core material will also be placed in drums for off-Site disposal.

3.2 Stormwater Drainpool Sediment Sampling

The locations of the two Site stormwater drainpools in the eastern parking area are shown on Figure 3. To determine if petroleum constituents or other contamination entered the drainpools, sampling of the sediment will be performed.

Prior to sampling, the depth to the overlying water and depth to the sediment surface will be measured. The drainpools will be inspected for sheens or odors. In addition, the interior of each drainpool will be inspected for inflow/outflow pipes as well as performing a geophysical survey using ground-penetrating radar to evaluate the potential presence of overflow pools in the vicinity of the storm drains.

At each storm drain and overflow pool, if found to be present, a sample will be obtained from the water overlying the sediment, and a Geoprobe will be used to obtain a sediment core from the sediment surface to a depth of 5 feet below the sediment surface. This will allow for a determination as to whether somewhat deeper contamination is

present due to the activities during the Site occupancy by Elka that may have been overlain with unimpacted sediments over the past 32 years. The sediment cores will be screened with a PID and visually inspected to evaluate potential contaminant staining. The core zone showing the highest PID readings will be retained for laboratory analysis.

3.3 Downgradient Groundwater Sampling

A network of groundwater monitoring wells is proposed to determine the current groundwater conditions, determine the vertical and lateral extent of contamination, and provide a monitoring network to evaluate future groundwater remedial progress.

The groundwater monitoring network will include the two existing groundwater monitoring wells MW-1 and MW-2, as shown on Figure 3, as well as shallow and deep monitoring wells at the proposed locations GW-3 to GW-12 as shown on Figure 4.

The proposed network will include three transects: three locations (GW-3 to GW-5) along the south side of South WHA, three locations (GW-6 to GW-8) along Kent Avenue (which is approximately 650 feet from the Site), and four locations (GW-9 to GW-12) along West Gates Avenue (which is approximately 1,750 feet from the Site).

At locations GW-3 to GW-5, two groundwater monitoring wells will be installed at each location; one well will be installed to a depth of 10 feet below grade and will contain a 7-foot screen. A second well will be installed adjacent to the first, and will be installed to a depth of 20 feet and will contain a 5-foot screen. The installation procedures will be the same as that used for the on-Site wells described above.

At Kent Avenue, the wells at each location (GW-6 to GW-8) will be installed with screened intervals at depths of 5 to 10, 15 to 20, 25 to 30, and 35 to 40 feet. The wells will be one-inch-diameter PVC and will be installed with a hollow-stem auger and the wells will be installed in a cluster of one-inch wells. No. 1 Morie-sized gravel will be placed opposite each screen and a minimum of two feet of bentonite will be used to segregate the depth intervals.

At West Gates Avenue locations GW-9 to GW-12, further plume descent is expected. Prior to installing permanent wells, a Geoprobe will be used to profile the groundwater column. Samples will be obtained from depths of 5 to 10, 15 to 25, 25 to 35, 45 to 50, and 55 to 60 feet below grade. The samples will be analyzed for target parameters. Based on the results of this sampling, three depth intervals will be selected

for each of the of the four locations and permanent groundwater cluster wells will be installed. The wells will be installed with a hollow-stem auger using the procedures described above.

3.4 Soil Vapor Intrusion Sampling

To determine if either soil or groundwater contamination is impacting the indoor air at the on-Site building or the downgradient Kid Esteem School (which is located 550 feet south-southeast of the Site at 175 S. 11th St., Lindenhurst), a soil vapor intrusion investigation will be performed at each of these buildings. The investigations will be performed in accordance with the NYSDOH's "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (2006) as amended. The sampling will be performed during the heating season.

At each building, two sub-slab soil vapor samples will be obtained from beneath the concrete floor. This will entail using a Hilti TE-1 rotary hammer drill (or similar) to create a half-inch-diameter drillhole in the floor at each of the locations. The drilling will be performed to a depth of approximately two inches below the base of the concrete. A length of food grade polyethylene tubing will be placed to the base of the hole and Morie No. 1 sized gravel will be placed in the drillhole around the tubing to two inches below grade. The drillhole will be sealed at the surface with hydrated bentonite. The tubing will be connected to Summa Canisters and the samples will be obtained over an eight-hour period using a flow restrictor.

In addition, one indoor air sample and one outdoor air sample will be obtained for each building with Summa Canisters over the same eight-hour period. The initial and final pressure of the Summa Canisters will be recorded in the field book. The eight sample canisters will be delivered to a New York State ELAP-approved laboratory for the analysis of VOCs by Method TO-15. When the sampling is complete, the sub-slab drillholes will be sealed with concrete.

The results of the investigation will be evaluated to determine if soil vapor intrusion is present and, if so, recommendations for further action, such as mitigation will be provided.

SECTION 4.0
PRE-INVESTIGATION TASKS

Prior to commencing the field investigation, several tasks will be performed. These tasks include obtaining required permits, notifying Dig Safely New York to locate underground utilities, constructing a temporary decontamination pad on-Site, reviewing the HASP and CAMP (see Appendix I), inspecting the Site for potential health and safety hazards, and marking proposed borehole locations.

4.1 Decontamination Pad

Prior to the initiation of intrusive field activities, a temporary equipment decontamination pad will be constructed by the drillers in the equipment decontamination area. The decontamination pad will be constructed so that liquid and soil can be contained and collected. The decontamination pad will be constructed using wood and high-density polyethylene (HDPE) plastic or similar material as a barrier with raised sides to contain decontamination water and constructed to accommodate equipment to be decontaminated. Decontamination wastes will be stored in covered drums located adjacent to the decontamination pad until they are sampled and then disposed. The decontamination location will be chosen based on field conditions.

4.2 Subsurface Utilities

Prior to performing any on or off-Site subsurface borings or other activities, Dig Safely New York will be contacted to mark all utilities adjacent to the Site, and in the vicinity of the proposed off-Site boring locations.

In addition, for the on-Site area, a geophysical survey will be performed throughout the entire Site to include ground-penetrating radar and other utility-locating equipment. The purpose will be to determine if there is evidence of subsurface utilities or other structures (such as underground storage tanks or overflow drainpools) at the Site. The locations of identified subsurface utilities or structures will be marked by the geophysical contractor on the ground surface with spray paint and/or flagging. No borings will be performed in areas of subsurface structures.

After determination of the locations of subsurface utilities at and in the vicinity of the Site, an evaluation will be performed to determine if any of the subsurface utilities

have the potential to act as conduits for the migration of contaminants emanating from the Site.

4.3 Decontamination Procedures

To avoid cross contamination, non-dedicated sampling equipment (defined as any piece of equipment that may contact a sample) will be decontaminated. Non-dedicated reusable equipment such as knives, steel macrocores, stainless steel mixing bowls, and spoons will require field decontamination.

Decontamination will typically entail scrubbing/washing with a laboratory grade detergent (e.g. Alconox) to remove visible contamination, followed by potable (tap) water and then analyte-free water rinses (as provided by the analytical laboratory). Equipment will be allowed to air dry prior to use. Any tubing will be dedicated (new tubing will be used for each well).

4.4 Disposable Sampling Equipment

Disposable sampling equipment may include Geoprobe acetate sampling liners and tubing associated with groundwater sampling/purging pumps. This equipment will not be field-decontaminated and will not be re-used.

4.5 Storage and Disposal of Investigation-Derived Waste

Personal protective equipment and disposable sampling equipment will be placed in plastic garbage bags for disposal as solid waste.

Soil cuttings will be drummed and stored on-Site for off-Site disposal. Well purge water and decontamination water will be drummed for off-Site disposal. The drummed soil and groundwater will be characterized for waste disposal and disposed at an approved disposal facility (Soil Safe, Inc. of Columbia, MD).

4.6 Permitting and Off-Site Sampling Notification

Road-opening permits will be obtained from the Town of Babylon prior to commencing the off-Site borings and well installations. Also, the off-Site sampling at the two adjacent and upgradient properties will be notified by mail of the intention to perform sampling at these properties and their permission will be requested.

SECTION 5.0
SAMPLING PROCEDURES

Environmental samples will be obtained from on-Site and off-Site locations and will include soil, groundwater, soil vapor, and indoor and outdoor air samples. The sampling will be performed in two phases: The first phase will include the on-Site and upgradient sampling. All soil and groundwater samples analyzed during the first phase will include Target Compound List (TCL) VOCs plus 10 Tentatively Identified Compounds (TICs) by US Environmental Protection Agency (USEPA) Method 8260, SVOCs plus 20 TICs by USEPA Method 8270, and Target Analyte List (TAL) compounds including metals and cyanide. In addition, at four locations at the Site (GP-2, GP-7, GP-9, and SD-1, sample analyses will include 1,4-dioxane, and per- and polyfluoroalkyl substances (PFASs). Also, these substances will also be added for four shallow groundwater well sampling locations including GP-6, GP-8, GP-14, and GP-16 at the Site, as well as from upgradient wells GW-1 and GW-2.

Sampling precautions will be instituted at locations where PFASs are to be sampled to reduce the potential for contamination from entering the samples from extraneous sources such the samplers clothing, the sampling equipment, or other potential sources. The field sampling guidelines that will be followed for the PFAS sampling are provided in Appendix K.

Following the first phase of the soil and groundwater sampling, a letter report will be prepared and submitted to NYSDEC. Based on the on-Site and upgradient analytical results, a reduction in the sample analyses may be proposed for the second phase (off-Site) of groundwater sampling. The reduction will be proposed if categories of contaminants are not found to be present at the Site, or are found in trace concentrations.

The NYSDEC will provide a written response to the EES letter report which will be used to determine the sampling parameters for the off-Site groundwater sampling.

5.1 Groundwater Sampling Procedures

Groundwater samples will be obtained from both groundwater monitoring wells and by Geoprobe sampling methods.

All groundwater monitoring well sampling activities will be recorded in a field book. All observations (e.g., well integrity, etc.) will be noted in the field book. For sampling activities at which PFASs will be sampled, weatherproof field books will not be used since they may be a source of sample contamination. At these locations, non-weatherproof field books will be used.

Prior to the sampling of monitoring wells, the presence of floating product will be evaluated using an oil/water interface probe. The groundwater monitoring wells will then be purged of at least three casing volumes utilizing a Geotech peristaltic pump (or similar) with a low-flow controller and dedicated tubing. All wells will be purged at a flow rate of 0.5 liters per minute. Prior to collecting the groundwater samples, the flow rate is decreased to 0.1 liters per minute. Stability parameters including pH, specific conductivity, temperature, and dissolved oxygen will be measured and recorded following the purging of each casing volume. A groundwater sample will be collected from each well when the set of the final two stability parameter readings are within ten percent of each other. The stability parameter readings and water level measurements and depth of well measurements for each monitoring well will be recorded in the field book.

For the groundwater samples obtained through the Geoprobe sampling rods, the samples will be obtained using dedicated polyethylene tubing and a check valve. The tubing will be agitated to produce groundwater and the stability parameters will be obtained following the removal of each tubing volume of water.

Groundwater samples will be collected and transferred to laboratory-supplied glassware, properly preserved, and placed in an ice-filled cooler for delivery to a NYSDOH ELAP-approved laboratory. All sample analyses will be performed with NYSDEC ASP Category B deliverables. A chain of custody form will also be completed to document sample possession.

5.2 Soil Sampling Procedures

Soil samples will be obtained from Geoprobe cores within dedicated acetate liners. The liners will be split laterally and the samples will be visually inspected for indications of staining or other discoloration, and a PID will be used to determine the

zone within the core that contains the highest PID readings. A sample will generally be obtained from the zone indicating the highest PID readings.

Shallow soil samples will be obtained using decontaminated stainless steel spoons or trowels.

Samples will be transferred to laboratory-supplied glassware, properly preserved, and placed in an ice-filled cooler (with no chemical ice packs) for delivery to a NYSDOH ELAP-approved laboratory. A chain of custody form will also be completed to document sample possession.

SECTION 6.0
QUALITY ASSURANCE PROJECT PLAN

The Quality Assurance Project Plan (QAPP) presents the policies, organization, objectives, functional activities and specific quality assurance/quality control activities designed to achieve the data quality goals or objectives of this project.

Table 1 provides a summary of the proposed sampling and analysis, matrices, sample depths, analytical parameters, sampling methods, and minimum reporting requirements.

6.1 Sample Identification and Labeling

Samples will be assigned a unique identification such as GP-1 (5-10 feet) for a soil sample obtained from a boring from a depth interval of 5 to 10 feet below grade. All samples will be labeled and will contain the Site name, the sample identification and sample depth interval, the date and time the sample was obtained, and the requested laboratory analysis. A chain-of-custody form will be completed and will accompany the samples at all times.

6.2 Sample Containers and Preservation

Sample containers will include laboratory-supplied 40 milliliter VOC vials with Teflon septa for groundwater samples (the samples for PFASs will not contain Teflon septa). Soil samples will be placed in 4 oz. glass jars. The groundwater VOC samples will be preserved with hydrochloric acid that will be added by the laboratory prior to supplying the vials. All soil and groundwater samples will be placed in an ice-filled cooler to maintain a temperature of 4 degrees Celsius. The Summa Canisters require no preservation, but excessive heat or cold will be avoided. All samples will be transferred to the laboratory within 48 of sample collection.

6.3 Quality Assurance/Quality Control (QA/QC) Sampling

One laboratory duplicate sample (marked with an identification that does not reveal that the sample is a duplicate) will be collected for every 20 soil samples and every 20 groundwater samples. A matrix spike and matrix spike duplicate will be performed once for every 20 samples. In addition, one equipment rinsate blank will be obtained each day for each sampling media (acetate sleeves or polyethylene tubing); laboratory-supplied analyte-free water will be poured over the media and collected in VOC vials. A

trip blank will be prepared by the laboratory and will accompany the samples collected for that sample delivery group.

6.4 Sample Analysis

All soil, groundwater, and QA/QC samples will be analyzed with NYSDEC ASP Category B deliverables. York Analytical Laboratories, Inc. is a New York State Department of Health ELAP-approved laboratory and will perform the analyses. All laboratory data will be submitted to NYSDEC as Electronic Data Deliverables (EDD) using NYSDEC procedures.

6.5 Data Validation and Data Usability Summary Report

Laboratory data reports will conform to NYSDEC Category B deliverable requirements. The laboratory data will be validated by an independent third party. Data validation will be performed in accordance with the guidelines established in Appendix 2B of Final DER-10 Guidance for Site Investigation and Remediation. Validation reports will consist of text results of the review and marked up copies of Form I (results with qualifiers applied by the validator). Validation will consist of target and non-target compounds with corresponding method blank data, spike and surrogate recoveries, sample data, and a final note of validation decision or qualification, along with any pertinent footnote references. Qualifiers applied to the data will be documented in the report text.

A data usability summary reports (DUSR) will be prepared in accordance with DER-10 procedures and requirements. The DUSR will provide both a quantitative and qualitative analysis of the data. The quantitative aspect is a summary of the data quality as expressed by qualifiers applied to the data; the percent rejected, qualified (i.e., estimated), missing, and fully acceptable data are reported. The qualitative element of the data usability summary is the translation and summary of the validation reports into a discussion useful to data users. The qualitative aspect will discuss the significance of the qualifications applied to the data, especially in terms of those most relevant to the intended use of the data.

SECTION 7.0
INVESTIGATION REPORTING

Following the completion of the sampling investigation and evaluation of all data collected, an RI/FS report will be prepared.

7.1 Feasibility Study (FS) Scope of Work

. The FS will develop and evaluate options for a remedial action in accordance with CERCLA [40 CFR 300.430(e)]. The FS emphasizes data analysis and is generally performed in an iterative fashion with the RI using data gathered during the RI to:

i. identify the goal of the remedial program;
ii. define the nature and extent of contamination to be addressed by the alternatives developed;
iii. identify the RAOs for the Site
iv. develop remedial action alternatives; and
iv. undertake an initial screening and detailed analysis of the alternatives.

The FS is an engineering report that documents the decision-making process for the evaluation of a remedy and includes the RAOs, provides the steps of the remedy evaluation for the development and selection of alternatives, and evaluates institutional controls and/or engineer controls. The FS will also:

1. Provide a description of any proposed use restrictions and/or institutional controls and the mechanisms that will be used to implement, maintain, monitor and enforce such restrictions and controls. The proposed engineering controls and Site management requirements will include the mechanisms that will be used to implement, maintain, monitor, and enforce the controls and requirements.
2. Provide an evaluation of the reliability and viability of the long-term implementation, Site management and enforcement of any proposed institutional or engineering controls and an analysis of the long-term costs of implementing, maintaining, monitoring, and enforcing such controls, including costs that may be borne by state or local government.

3. Perform sufficient analysis to support a conclusion that effective implementation, maintenance, monitoring, and enforcement of institutional and/or engineering controls can be reasonably expected.
4. Complete a description of any proposed use restrictions and/or institutional controls and the mechanisms that will be used to implement, maintain, monitor and enforce such restrictions and controls.
5. Provide a description of proposed engineering controls and Site management requirements, including the mechanisms that will be used to implement, maintain, monitor the controls and requirements.
6. Prepare an evaluation of the reliability and viability of the long-term implementation, Site management and enforcement of any proposed institutional or engineering controls and an analysis of the long-term costs of implementing, maintaining, monitoring and enforcing such controls, including costs that may be borne by state or local government.
7. Sufficient analysis to support a conclusion that effective implementation, maintenance, and monitoring of institutional and/or engineering controls can be reasonably expected and will be sufficiently protective of human health and the environment.
8. Any engineering control must be used in conjunction with an institutional control to ensure the continued integrity of any such control.
9. The FS will be prepared in accordance with NYSDEC DER-10 and comprises the Remedy Selection Report.

The FS will be prepared by Dr. Ravi Korlipara, P.E.

7.2 Qualitative Exposure Assessment Scope of Work

The qualitative exposure assessment for both human health and/or fish and wildlife resources will be completed and reported during the RI/FS to qualitatively determine the route, intensity, frequency, and duration of actual or potential exposures to contaminants. This assessment will describe the nature and size of the population currently potentially exposed or which may reasonably be expected to be exposed to the contaminants that are present at or migrating from the Site, it will include a determination

of the reasonably anticipated future land use of the Site and affected off-Site areas, identify the reasonably anticipated future groundwater use, characterize the exposure setting, identifying current and reasonably foreseeable exposure pathways, and evaluate contaminant fate and transport, and determine data collection needs for evaluating Monitored Natural Attenuation, if appropriate.

7.3 Remedial Investigation/Feasibility Study Report

Following completion of all Site investigation, sampling, laboratory analysis, data validation, and analysis of the DUSR, an RI/FS report of all investigation, sampling, and analysis procedures will be prepared. This will include a discussion of the nature and extent of soil and groundwater contamination including the lateral and vertical extent of soil and groundwater contamination.

The RI/FS report will be prepared in accordance with the content requirements of DER-10 and will provide a conceptual Site model. The RI/FS report will include figures including the Site location, the Site layout and features, all on and off-Site sampling locations, and depictions of the lateral and vertical extent of contamination. The tables will include summaries of the laboratory analysis results and comparison of those results to the appropriate regulatory criteria. Groundwater analytical results will be compared the NYSDEC Class GA groundwater standards. Soil analytical results will be compared to the 6 NYCRR Part 375-6.8 Soil Cleanup Objectives. Soil vapor and indoor and outdoor air sample results will be evaluated using the NYSDOH "Guidance for the Evaluation of Soil Vapor Intrusion in the State of New York" (2006) and its updates.

The report will provide conclusions regarding the current lateral or vertical extent of groundwater contamination. It will also provide information as to whether the upgradient, adjacent properties have contributed to the contamination present at and downgradient of the Site.

7.4 Schedule

The tasks will be performed in accordance with the following schedule. The days required to complete the tasks commence with the NYSDEC approval of the RI/FS Work Plan. The days listed to complete each task are based on completion of the subsequent task:

- Pre-investigation tasks including pre-investigation Site visit,

construction of decontamination pad and drum staging areas, subsurface utility markouts, and obtaining road-opening permits: 30 days

- Performance of first phase on-Site soil and groundwater sampling: 30 days
- First phase laboratory analysis: 20 days
- Preparation of interim letter report for submittal to NYSDEC to recommend reduced sampling (if appropriate) for the off-Site investigation: 20 days
- Performance of second phase off-Site groundwater sampling and well installation (following NYDEC approval of revised sampling parameters (if appropriate): 60 days
- Second phase laboratory analysis: 20 days
- Submittal of final laboratory EDD to NYSDEC: 45 days
- Completion of Feasibility Study: 30 days
- Data validation, preparation of DUSR, and completion of Remedial Investigation Report: 30 days

Total: 285 days

7.5 Personnel

The project supervisor for this project is Dr. Ravi Korlipara, P.E. The project manager is Peter Dermody, C.P.G. The assistant project manager is James Mulvey. EES will also act as the contractor and will provide environmental drilling services. The curricula vitae for these personnel are provided in Appendix K. The subcontractors will include York Analytical Services, Inc. for laboratory services and a geophysical contractor, Utility Detection Services, Inc. for subsurface structure and utility identification. Data validation services will be provided by DDMS, Inc. Company profiles are provided Appendix K.

The contact information (phone numbers) is as follows:

- Dr. Ravi Korlipara, P.E. 631 421-2969
- Peter Dermody, C.P.G. 631 905-4868
- James Mulvey 631 745-7581
- Eastern Environmental Solutions, Inc. 631 727-2700

- Utility Detection Services, Inc. 917 560-7304
- DDMS, Inc. 651 842-4224
- York Analytical Services, Inc. 203-325-1371

SCALE: 1" = 40'

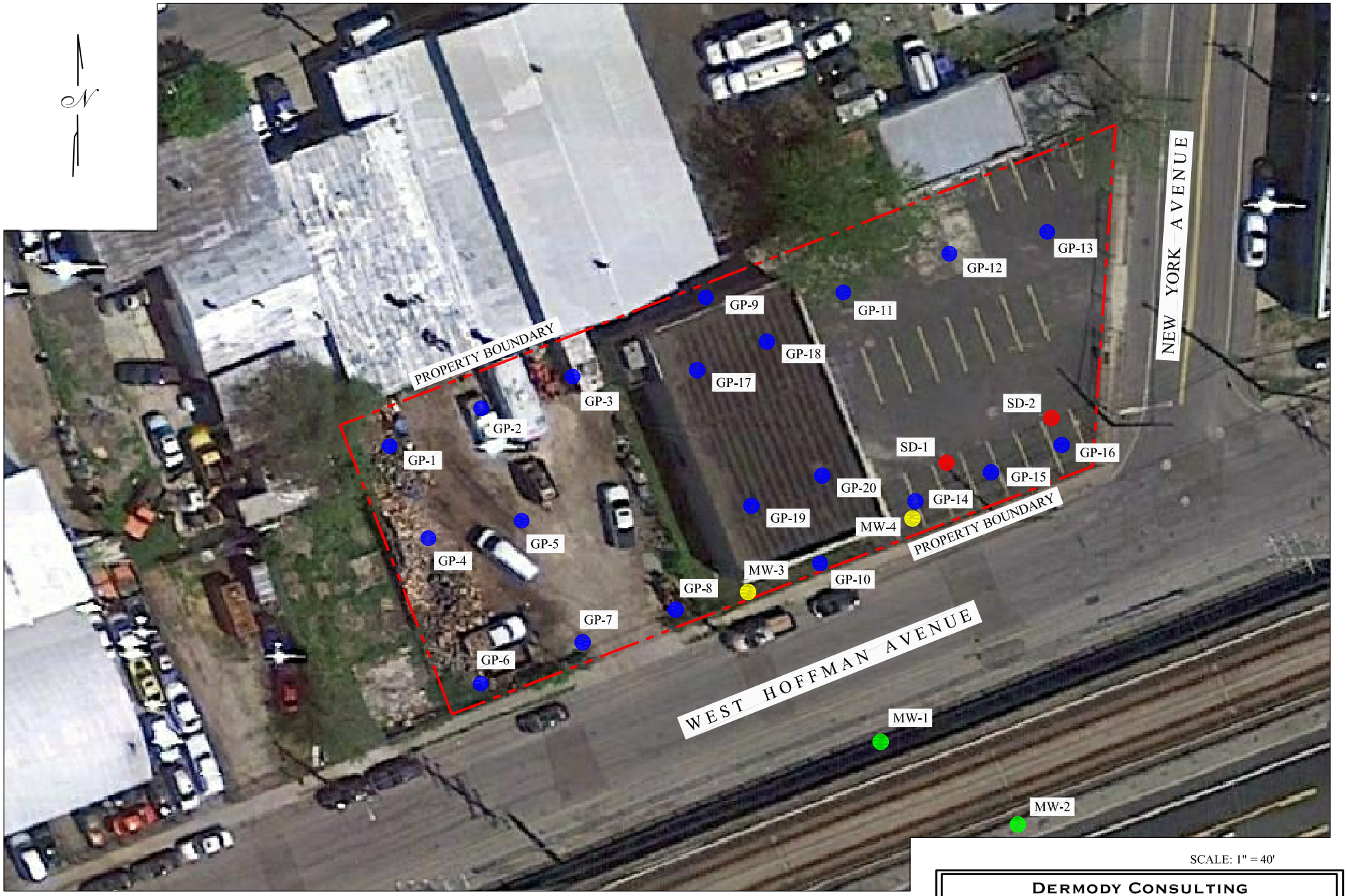
DERMODY CONSULTING
CENTER MORICHES, NEW YORK

FIGURE 1
GENERAL SITE LAYOUT
340 WEST HOFFMAN AVENUE
LINDENHURST, NEW YORK

SCALE: 1" = 280'

DERMODY CONSULTING
CENTER MORICHES, NEW YORK

FIGURE 2
SITE AND GROUNDWATER
DOWNGRADIENT AREA
340 WEST HOFFMAN AVENUE
LINDENHURST, NEW YORK



LEGEND

- GP-1 PROPOSED GEOPROBE BORING LOCATION
- MW-1 EXISTING GROUNDWATER MONITORING WELL LOCATION
- MW-3 PROPOSED SOIL BORING / SAMPLING LOCATION
- SD-1 EXISTING STORMWATER DRAIN POOL LOCATION

SCALE: 1" = 40'

DERMODY CONSULTING
CENTER MORICHES, NEW YORK

FIGURE 3
PROPOSED ON-SITE SAMPLING LOCATIONS
340 WEST HOFFMAN AVENUE
LINDENHURST, NEW YORK

SCALE: 1" = 280'

LEGEND

GW-1 PROPOSED GROUNDWATER MONITORING WELL LOCATION

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CENTER MORICHES, NEW YORK

FIGURE 4
PROPOSED GROUNDWATER
MONITORING WELL LOCATIONS
340 WEST HOFFMAN AVENUE
LINDENHURST, NEW YORK

Table 1
Proposed Sampling and Analysis

Sample Location Numbers	Sample Type	Matrix	Number of Samples	Analysis
GP-1 through GP-20	Geoprobe Soil Samples	Soil	20	VOCs (8260) plus 10 TICs, SVOCs (8270) plus 20 TICs, TAL Metals plus Cyanide
GP-1 through GP-10	Surface Soil Samples	Soil	10	VOCs (8260) plus 10 TICs, SVOCs (8270) plus 20 TICs, TAL Metals plus Cyanide
To Be Determined	Smear Zone Soil Samples	Soil	4	VOCs (8260) plus 10 TICs, SVOCs (8270) plus 20 TICs, TAL Metals plus Cyanide
GP-2, GP-6, GP-7, GP-8, GP-10, GP-12, GP-14, GP-15, GP-16, MW-1, MW-2, MW-3, MW-4, GW-1 and GW-2	Groundwater Samples	Aqueous	26	VOCs (8260) plus 10 TICs, SVOCs (8270) plus 20 TICs, TAL Metals plus Cyanide
SD-1 and SD-2	Stormdrain Water	Aqueous	2	VOCs (8260) plus 10 TICs, SVOCs (8270) plus 20 TICs, TAL Metals plus Cyanide
SD-1 and SD-2	Stormdrain Sediment	Soil	2	VOCs (8260) plus 10 TICs, SVOCs (8270) plus 20 TICs, TAL Metals plus Cyanide
GW-3 through GW-12	Groundwater	Aqueous	33	VOCs (8260) plus 10 TICs, SVOCs (8270) plus 20 TICs, TAL Metals plus Cyanide
To Be Determined	Air / Soil Vapor	Air	8	VOCs by EPA Method TO-15
To Be Determined	QA / QC Samples	Soil / Aqueous	To Be Determined	VOCs (8260) plus 10 TICs, SVOCs (8270) plus 20 TICs, TAL Metals plus Cyanide
GP-2, GP-7, GP-9 and SD-1	Geoprobe Soil / Sediment	Soil	4	PFAS, 1 4-Dioxane
GW-1, GW-2, GP-6, GP-8, GP-14 and GP-16	Groundwater	Aqueous	6	PFAS, 1 4-Dioxane

Appendix A- Site Survey

UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW.

COPIES OF THIS SURVEY MAP NOT BEARING THE LAND SURVEYOR'S INKED SEAL OR EMBOSSED SEAL SHALL NOT BE CONSIDERED TO BE A VALID TRUE COPY.

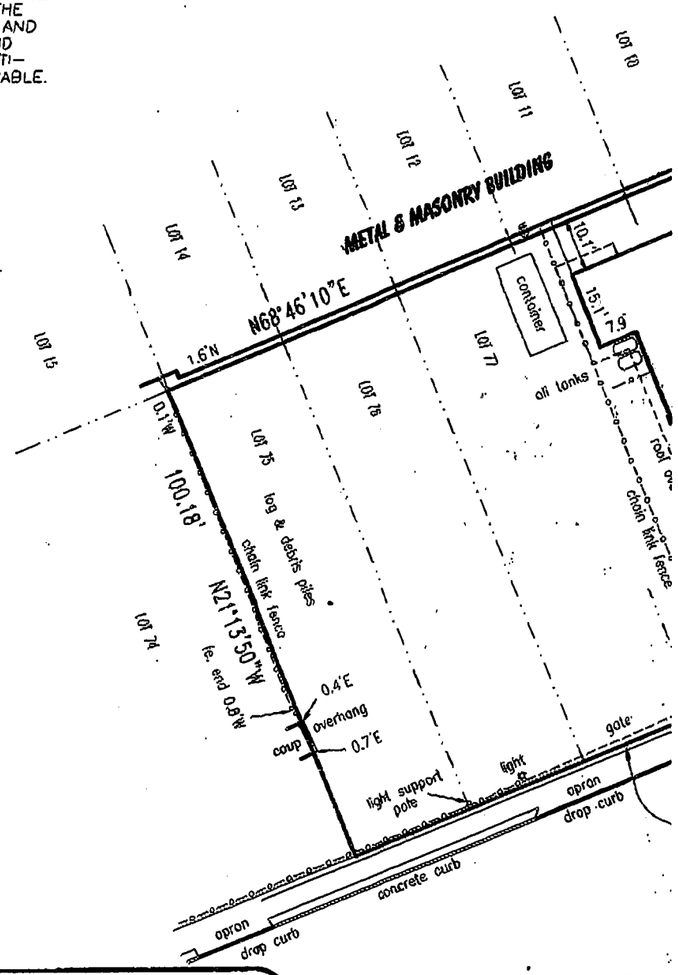
GUARANTEES INDICATED HEREON SHALL RUN ONLY TO THE PERSON FOR WHOM THE SURVEY IS PREPARED, AND ON HIS BEHALF TO THE TITLE COMPANY, GOVERNMENTAL AGENCY AND LENDING INSTITUTION LISTED HEREON, AND TO THE ASSIGNEES OF THE LENDING INSTITUTION. GUARANTEES ARE NOT TRANSFERABLE.

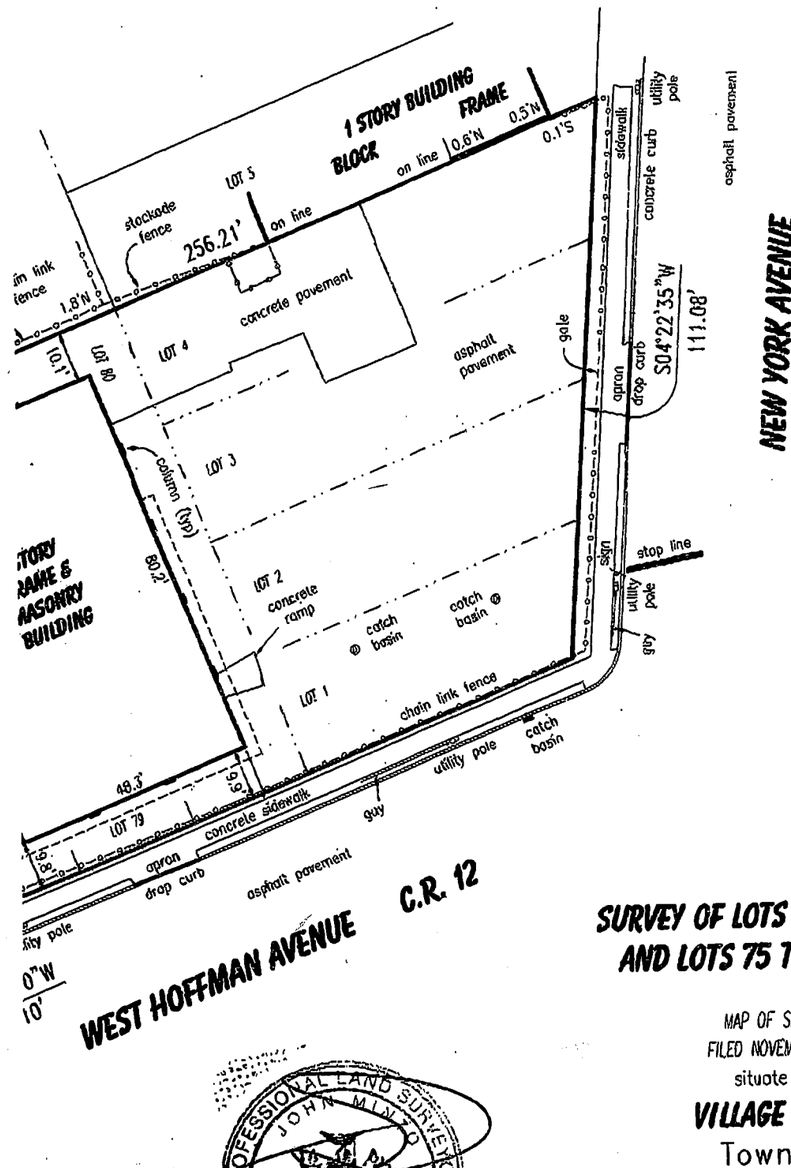
Note: ALL SUBSURFACE STRUCTURES: WATER SUPPLY, SANITARY SYSTEMS, DRAINAGE, DRYWELLS AND UTILITIES. SHOWN ARE FROM FIELD OBSERVATIONS AND OR DATA OBTAINED FROM OTHERS.

THE EXISTENCE OF RIGHTS OF WAY AND/OR EASEMENTS OF RECORD IF ANY, NOT SHOWN ARE NOT GUARANTEED.

AREA = 23,261 S.F.

DRAWN BY: RM	CHECKED BY: JM
CAD FILE DATE:	SEPTEMBER2012
DRAWING NO:	11\WESTHOFFMAN





JM LAND SURVEYING

JOHN MINTO, L.S.
LICENSED PROFESSIONAL LAND SURVEYOR
NEW YORK STATE LIC. NO. 49866

PHONE: (631) 724-4832
FAX: (631) 724-5455

93 SMITHTOWN BOULEVARD SMITHTOWN, N.Y. 11787

Certified to:
340 WEST HOFFMAN CORPORATI

Premises known as:
#340 West Hoffman Avenue,
rst, N.Y. 11757

PROFESSIONAL LAND SURVEYOR
JOHN MINTO
No. 49866
STATE OF NEW YORK

SURVEY OF LOTS 1 THROUGH 4 INCLUSIVE AND LOTS 75 THROUGH 80 INCLUSIVE

Block 5
MAP OF SHEET 1, CITY OF BRESLAU
FILED NOVEMBER 20, 1879 FILE NO 155
situate in the Incorporated

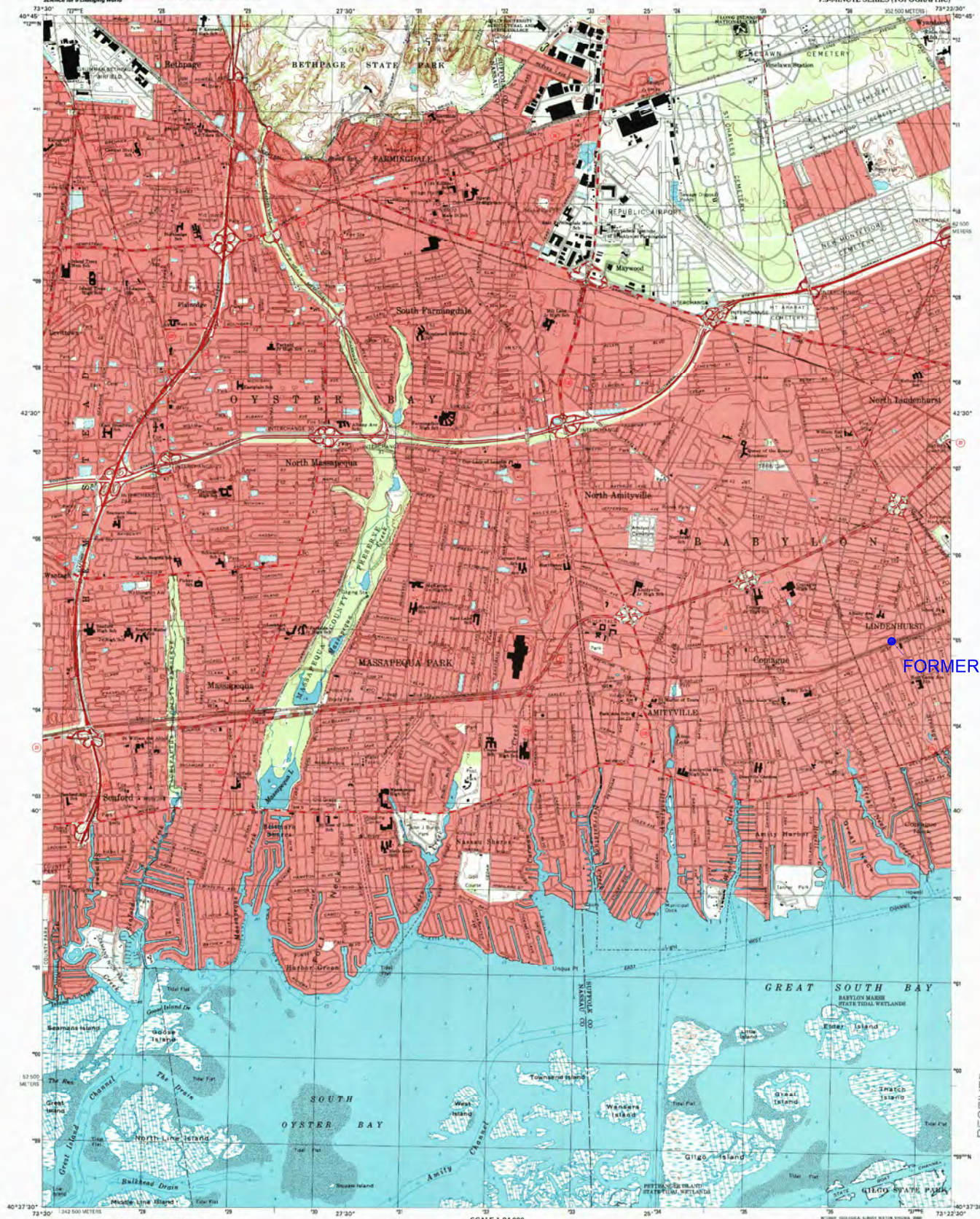
VILLAGE OF LINDENHURST

Town of Babylon
Suffolk County, New York
Tax Map #103-009-01-81.005
Scale 1"= 30' September26, 2012

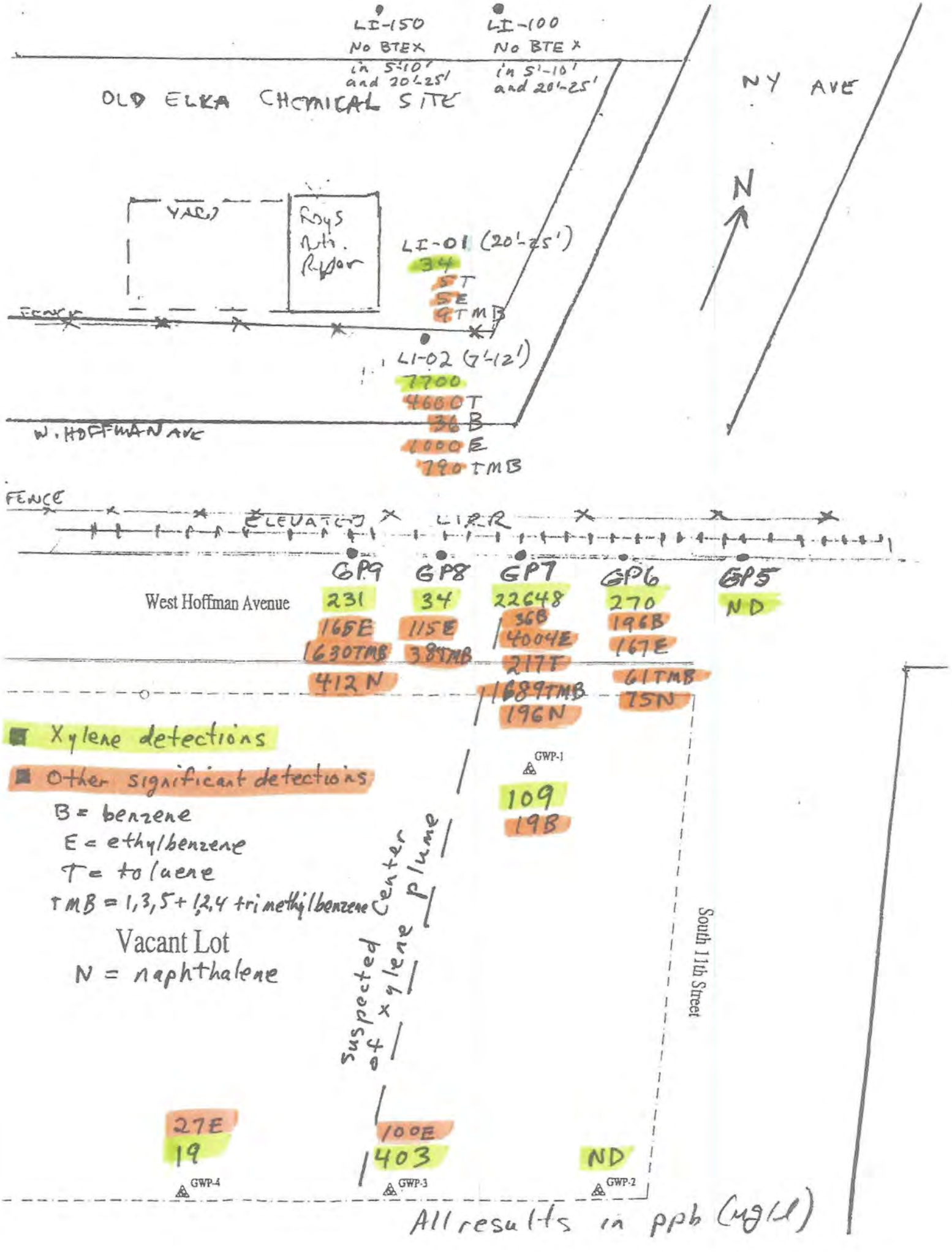
GRAPHIC SCALE

30 0 15 30 60
(IN FEET)
1 inch = 30 ft.

Appendix B- USGS Quadrangle Map for Site Area


USGS
science for a changing world
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
AMITYVILLE QUADRANGLE
NEW YORK
7.5-MINUTE SERIES (TOPOGRAPHIC)
Bethpage
BETHPAGE STATE PARK
FARMINGDALE
Pinelawn Station
PINELAWN CEMETERY
REPUBLIC AIRPORT
Massapequa
South Farmingdale
OYSTER BAY
North Massapequa
North Amityville
BABYLON
North Lindenhurst
LINDENHURST
FORMER ELKA SITE
MASSAPEQUA PARK
Amityville
Copiague
AMITYVILLE
Seaford
Harbor Green
GREAT SOUTH BAY
BABYLON MARSH STATE TIDAL WETLANDS
Seamans Island
Goose Island
Townsend Island
Elder Island
Great Island
Gilgo Island
SOUTH OYSTER BAY
North Line Island
Middle Line Island
Bulkhead Drain
Amity Channel
GILGO STATE PARK
PETTIT'S ISLAND STATE TIDAL WETLANDS
Produced by the United States Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
AMITYVILLE, NY
1994
RECEIVED
AUG 31 2000

Appendix C- 2001 Impact Environmental Site Investigation Figures and Summary of Sampling Results


LI-150
No BTEX
in 5'-10'
and 20'-25'
LI-100
No BTEX
in 5'-10'
and 20'-25'
OLD ELKA CHEMICAL SITE
NY AVE
N
YARD
Roys Auto. Repair
LI-01 (20'-25')
34
ST
SE
TMB
FENCE
LI-02 (7'-12')
7700
4600 T
36 B
1000 E
790 TMB
W. HOFFMAN AVE
FENCE
ELEVATED RAILROAD
GP9
GP8
GP7
GP6
GP5
West Hoffman Avenue
231
165E
630TMB
412 N
34
115E
38TMB
22648
36B
4004E
217T
1689TMB
196N
270
19GB
167E
61TMB
75N
ND
Xylene detections
Other significant detections
B = benzene
E = ethylbenzene
T = toluene
TMB = 1,3,5+1,2,4 trimethylbenzene
Vacant Lot
N = naphthalene
GWP-1
109
19B
Center of plume
Suspected extent of xylene
South 11th Street
27E
19
GWP-4
100E
403
GWP-3
ND
GWP-2
All results in ppb (µg/L)


LI-150 @ 5-10' - 0 ppb
@ 20-25' - 0 ppb
LI-100 @ 5-10' - 0 ppb
@ 20-25' - 0 ppb
Former Elka Site
340 W. Hoffman Ave
Lindenhurst
LI-02 @ 7-12' - 7,700 ppb
LI-01 @ 20-25' - 34 ppb
All Concentratrions
are for Total Xylenes
AKRON
NEW YORK AV
LIRR
W. Hoffman Ave

Table 1: Detected Analytes
Lindenhurst, New York
00-312B

Sample ID	GWP-1[1]	GWP-2[1]	GWP-3[1]	GWP-4[1]	GWP-5[2]	GWP-6[2]	GWP-7[2]	GWP-8[2]	GWP-9[2]	NYSDEC Ambient Water Quality Standards & Guidance Values
Unit	*ug/l*	*ug/l*	*ug/l*	*ug/l*	*ug/l*	*ug/l*	*ug/l*	*ug/l*	*ug/l*	*ug/l*
Volatile Organic Analytes										
Benzene	19	2	1	ND	6	196	36	ND	ND	0.7
sec- Butylbenzene	ND	ND	ND	ND	ND	ND	ND	6	ND	5
Chloroethane	ND	ND	12	9	ND	27	ND	ND	ND	5
1,2 Dichloropropane	ND	ND	ND	ND	ND	ND	ND	13	ND	5
Ethylbenzene	ND	ND	100	27	ND	167	4004	115	165	5
Isopropylbenzene	ND	ND	ND	ND	ND	ND	66	23	66	5
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	9	75	5
Napthalene	ND	ND	ND	ND	8	75	196	ND	412	10
n-Propylbenzene	ND	ND	ND	ND	5	ND	161	93	204	5
Styrene	ND	ND	ND	ND	ND	ND	83	ND	ND	5
Toluene	ND	ND	ND	ND	ND	ND	214	ND	ND	5
1,1,2-Trichloroethane	ND	ND	26	ND	ND	ND	ND	ND	ND	5
1,3,5 Trimethylbenzene	ND	ND	ND	ND	ND	ND	327	ND	385	5
1,2,4 Trimethylbenzene	ND	ND	ND	ND	ND	61	1362	38	1245	5
Xylenes (Total)	107	ND	403	19	ND	270	22648	34	231	5
Semi-Volatile Organic Analytes										
Napthalene	19	ND	33	ND	NA	NA	NA	NA	NA	10

[1] Samples secured on December 12, 2000
[2] Samples secured on February 20, 2001.

Bold values represent concentrations above guidance values.
NA Not Available.
ND Not Detected.

Appendix D- NYSDEC Spill Report Form

NYSDEC SPILL REPORT FORM

DEC REGION: 1 **SPILL NUMBER:** 0650126

SPILL NAME: UNKNOWN **DEC LEAD:** KJGOMEZ

SPILL DATE: 04/26/2006 **SPILL TIME:** 9:00 am

CALL RECEIVED DATE: 04/26/2006 **RECEIVED TIME:** 9:00 am

SPILL LOCATION

PLACE: UNKNOWN **COUNTY:** Suffolk

STREET: 340 WEST HOFFMAN AVENUE **TOWN/CITY:** Babylon

COMMUNITY: LINDENHURST

CONTACT: **CONTACT PHONE:**

CONT. FACTOR: Other **SPILL REPORTED BY:** Health Department

FACILITY TYPE: Commercial/Industrial **WATERBODY:**

CALLER REMARKS:

IMPACT ENVIRONMENTAL PERFORMED A SITE ASSESSMENT IN 2001 FOR A VACANT LOT ACROSS THE STREET (339 WEST HOFFMAN). GROUNDWATER CONTAMINATION WAS DETECTED COMING ONTO THE PROPERTY FROM THE NORTH. CURRENTLY AT THE LOT ACROSS THE STREET TO THE NORTH (340 WEST HOFFMAN) IS AN AUTO REPAIR SHOP, BUT IN THE 70S IT WAS "ELKA CHEMICAL". THE SCHD PERFORMED ADDITIONAL SAMPLING AND FOUND GASOLINE CONSTITUENTS IN THE GROUNDWATER.

MATERIAL	CLASS	SPILLED	RECOVERED	RESOURCES AFFECTED
XYLENE (MIXED)	Hazardous Material	0 G	0 G	GW,

POTENTIAL SPILLERS

COMPANY	ADDRESS	CONTACT
UNK	NY	

Tank No.	Tank Size	Material	Cause	Source	Test Method	Leak Rate	Gross Failure

DEC REMARKS:

4/28/06 FILE ASSIGNED

PIN H1173 **T & A** **COST CENTER**

CLASS: B3 **CLOSE DATE:** **MEETS STANDARDS:** False

Created On: 04/26/2006

Date Printed: 9/6/2013 Last Updated: 02/29/2012

Appendix E- SCDHS 2011 Letter Report, Figures, and Sampling Results

COUNTY OF SUFFOLK

STEVE LEVY
SUFFOLK COUNTY EXECUTIVE

COPY

DEPARTMENT OF HEALTH SERVICES

JAMES L. TOMARKEN, MD
MSW, MPH, MBA, FRCPC, FACP
COMMISSIONER

September 13, 2011

RECEIVED
SEP 29 2011
REG 1 - OIL SPILLS

Walter Parish, P.E.
Regional Hazardous Waste Engineer
New York State Department of Environmental Conservation
Building 40 - SUNY Stony Brook
Stony Brook, NY 11790-2356

Re: Groundwater Investigation within the vicinity of Elka Chemical, located at West Hoffman Ave. and 11th Street, Lindenhurst, NY

Dear Mr. Parish:

At your request, staff within the Suffolk County Department of Health Services (SCDHS) Division of Environmental Quality compiled a chronology of our investigative efforts with respect to the referenced site.

Due to the extent of groundwater contamination discovered in several monitoring wells that were recently installed in the vicinity of this property, the SCDHS is referring this matter to your office for consideration for inclusion into the Superfund Program. The contaminants of concern include a variety of volatile organic compounds (VOCs) including Xylene and Trimethylbenzenes. In addition to impacts to our water resources, I would like to mention that we are concerned that developed properties in the area could potentially be impacted by soil vapor intrusion emanating from this groundwater contamination.

Enclosed for your use is a copy of the chronology of the work performed at the Elka Chemical site, together with our technical report. Should you require any additional information or have any questions with respect to this issue, please feel to contact Ron Paulsen, within the department's Office of Water Resources at (631) 852-5774.

Sincerely,

Walter Dawydiak, P.E., J.D., Acting Director
Division of Environmental Quality

WD.kn

Public Health
Prevent. Promote. Protect.

• OFFICE OF THE ACTING DIRECTOR •
DIVISION OF ENVIRONMENTAL QUALITY
360 YAPHANK AVENUE – YAPHANK, NY 11980
☎ 631.852.5803/FAX: 631.852.5825

cc: James L. Tomarken, M.D., MSW, MPH, MBA, FRCPC, FACP, Commissioner - SCDHS
Leonard Marchese, MBA, CPA - Director of Management / Research - SCDHS
Charlotte Bethoney, NYS Department of Health
Cathleen McBride, NYS Department of Health
Karen Gomaz, P.E., NYS Department of Environmental Conservation
Brian Culhane, Commissioner, SC Department of Environment and Energy
Amy Juchatz, MPH - Toxicologist - SC Department of Environment and Energy
Ronald Paulsen - Associate Hydrogeologist, Office of Water Resources - SCDHS
Andrew Rapiejko - Associate Hydrogeologist, Office of Water Resources - SCDHS
Douglas Feldman, P.E - Chief, Office of Water Resources - SCDHS
James Meyers, P.E. - Chief, Office of Pollution Control - SCDHS
Geralynn Rosser, Hydrogeologist, Office of Pollution Control - SCDHS

Chronology of Events
For Elka Chemical, W. Hoffman Ave. and S. 11th Street, Lindenhurst

July 2001 - A consultant performed work for a property assessment. Xylene was found in several temporary wells, the highest concentration was 22,600 ppb . The wells appear to be about 200' downgradient of the old Elka chemical site (now Roy's Auto Repair) at 340 W. Hoffman Ave. Elka Chemical was a site of large scale chemical storage about 20 years ago. Hundreds of solvent drums and a xylene tank were stored on the property. Groundwater flow appears to be south, but may be south-southeast. J. Gremli and E. Joungblood visited the site, took some measurements and sketched the area. The groundwater flow direction would have to be south-southeast for Elka to be in line with the impacted wells.

November 2001 – Groundwater samples were taken from a temporary well located on West Hoffman Avenue in front of the old Elka site. Samples were retrieved from the water table and 20 feet below the water table. Sample results revealed 7700 ppb and 34 ppb of total xylene respectively. Additional sampling upgradient of the site is scheduled.

April 2002 – Additional downgradient samples were secured and contained elevated volatile organic compounds (VOCs) including xylene.

July 2002 – The County installed 2 monitoring wells on the north side of Akron St. and 100' west of New York Ave. (upgradient of the old Elka site). Samples were collected from the water table (5'-10' below ground surface (bgs)) and 20'-25' bgs. The highest results were from the water table sample and revealed tetrachloroethene at 140 ppb and trichloroethene at 100 ppb. No xylene was present in any of the samples. It appears that the old Elka site is the source of the xylene plume.

December 2006 – There were no obvious discharges seen during an inspection of upgradient buildings. The state has a spill number for the old Elka site, #06-50120. W. Parish has informed Karen Yager, the PM, of the situation.

November 2010 – The County's Office of Water Resources (OWR) confirmed there are no public supply wells downgradient, they will be looking into private wells. They also installed and sampled groundwater monitoring wells downgradient of the site. The results revealed elevated levels of xylene and other VOCs.

February 2011 – OWR sent out private well notices, there has been no positive responses and 3 no responses remain.

June 30, 2011

Suffolk County Department of Health - Office of Water Resources Groundwater Investigative Report (Lindenhurst, N.Y.)

Monitoring Well Installation and Sampling Techniques

Suffolk County Department of Health Services (SCDHS) staff installed and sampled twelve profile monitoring wells in accordance with established SCDHS protocols. The one-inch diameter PVC monitoring wells with five foot slot 10 screens were installed using a GeoProbe (Direct Push Method) at locations down gradient of a possible source area (Elka Chemical) (Figure 1). Groundwater samples were collected from the profile wells at ten foot intervals through the water column, starting at the deepest depth and ending at the top of the water table. Tables 2-1, 2-2, 2-3 show the sample depth intervals of each monitoring well installed. Each sampling event was performed in accordance with SCDHS protocols and included purging the well a minimum of three well casing volumes and using low flow sampling techniques. Additionally, field parameters including pH, conductivity, temperature and dissolved oxygen were monitored to assure that ambient water was being collected. Sample aliquots were collected for Volatile Organic Compounds (VOCs), Standard Inorganics and Dissolved Metals at each profile well interval.

Laboratory Analysis

Water analyses for this study were conducted by the SCDHS Public Environmental Health Laboratory, which is certified by the New York State Department of Health's Environmental Laboratory Approval Program and the U.S. Environmental Protection Agency's National Environmental Laboratory Approval Program. Quality control measures are detailed in the laboratory's Quality Assurance Program Plan (QAPP). Table 1 below provides a summary of analytical methods that were used, and Appendix A contains laboratory analyses data sheets showing all possible analytes by method.

Analytical Methods Utilized for Groundwater Samples

Analysis	Method	Analysis	Method
Volatile Organic Compounds	EPA 524.2	Standard Inorganics	EPA 300.0
Metals	EPA 200.8		

Table 1 Analytical methods

Results and Findings

Water quality results of samples collected from the 12 profile monitoring wells are provided in Table 2-1 through 2-3. The contaminates of concern (COC) include Xylene(s), Trimethylbenzenes, Isopropylbenzene and N-propylbenzene. The usually high concentration of Xylene(s) is notable and consistent with the contamination found previously in the suspected upgradient source area. High concentrations of Xylene(s) contaminant were found in monitoring wells EC-3 (874 ppb) and EC-6 (2500 ppb) at or near the top of the water. A maximum concentration of 4,049 ppb (total VOC) was detected in monitoring well EC-6 at 25-30 foot interval below grade (Figure 3). Additional investigation will be required in order to fully delineate the extent of the groundwater contamination. Impacts to soil vapor are of concern is this area due to the high concentration of COC detected in the shallow groundwater and a depth to water of less than 10 feet.

Figure 1: Locations of SCDHS Monitoring Wells

Figure 2: Shows SCDHS Monitoring Wells with the Highest Total Xylene Contamination in Red and the Associated Sample Screen Interval (fbg)

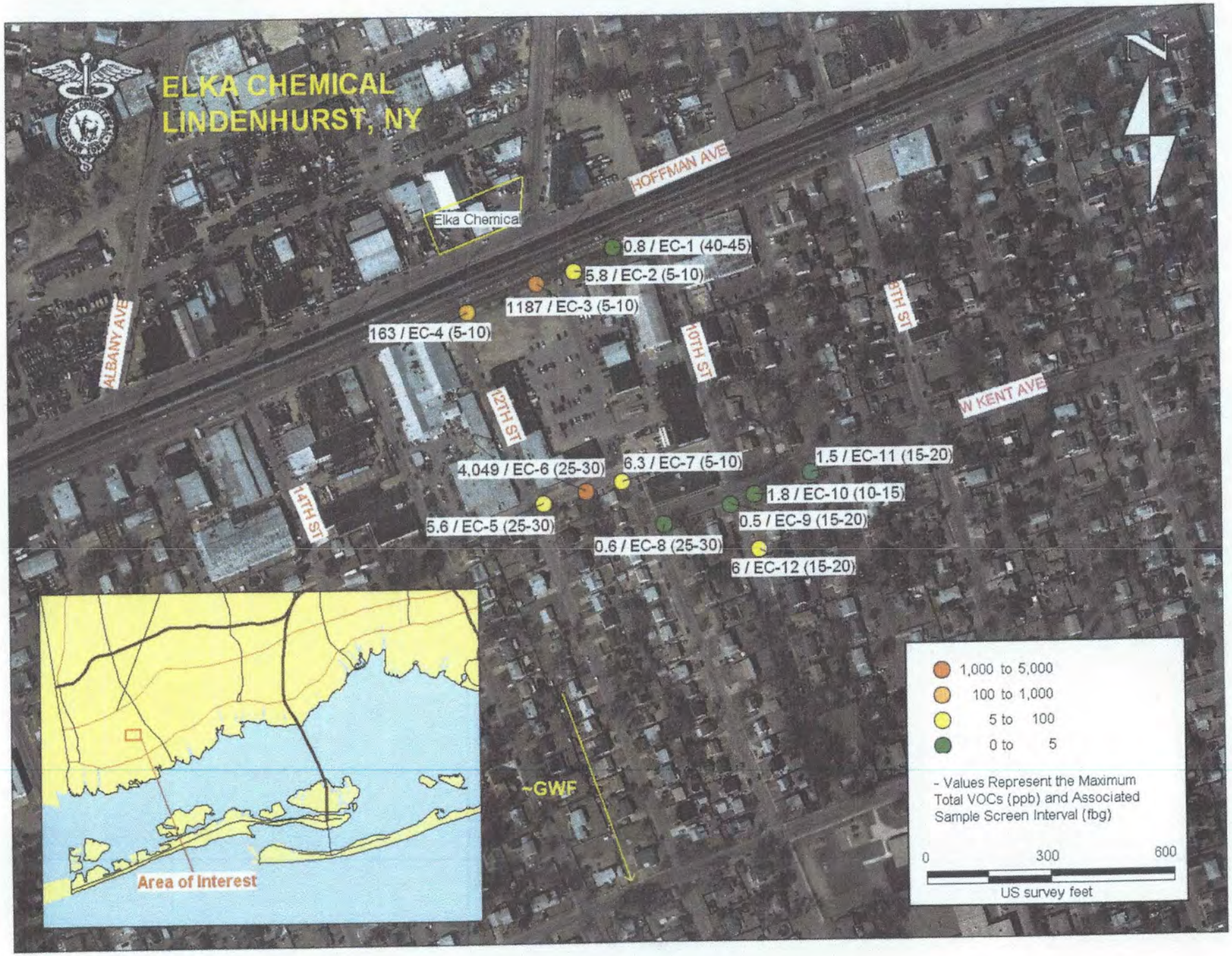


Figure 3: Shows the Maximum Total VOC Concentration (ppb) and Associated Sample Screen Interval (feet below grade)

Table 2-1: Water Quality Analysis Results

Well ID	Screen Interval	Depth to Water (feet)	Dissolved Oxygen (mg/L)	Temperature C	pH	Conductivity (umho)	Iron (mg/L)	Manganese	Arsenic	Copper	Aluminum	Chromium	1,3-Dichlorobenzene (m)	1,4-Dichlorobenzene (p)	Benzene	Toluene	Chlorobenzene	Total Xylene	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	Vinyl chloride	p-Diethylbenzene	1,2,4,5-Tetramethylbenzene	Isopropylbenzene	n-Propylbenzene	tert-Butylbenzene	sec-Butylbenzene	p-Isopropyltoluene	n-Butylbenzene	Ethylbenzene	Chloroethane
EC-1	10-15	7.67	0.07	21.7	5.78	504	3.61	817	<1	<1	<5	<1																			
	20-25	7.67	0.16	17.8	5.77	232	2.92	982	<1	1	42	3																			
	30-35	7.67	0.18	16	5.76	247	1.4	118	<1	1	26	2																			
	40-45	7.67	2.89	15.3	5.71	202	1.17	269	<1	2	129	6																			
	50-55	7.67	2.38	15.2	5.72	219	0.44	844	<1	1	29	2	0.7	0.8																	
EC-2	5-10	7.61	0.39	22.9	5.79	393	2.12	966	<1	<1	<5	<1																			
	15-20	7.61	0.11	19.7	5.76	263	3.42	568	<1	<1	7	<1																			
	25-30	7.61	0.12	16.9	5.7	284	2.45	1410	<1	<1	5	<1																			
	35-40	7.61	1.79	15.5	5.57	295	1.18	179	<1	1	36	2																			
	45-50	7.61	2.02	15.5	5.58	235	2.08	691	<1	2	38	2			15	4.1	0.6	874	41	18		7.4	19	49	108	0.8	7		3.5	23	1
EC-3	5-10	7	0.91	23.2	5.63	487	2.37	274	1	<1	<5	2						2.9							0.6						
	15-20	7	0.19	20.1	5.62	308	3	103	<1	<1	11	1						0.7													
	25-30	7	0.3	17.2	5.58	268	0.18	15	<1	<1	12	1																			
	35-40	7	0.69	16	5.59	255	0.3	62	<1	<1	18	<1																			
	45-50	7	0.87	15.9	5.48	230	0.16	270	<1	<1	<5	<1							1.2	4.2		13	18	41	64	2.6	6.5		1.8	11	
EC-4	5-10	8.2	1.54	22.6	5.63	1033	4.37	383	1	<1	13	3																			
	15-20	8.2	0.09	18.8	5.57	314	2.14	65	<1	<1	12	<1																			
	25-30	8.2	0.81	16.2	5.54	293	0.81	32	<1	<1	<5	<1																			
	35-40	8.2	1.3	15.4	5.5	277	0.68	83	<1	<1	6	<1																			
	45-50	8.2	1.87	15.3	5.5	294	0.58	156	<1	<1	9	<1										1.3									
EC-5	15-20	9.5	0.09	18.9	5.66	690	0.73	1260	<1	2	<5	1																			
	25-30	9.5	0.26	16.6	5.59	320	0.17	35	<1	<1	<5	<1																			
	35-40	9.5	0.56	15.7	5.54	291	0.84	112	<1	<1	<5	<1																			
	45-50	9.5	0.85	15.5	5.52	315	0.36	201	<1	1	10	1																			

Table 2-2: Water Quality Analysis Results (Continued)

Well ID	Screen Interval	Depth to Water (feet)	Dissolved Oxygen (mg/L)	Temperature C	pH	Conductivity (umho)	Iron (mg/L)	Manganese	Arsenic	Copper	Aluminum	Chromium	1,3-Dichlorobenzene (m)	1,4-Dichlorobenzene (p)	Benzene	Toluene	Chlorobenzene	Total Xylene	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	Vinyl chloride	p-Diethylbenzene	1,2,4,5-Tetramethylbenzene	Isopropylbenzene	n-Propylbenzene	tert-Butylbenzene	sec-Butylbenzene	p-Isopropyltoluene	n-Butylbenzene	Ethylbenzene
EC-6	5-10	7.9	0.98	20.9	5.89	870	1.18	719	<1	<1	<5	2					0.5	34	14	75		5.3	11	28	53	0.5	2.5		1.8	8.7
	15-20	7.9	0.08	18.3	5.82	491	0.79	702	<1	<1	<5	2					0.7	511	199	1300			29	105	185	1.4	8.3	1		21
	25-30	7.9	0.09	16.3	5.76	420	0.46	1460	<1	<1	<5	1				5		2510	93	508	10		15	48	94	0.8	4.8	1.7		715
	35-40	7.9	1.22	15.7	5.74	266	<0.1	18	<1	<1	6	<1																		
	45-50	7.9	2.78	15.5	5.7	263	0.17	320	<1	<1	7	<1																		
EC-7	5-10	7.65	3.63	23.7	6.11	571	1.77	473	<1	<1	66	1				0.5					0.7	4.5								
	15-20	7.65	0.07	20.8	5.81	545	1.66	204	<1	<1	<5	<1																		
	25-30	7.65	0.09	17.6	5.73	298	5.36	1070	1	<1	5	2			1.7						0.6	1.8					0.7			
	35-40	7.65	0.3	16.3	5.88	258	0.68	53	<1	<1	21	1																		
	45-50	7.65	2.28	16.1	5.86	235	<0.1	712	<1	<1	6	<1				0.6														
EC-8	5-10	5.6	0.05	19.9	6.3	649	4.57	988	<1	<1	257	2																		
	15-20	5.6	0.09	19.2	6	316	3	513	<1	<1	66	2																		
	25-30	5.6	0.11	17.4	5.8	274	0.13	78	<1	<1	33	1																		
	35-40	5.6	0.1	16	6.1	297	<0.1	781	<1	<1	19	<1																		
	45-50	5.6	0.14	15.7			0.11	1320	<1	<1	9	<1																		
EC-9	5-10	4.65	0.11	18.6	7.04	319	2.81	1040	<1	<1	<5	<1																		
	15-20	4.65	0.08	17	6.57	297	0.74	1130	<1	<1	17	2			0.5															
	25-30	4.65	0.1	15.9	6.12	264	<0.1	1630	<1	<1	7	1																		
	35-40	4.65	0.17	15.4	6.25	256	<0.1	2280	<1	<1	7	<1																		
	45-50	4.65	0.12	15.2	6.5	270	0.23	2220	<1	2	10	<1																		
EC-10	10-15	5	0.08	18.6	6.91	411	0.15	110	<1	<1	8	1																		
	20-25	5	0.38	17	6.92	269	1.2	96	<1	1	58	3																		
	30-35	5	0.23	15.6	6.7	282	<0.1	19	<1	<1	<5	<1																		
	40-45	5	1.46	15.2	7.07	267	0.1	30	<1	<1	12	<1																		
	50-55	5	0.7	15	6.8	308	<0.1	974	<1	<1	19	<1																		

Table 2-3: Water Quality Analysis Results (Continued)

Well ID	Screen Interval	Depth to Water (feet)	Dissolved Oxygen (mg/L)	Temperature C	pH	Conductivity (umho)	Iron (mg/L)	Manganese	Arsenic	Copper	Aluminum	Chromium	1,3-Dichlorobenzene (m)	1,4-Dichlorobenzene (p)	Benzene	Toluene	Chlorobenzene	Total Xylene	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	Vinyl chloride	p-Diethylbenzene	1,2,4,5-Tetramethylbenzene	Isopropylbenzene	n-Propylbenzene	tert-Butylbenzene	sec-Butylbenzene	p-Isopropyltoluene	n-Butylbenzene	Ethylbenzene	Chloroethane
EC-11	5-10	5.5	0.07	18.1	6.86	276	3.16	1110	<1	<1	13	2															1.4				
	15-20	5.5	0.1	18	6.89	440	2.98	296	<1	<1	5	1															0.5				
	25-30	5.5	0.56	16.2	6.87	299	<0.1	36	<1	<1	12	<1																			
	35-40	5.5	2.25	15.4	6.84	243	<0.1	8	<1	<1	16	<1																			
	45-50	5.5	4.41	15.3	6.88	232	<0.1	354	<1	3	35	<1																			
EC-12	5-10	5.14	0.11	17.3	6.93	560	4.11	292	<1	<1	131	4																			
	15-20	5.14	0.08	18	6.92	388	P	P	P	P	P	P																			
	25-30	5.14	0.15	16.8	6.93	234	<0.1	1770	<1	<1	<5	<1																			
	35-40	5.14	0.15	15.7	6.84	234	<0.1	1310	<1	<1	5	<1																			
	45-50	5.14	0.18	15.3	6.77	226	<0.1	1150	<1	<1	12	<1																			

Appendix F- EAR 2012 Figures and Sampling Results

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Site Map with Boring Locations

340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

Figure 4

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Soil Analytical Results
Xylene Concentrations (ug/kg)
March 29, 2012
and January 19 - 24, 2012

340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

Figure 5

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Soil Analytical Results
VOC Concentrations (ug/kg)
March 29, 2012
and January 19 - 24, 2012

340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

Figure 6

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Groundwater Analytical Results
Xylene Concentrations (ug/L)
March 29, 2012
with January 19 - 24, 2012

340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Groundwater Analytical Results
VOC Concentrations (ug/L)
March 29, 2012
and January 19 - 24, 2012

340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

Figure 8

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Soil Analytical Results
Adjusted VOC Concentrations (ug/kg)
March and January 2012

340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

Figure 9

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Groundwater Analytical Results
Adjusted VOC Concentrations (ug/L)
January and March 2012

340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

Figure 10

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Groundwater Analytical Results
Maximum Xylene Concentrations (ug/L)
December 2000 to March 2012

340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

0 90

SCALE IN FEET

Figure 11

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Groundwater Analytical Results
Maximum VOC Concentrations (ug/L)
Adjusted Values
December 2000 to March 2012

340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

0 50
SCALE IN FEET

Boring Location

B-4 Boring ID
<3 Concentration at water table
<3 Concentration at 5' below water table
<3 Concentration at 10' below water table

Figure 6

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Groundwater Analytical Results
Xylene Concentrations (ug/L)
January 19 - 24, 2012

Unknown
340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

Figure 7

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Groundwater Analytical Results
Total VOC Concentrations (ug/L)
January 19 - 24, 2012

Unknown
340 West Hoffman Ave
Lindenhurst, NY
NYSDEC Spill #06-50126

Table 3

340 West Hoffman Ave
Lindenhurst, NY
Spill #06-50126

Groundwater Analytical Results (ug/L)
TestAmerica, Inc. EPA Method 8260

Location	B-1			B-2			B-3			B-4			B-5			NYSDEC TOGS111 ClassGA Standard	NYSDEC TOGS111 ClassGA Guidance
Depth Collected	5'-7'	10'-12'	15'-17'	6'-8'	11'-13'	16'-18'	5'-7'	10'-12'	15'-17'	5'-7'	10'-12'	15'-17'	5'-7'	10'-12'	15'-17'		
Category*	WT	5' below	10' below	WT	5' below	10' below	WT	5' below	10' below	WT	5' below	10' below	WT	5' below	10' below		
Date Collected	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012	1/19/2012		
1,1 Dichloroethane	<1	<1	<1	0.3 J	<1	<1	<1	<1	<1	1.7	<1	<1	14	<1	<1	5	n/a
1,1 Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
1,1,1 Trichloroethane	1.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3.7	<1	<1	5	n/a
1,1,2 Trichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	n/a
1,1,2,2 Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
1,2 Dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.001	n/a
1,2 Dichlorobenzene	0.67 J	<1	<1	0.43 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	n/a
1,2 Dichloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.6	n/a
1,2 Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	n/a
1,2,4 Trichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	n/a
1,3 Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	n/a
1,4 Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.26 J	<1	<1	3	n/a
2-Hexanone	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	n/a	50
4-Methyl-2-Pentanone	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	n/a	n/a
Acetone	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	n/a	50
Benzene	<1	0.51 J	<1	3.4	<1	<1	<1	2.7	0.14 J	0.79 J	3.6	0.18 J	<1	0.15 J	0.2 J	1	n/a
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	50
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	50
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
c 1,3 Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	n/a
Carbon Disulfide	<1	0.96 J	<1	1.2	1.1	0.88 J	<1	0.82 J	1.4	0.61 J	2.9	0.95 J	<1	0.92 J	1.6	n/a	60
Carbon Tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.3	<1	<1	5	n/a
Chloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Chloroform	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.5 J	<1	<1	7	n/a
Chloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
cis-1,2-Dichloroethene	0.82 J	0.4 J	<1	0.36 J	<1	<1	0.51 J	0.73 J	<1	<1	0.77 J	<1	2.4	0.24 J	<1	5	n/a
Cyclohexane	7	110	1.9	240	170	95	<1	19	<1	13	18	<1	<1	60	19	n/a	n/a
Cyclohexane, methyl-	10	410	4.1	830	240	250	<1	11	0.74 J	<1	<1	<1	0.83 J	170	13	n/a	n/a
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	50
Dibromochloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.04	n/a
Dichlorodifluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Ethylbenzene	0.48 J	12	<1	360	23	36	0.93 J	30	2.4	<1	<1	<1	<1	10	3.2	5	n/a
Freon 113	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Isopropylbenzene	3.9	430	3.7	32	6.7	6.4	<1	1.3	<1	<1	0.26 J	<1	<1	260	200	5	n/a
Methyl acetate	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	n/a	n/a
Methyl Ethyl Ketone	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	n/a	50
Methylene Chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Styrene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
t 1,3 Dichloropropene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	n/a
t butylmethylether	<1	3.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.2	<1	n/a	10
Tetrachloroethene	9	<1	0.22 J	0.33 J	<1	<1	3.1	0.74 J	1.3	0.41 J	1.2	0.39 J	1.3	<1	<1	5	n/a
Toluene	<1	0.38 J	<1	2.4	<1	0.21 J	<1	0.24 J	<1	<1	<1	<1	<1	0.19 J	<1	5	n/a
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Trichloroethylene	5.2	<1	<1	<1	0.57 J	<1	0.74 J	0.65 J	<1	0.38 J	0.44 J	<1	2.9	<1	<1	5	n/a
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Vinyl Chloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	n/a
Xylenes Total	0.98 J	3.3	<3	1,100	87	140	1.5 J	32	4.4	<3	<3	<3	<3	<3	<3	5**	n/a
Calculated Values																	
VOCs Total	39	971	9.92	2,570	528	528	6.78	99	10	17	27	1.52	27	504	237	n/a	n/a
BTEX Total	1.46 J	16	<6	1,466	110	176	2.43 J	65	6.94	0.79	3.6	0.18	<6	10	3.4	n/a	n/a

Indicates values that have exceeded the New York State Ambient Water Quality Standards and/or Guidance Values
n/a - analyzed chemicals with no established values
A "J" qualifier indicates a a laboratory estimated value, result is greater or equal to the MDL and less than the LOQ
* Categories (used on post maps); WT = concentration at water table; 5' below = concentration at 5' below water table; 10' below = concentration at 10' below water table
** Value applies to each isomer separately

Table 3

340 West Hoffman Ave
Lindenhurst, NY
Spill #06-50126

Groundwater Analytical Results (ug/L)
TestAmerica, Inc. EPA Method 8260

Location	B-6			B-7			B-8			B-9			B-10			B-11			NYSDEC TOGS111 ClassGA Standard	NYSDEC TOGS111 ClassGA Guidance
Depth Collected	7'-9'	12'-14'	17'-19'	5'-7'	10'-12'	15'-17'	6'-8'	11'-13'	16'-18'	7'-9'	12'-14'	17'-19'	7'-9'	12'-14'	17'-19'	7'-9'	12'-14'	17'-19'		
Category*	WT	5' below	10' below	WT	5' below	10' below	WT	5' below	10' below	WT	5' below	10' below	WT	5' below	10' below	WT	5' below	10' below		
Date Collected	1/19/2012	1/19/2012	1/19/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012	1/24/2012		
1,1 Dichloroethane	<2	<5	<1	<1	<1	<1	0.17 J	<1	<1	<1	<1	<1	2.2	<1	<1	8.2	<1	<1	5	n/a
1,1 Dichloroethene	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
1,1,1 Trichloroethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.7	<1	<1	8.8	<1	<1	5	n/a
1,1,2 Trichloroethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	n/a
1,1,2,2 Tetrachloroethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
1,2 Dibromoethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.001	n/a
1,2 Dichlorobenzene	2.6	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.33 J	<1	<1	0.24 J	<1	<1	3	n/a
1,2 Dichloroethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.6	n/a
1,2 Dichloropropane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	n/a
1,2,4 Trichlorobenzene	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	n/a
1,3 Dichlorobenzene	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.24 J	<1	<1	3	n/a
1,4 Dichlorobenzene	0.44 J	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.3	<1	<1	3	n/a
2-Hexanone	<10	<25	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	n/a	50
4-Methyl-2-Pentanone	<10	<25	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	n/a	n/a
Acetone	<10	<25	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	n/a	50
Benzene	4.9	<5	<1	<1	<1	<1	3.4	1.2	<1	13	0.57 J	<1	0.23 J	<1	<1	<1	<1	<1	1	n/a
Bromodichloromethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	50
Bromoform	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	50
Bromomethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
c 1,3 Dichloropropene	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	n/a
Carbon Disulfide	0.82 J	<5	<1	<1	<1	<1	0.71 J	1.6	0.18 J	1.2	0.57 J	0.37 J	0.9 J	1.1	0.52 J	1.3	1.6	0.42 J	n/a	60
Carbon Tetrachloride	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Chlorobenzene	2.9	<5	<1	<1	<1	<1	<1	<1	<1	0.32 J	<1	<1	<1	<1	<1	4.9	0.26 J	<1	5	n/a
Chloroethane	22	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Chloroform	<2	<5	<1	<1	0.22 J	0.22 J	<1	<1	0.44 J	<1	<1	<1	0.2 J	<1	0.4 J	0.37 J	<1	<1	7	n/a
Chloromethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
cis-1,2-Dichloroethene	<2	190	2.5	1.3	0.27 J	<1	0.63 J	0.6 J	<1	<1	0.26 J	<1	1.4	<1	<1	5.7	0.97 J	<1	5	n/a
Cyclohexane	36	120	2.1	<1	<1	<1	0.65 J	0.48 J	<1	69	53	0.54 J	<1	<1	<1	0.9 J	16	<1	n/a	n/a
Cyclohexane, methyl-	34	120	1.3	<1	<1	<1	0.7 J	0.43 J	<1	230	460	4.4	<1	<1	<1	<1	12	<1	n/a	n/a
Dibromochloromethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	50
Dibromochloropropane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.04	n/a
Dichlorodifluoromethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Ethylbenzene	1,100	3,700	46	<1	<1	<1	<1	<1	<1	7.6	18	0.81 J	<1	<1	<1	<1	18	<1	5	n/a
Freon 113	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Isopropylbenzene	100	240	3.3	<1	<1	<1	3.7	<1	<1	58	19	0.24 J	19	36	0.25 J	14	57	0.39 J	5	n/a
Methyl acetate	<4	<10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	n/a	n/a
Methyl Ethyl Ketone	<10	<25	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	n/a	50
Methylene Chloride	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Styrene	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
t 1,3 Dichloropropene	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	n/a
t butylmethylether	0.95 J	4.3 J	5.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	10
Tetrachloroethene	<2	3.9 J	0.59 J	14	20	0.23 J	0.34 J	2.1	<1	<1	<1	2.7	1.5	<1	<1	2.8	0.47 J	2.6	5	n/a
Toluene	150	3,000	64	<1	<1	<1	<1	<1	<1	0.2 J	0.46 J	<1	<1	0.19 J	<1	<1	<1	<1	5	n/a
trans-1,2-Dichloroethene	1.6 J	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Trichloroethylene	<2	<5	0.42 J	2.7	0.54 J	<1	0.33 J	0.53 J	<1	<1	<1	0.46 J	1.3	0.3 J	<1	7.7	0.59 J	0.4 J	5	n/a
Trichlorofluoromethane	<2	<5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	n/a
Vinyl Chloride	<2	<5	<1	<1	<1	<1	0.14 J	0.13 J	<1	<1	0.17 J	<1	0.13 J	<1	<1	0.2 J	0.17 J	<1	2	n/a
Xylenes Total	360	18,000	200	<3	<3	<3	<3	<3	<3	350	48	2.8 J	<3	<3	<3	<3	6	<3	5**	n/a
Calculated Values																				
VOCs Total	1,816	25,378	326	18	21	0.45	11	7.07	0.62	729	600	12	29	38	1.17	57	113	3.81	n/a	n/a
BTEX Total	1,615	24,700	310	<6	<6	<6	3.4	1.2	<6	371	67	3.61 J	0.23	0.19	<6	<6	24	<6	n/a	n/a

Indicates values that have exceeded the New York State Ambient Water Quality Standards and/or Guidance Values
n/a - analyzed chemicals with no established values
A "J" qualifier indicates a a laboratory estimated value, result is greater or equal to the MDL and less than the LOQ
* Categories (used on post maps): WT = concentration at water table; 5' below = concentration at 5' below water table; 10' below = concentration at 10' below water table
** Value applies to each isomer separately

340 West Hoffman Ave
Lindenhurst, NY
Spill #06-50126

Soil Gas Analytical Results (ug/m3)
TestAmerica, Inc., Method TO-15

Location	SGP-1 (B-5)
Depth	4'-4.5'
Date Collected	1/25/2012
1,1 Dichloroethane	**250**
1,1 Dichloroethene	<3.2
1,1,1 Trichloroethane	**310**
1,1,2 Trichloroethane	<4.4
1,1,2,2 Tetrachloroethane	<5.5
1,2 Dibromoethane	<6.1
1,2 Dichlorobenzene	<4.8
1,2 Dichloroethane	<3.2
1,2 Dichloropropane	<3.7
1,2,4 Trichlorobenzene	<5.9
1,2,4 Trimethylbenzene	<3.9
1,3 Dichlorobenzene	<4.8
1,3,5 Trimethylbenzene	<3.9
1,4 Dichlorobenzene	<4.8
1,4-Dioxane	<7.2
2,2,4-Trimethylpentane	<9.3
4-Methyl-2-Pentanone	<8.2
Benzene	<2.6
Benzyl Chloride	<8.3
Bromodichloromethane	<5.4
Bromoform	<8.3
Bromomethane	<3.1
c 1,3 Dichloropropene	<3.6
Carbon Tetrachloride	<2.5
Chlorobenzene	<3.7
Chloroethane	<2.1
Chloroform	**7.3**
Chloromethane	<4.1
cis-1,2-Dichloroethene	**5.8**
Cyclohexane	<6.9
Dibromochloromethane	<6.8
Dichlorodifluoromethane	<4
Ethanol	**37**
Ethylbenzene	<3.5
Freon 113	<6.1
Freon 114	<5.6
Hexachlorobutadiene	<8.5
Hexane	<7
m + p Xylene	**3.5**
Methyl Ethyl Ketone	<9.4
Methylene Chloride	<6.9
o-Xylene	<3.5
Styrene	<3.4
t 1,3 Dichloropropene	<3.6
t butylmethylether	<5.8
Tert-Butyl Alcohol	<9.7
Tetrachloroethene	**180**
Toluene	<3
Total BTEX	**3.5**
trans-1,2-Dichloroethene	<3.2
Trichloroethlyene	**42**
Trichlorofluoromethane	<4.5
Vinyl Chloride	<2

Calculated Values	
Total Xylenes	**3.5**
Total VOCs	**835.6**

Table 2

340 West Hoffman Ave
Lindenhurst, NY
Spill #06-50126

Soil Analytical Results (ug/Kg)
TestAmerica, Inc. EPA Method 8260

Location	B-2	B-5	B-9	CP51 Table 1 375_6 unrestricted
Depth	10-12	10-12	10-12	
Date_Collected	1/19/2012	1/20/2012	1/24/2012	
% Solids	88.8	90.1	84.8	
1,1 Dichloroethane	<97	<1	<1.1	270
1,1 Dichloroethene	<97	<1	<1.1	330
1,1,1 Trichloroethane	<97	<1	<1.1	680
1,1,2 Trichloroethane	<97	<1	<1.1	n/a
1,1,2,2 Tetrachloroethane	<97	<1	<1.1	n/a
1,2 Dibromoethane	<97	<1	<1.1	n/a
1,2 Dichlorobenzene	<97	<1	<1.1	1,100
1,2 Dichloroethane	<97	<1	<1.1	20
1,2 Dichloropropane	<97	<1	<1.1	n/a
1,2,4 Trichlorobenzene	<97	<1	<1.1	n/a
1,3 Dichlorobenzene	<97	<1	<1.1	2,400
1,4 Dichlorobenzene	<97	<1	<1.1	1,800
2-Hexanone	<970	<10	<11	n/a
4-Methyl-2-Pentanone	<970	<10	<11	n/a
Acetone	<970	180	43	50
Benzene	<97	<1	<1.1	60
Bromodichloromethane	<97	<1	<1.1	n/a
Bromoform	<97	<1	<1.1	n/a
Bromomethane	<97	<1	<1.1	n/a
c 1,3 Dichloropropene	<97	<1	<1.1	n/a
Carbon Disulfide	<97	4.5	<1.1	n/a
Carbon Tetrachloride	<97	<1	<1.1	760
Chlorobenzene	<97	<1	<1.1	1,100
Chloroethane	<97	<1	<1.1	n/a
Chloroform	<97	<1	<1.1	370
Chloromethane	<97	<1	<1.1	n/a
cis-1,2-Dichloroethene	<97	<1	<1.1	250
Cyclohexane	<97	<1	<1.1	n/a
Cyclohexane, methyl-	23,000	0.89 J	0.39 J	n/a
Dibromochloromethane	<97	<1	<1.1	n/a
Dibromochloropropane	<97	<1	<1.1	n/a
Dichlorodifluoromethane	<97	<1	<1.1	n/a
Ethylbenzene	210	<1	0.88 J	1,000
Freon 113	<97	<1	<1.1	n/a
Isopropylbenzene	88 J	2.6	<1.1	n/a
Methyl acetate	<190	<1	<1.1	n/a
Methyl Ethyl Ketone	<970	5.7 J	4.4 J	120
Methylene Chloride	<97	11	3	50
Styrene	<97	<1	<1.1	n/a
t 1,3 Dichloropropene	<97	<1	<1.1	n/a
t butylmethylether	<97	<1	<1.1	930
Tetrachloroethene	<97	<1	<1.1	1,300
Toluene	15 J	<1	<1.1	700
trans-1,2-Dichloroethene	<97	<1	<1.1	190
Trichloroethlyene	<97	<1	<1.1	470
Trichlorofluoromethane	<97	<1	<1.1	n/a
Vinyl Chloride	<97	<1	<1.1	20
Xylenes Total	850	<3.1	5.2	260
Calculated Values				
VOCs Total	24,163	205	57	n/a
BTEX Total	1,075	<6.1	6.08	n/a

Indicates values that have exceeded the CP51 Table unrestricted guideline values.
n/a - analyzed chemicals with no established values
A "J" qualifier indicates a a laboratory estimated value, result is greater or equal to the MDL and less than the LOQ

Appendix G- 2015 HRP Site Characterization Report

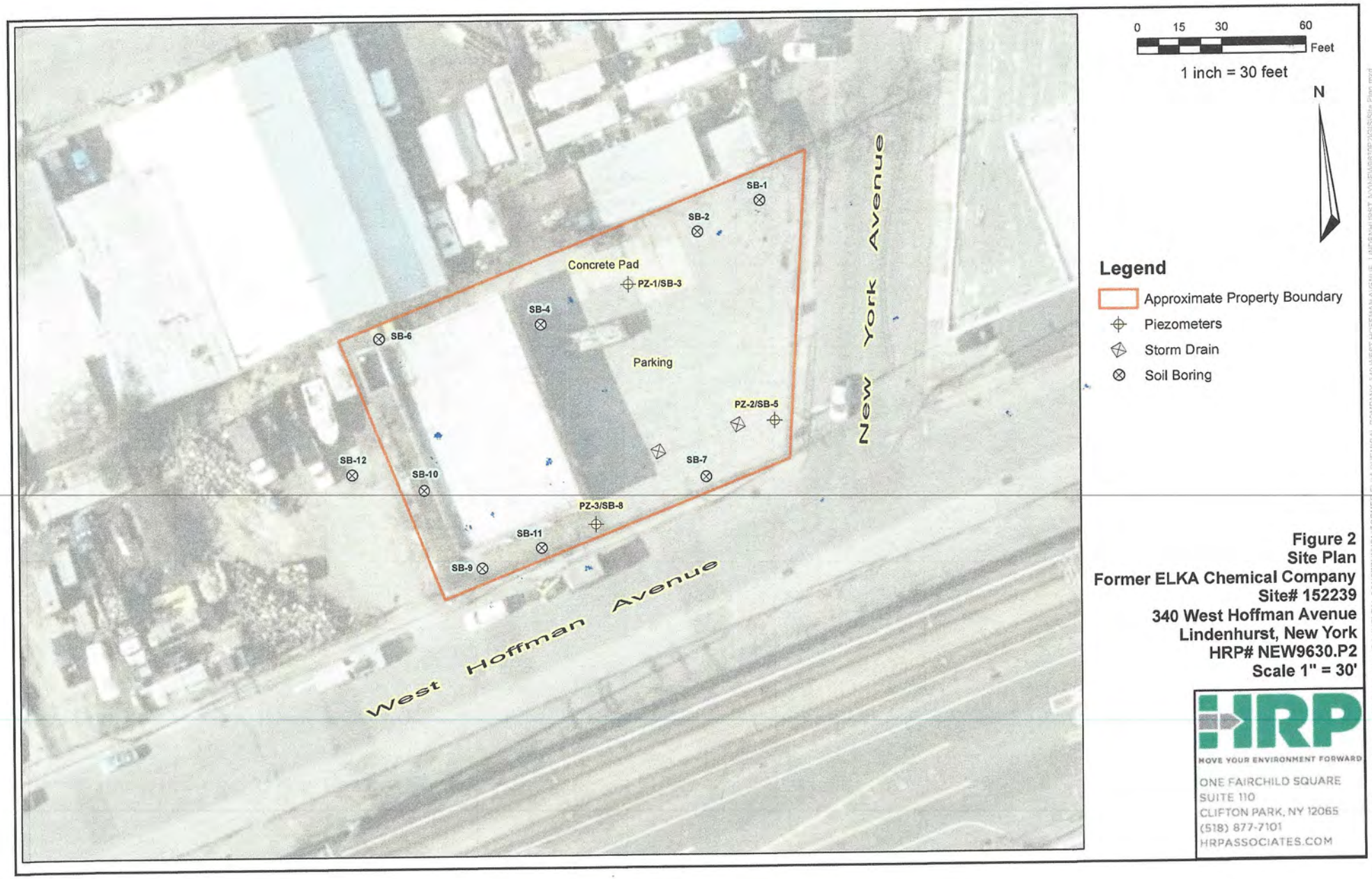


Figure 2
Site Plan
Former ELKA Chemical Company
Site# 152239
340 West Hoffman Avenue
Lindenhurst, New York
HRP# NEW9630.P2
Scale 1" = 30'

HRP
MOVE YOUR ENVIRONMENT FORWARD
ONE FAIRCHILD SQUARE
SUITE 110
CLIFTON PARK, NY 12065
(518) 877-7101
HRPASSOCIATES.COM

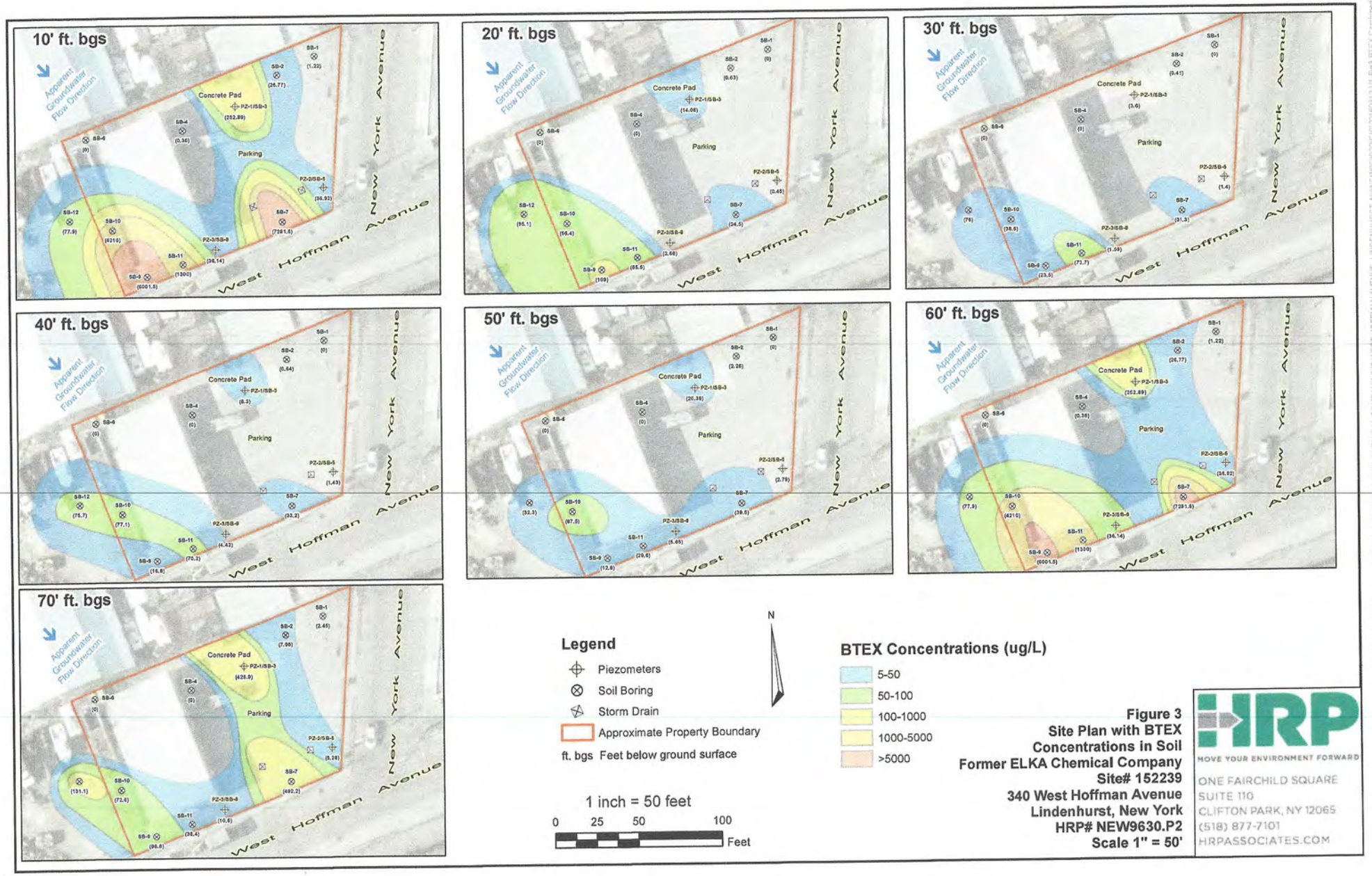


Figure 3
Site Plan with BTEX Concentrations in Soil
Former ELKA Chemical Company
Site# 152239
340 West Hoffman Avenue
Lindenhurst, New York
HRP# NEW9630.P2
Scale 1" = 50'

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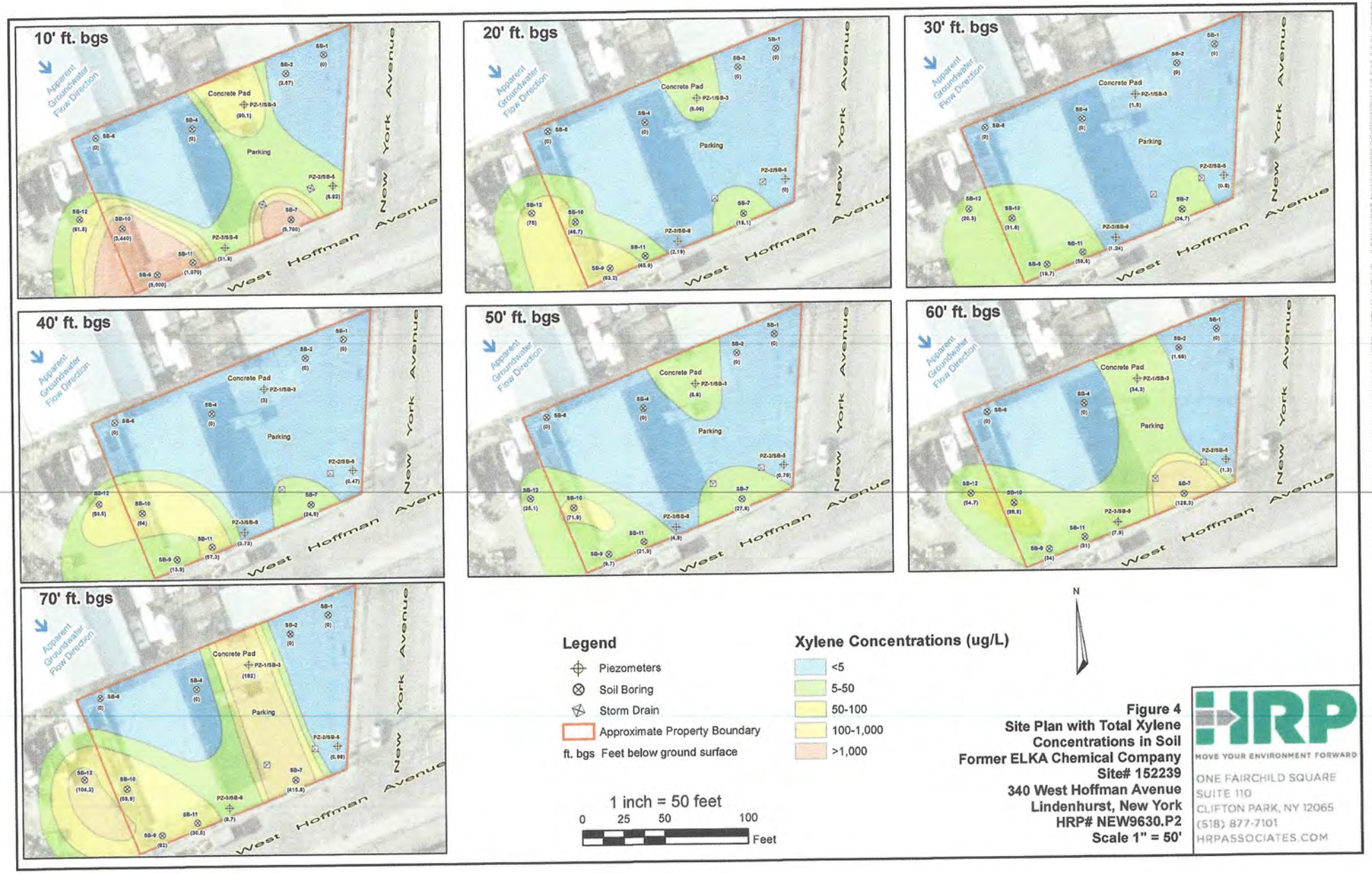

Figure 4
Site Plan with Total Xylene Concentrations in Soil
Former ELKA Chemical Company
Site# 152239
340 West Hoffman Avenue
Lindenhurst, New York
HRP# NEW9630.P2
Scale 1" = 50'

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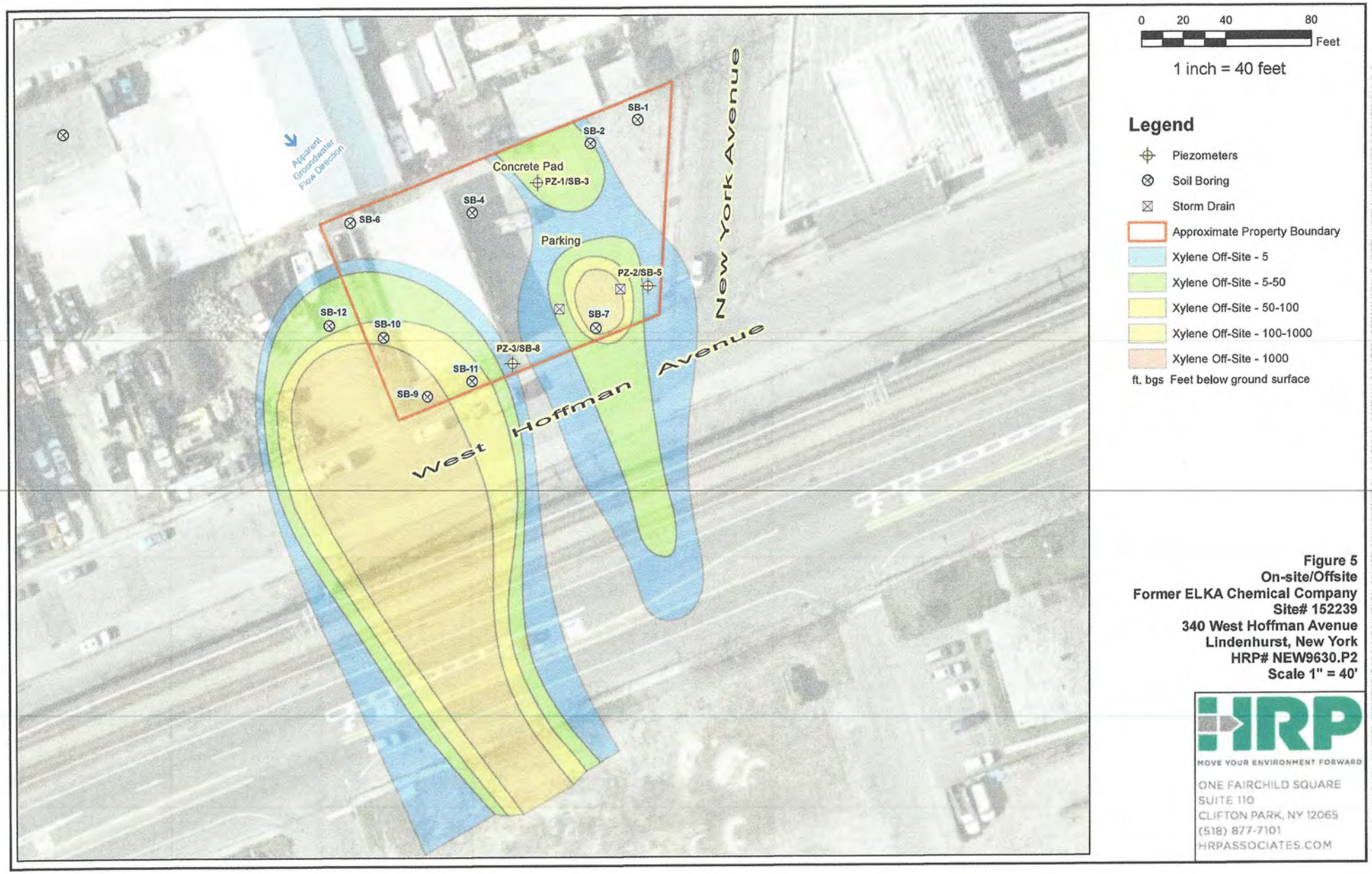

Figure 5
On-site/Offsite
Former ELKA Chemical Company
Site# 152239
340 West Hoffman Avenue
Lindenhurst, New York
HRP# NEW9630.P2
Scale 1" = 40'

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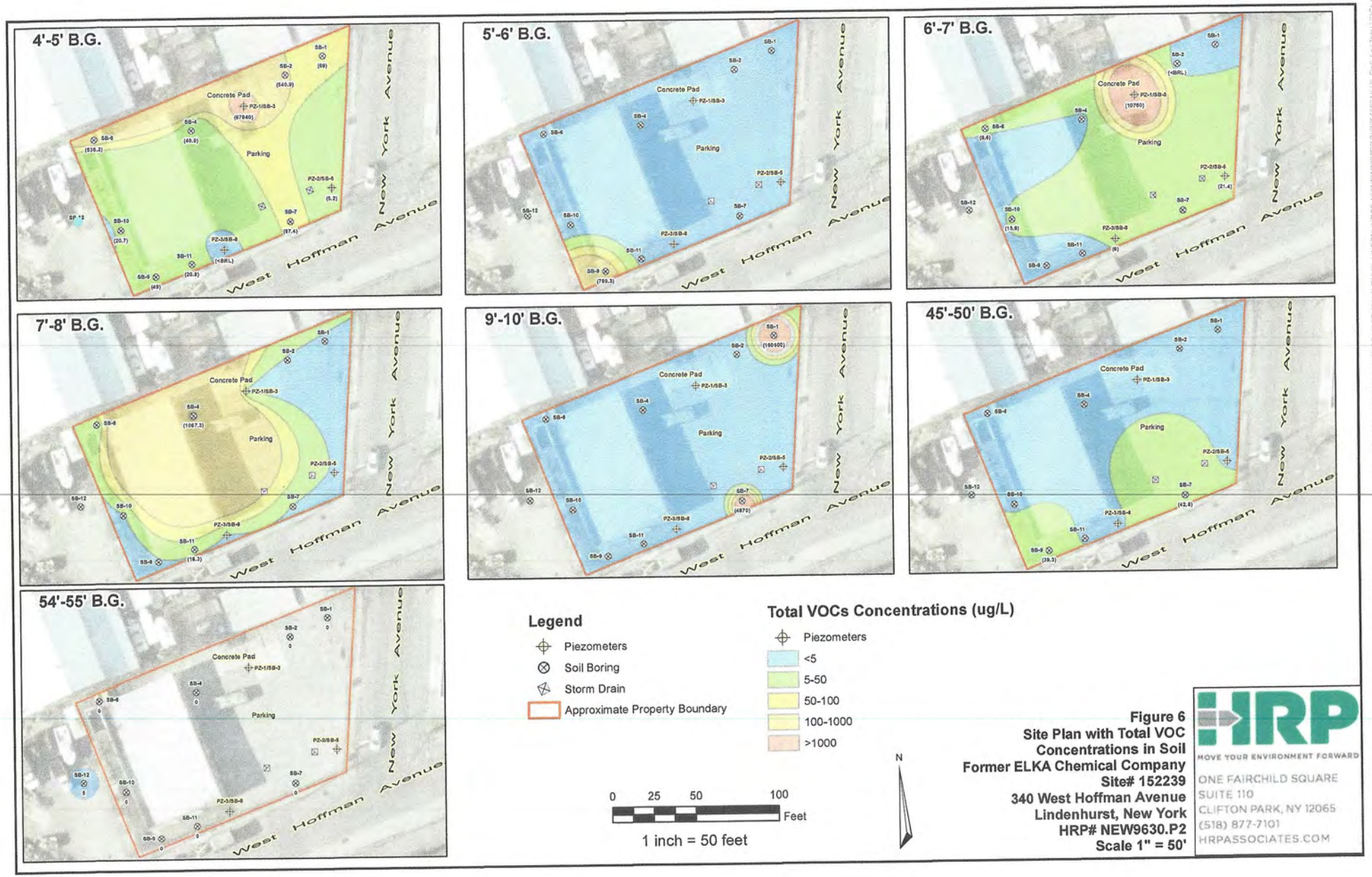

Figure 6
Site Plan with Total VOC Concentrations in Soil
Former ELKA Chemical Company
Site# 152239
340 West Hoffman Avenue
Lindenhurst, New York
HRP# NEW9630.P2
Scale 1" = 50'

HRP
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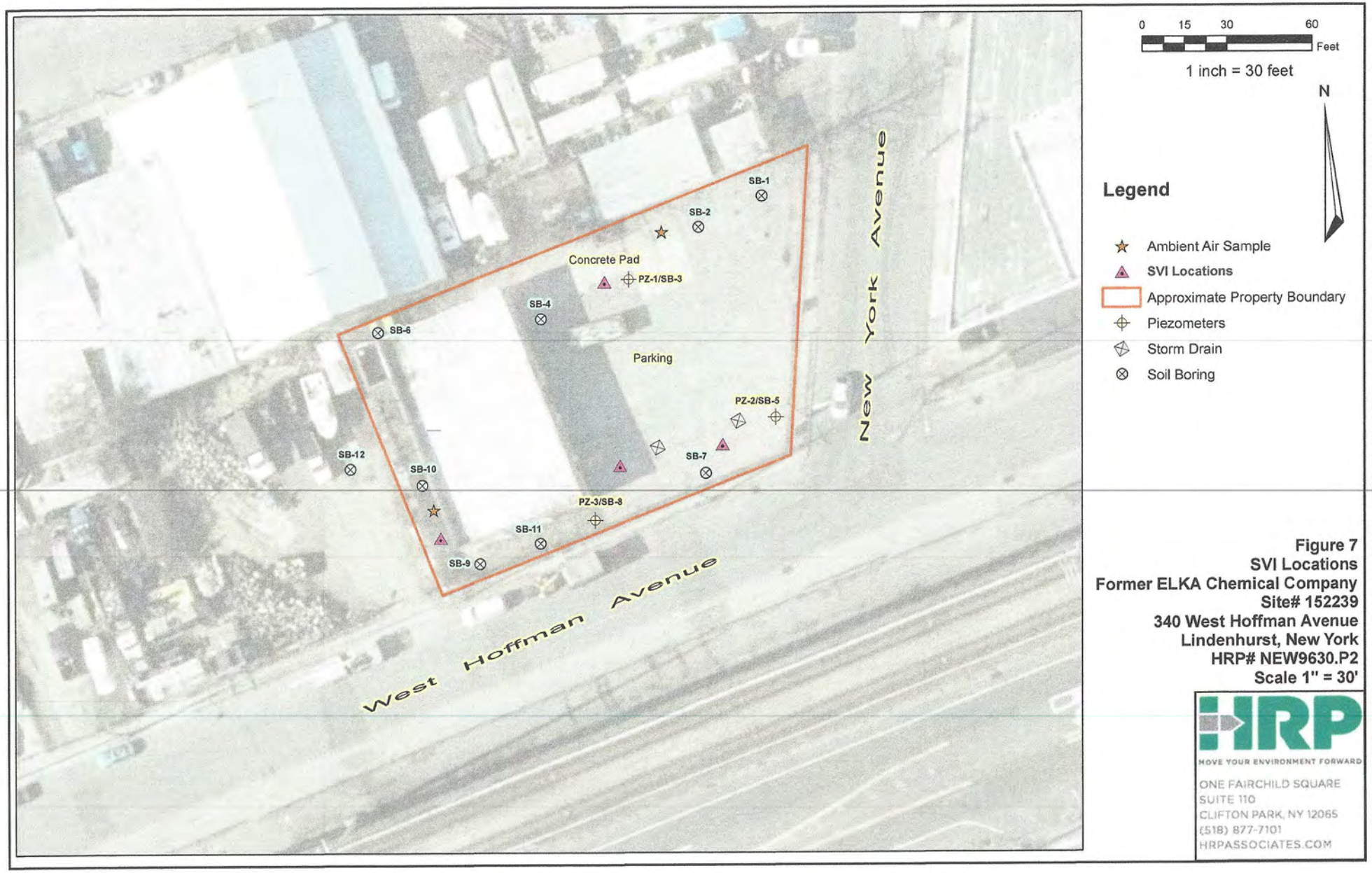

Figure 7
SVI Locations
Former ELKA Chemical Company
Site# 152239
340 West Hoffman Avenue
Lindenhurst, New York
HRP# NEW9630.P2
Scale 1" = 30'

HRP
MOVE YOUR ENVIRONMENT FORWARD
ONE FAIRCHILD SQUARE
SUITE 110
CLIFTON PARK, NY 12065
(518) 877-7101
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Table 1
FORMER ELKA CHEMICAL COMPANY - SITE NUMBER 152239
340 West Hoffman Avenue
Lindenhurst, New York 11757
March 31 - April 15, 2014 and February 17, 2015
375-6 SCO - Protection of Public Health - Unrestricted, Residential, Commercial, and Industrial
Soil Samples - Analyzed for Volatile Organic Compounds (VOCs)
(Only detected constituents are listed)

Soil Sample ID		SB-1		SB-2		SB-3		SB-4		SB-5		SB-6		SB-7			375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health - Industrial
Sample Depth (ft. BGS)		4-5	9-10	4-5	6-7	4-5	6-7	4-5	7-8	4-5	6-7	4-5	6-7	4-5	9-10	45-50				
Date Collected		3/31/2014		3/31/2014		4/1/2014		4/2/2014		4/2/2014	4/3/2014	4/8/2014		4/10/2014	4/9/2014	4/10/2014				
SOIL-8260B (µg/kg)	CAS #																			
1,2,4-Trimethylbenzene	95-63-6	36.9 J	40000 J	9.7 J	NA	9500 J	6700 J	16.5 J	570 J	2.6 J	1.8 J	6.5 J	NA	3.1 J	580 J	2.1 J	3,600	52,000	190,000	380,000
1,3,5-Trimethylbenzene	108-67-8	14.2 J	31600 J	1.7 J	NA	10100 J	1100 J	5.6 J	210 J	NA	1.3 J	4.2 J	NA	1.5 J	330 J	NA	8,400	52,000	190,000	380,000
1H-Indene, 2,3-dihydro-1,1,5-trime	040050-41-7	NA	NA	21.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
1-Methylnaphthalene	90-12-0	NA	NA	42.7 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
2-Butanone (MEK)	78-93-3	<26.4 U	(<3100) U	25 J	<28.4 U	(<2600) U	(<2900) U	<26.9 U	<27.5 U	<28.5 U	<27 U	<27.1 U	<28.3 U	<26.2 U	(<1400) U	<31.5 U	120	100,000	500,000	1,000,000
2-Methylnaphthalene	91-57-6	NA	NA	27.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
2-Propenal, 3-(4-methylphenyl)-	001504-75-2	NA	NA	16.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
Acetone	67-64-1	<26.4 U	(<3100) U	250	<28.4 U	(<2600) U	(<2900) U	<26.9 U	19.8 J	<28.5 U	<27 U	<27.1 U	<28.3 U	21 J	(<1400) U	<31.5 U	50	100,000	500,000	1,000,000
Benzene, 1-methyl-2-(2-propenyl)-	001587-04-8	NA	NA	15.4 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
Benzene, 4-(2-butenyl)-1,2-dimethyl-	54340-86-2	NA	NA	14.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
Carbon disulfide	75-15-0	<5.3 U	<620 U	1.8 J	<5.7 U	<520 U	<570 U	<5.4 U	<5.5 U	<5.7 U	<5.4 U	<5.4 U	<5.7 U	<5.6 U	<280 U	<6.3 U	NE	NE	NE	NE
Ethylbenzene	100-41-4	1.7 J	<620 U	<5.4 U	<5.7 U	12700	370 J	3.4 J	21.8	1.3 J	<5.4 U	25.1	<5.7 U	3.2 J	<280 U	2.1 J	1,000	41,000	390,000	780,000
Isopropylbenzene	98-82-8	<5.3 U	13700	<5.4 U	<5.7 U	2400	140 J	1.9 J	39.6	<5.7 U	<5.4 U	2.4 J	<5.7 U	<5.6 U	120 J	<6.3 U	NE	NE	NE	NE
m/p-Xylenes	179601-23-1	<10.6 U	<1200 U	<10.9 U	<11.4 U	5500	210 J	1.3 J	7.5 J	<11.4 U	1.4 J	100	<11.3 U	17.8	290 J	9.8 J	NE	NE	NE	NE
Methyl isobutyl ketone (MIBK)	108-10-1	4.6 J	<3100 U	10.7 J	<28.4 U	<2600 U	<2900 U	<26.9 U	<27.5 U	<28.5 U	9.3 J	8 J	8.1 J	8.1 J	<1400 U	12.4 J	NE	NE	NE	NE
Methylcyclohexane	108-87-2	<5.3 U	9900	<5.4 U	<5.7 U	3700	340 J	2.3 J	94.8	<5.7 U	<5.4 U	7	<5.7 U	<5.6 U	2500	<6.3 U	NE	NE	NE	NE
Methylene chloride (Dichloromethane)	75-09-2	<5.3 U	(<620) U	<5.4 U	<5.7 U	(<520) U	(<570) U	1.6 J	<5.5 U	<5.7 U	<5.4 U	1.9 J	1.6 J	1.5 J	(<280) U	<6.3 U	50	100,000	500,000	1,000,000
Naphthalene	91-20-3	1.1 J	10600 J	7.1 J	NA	4000 J	260 J	NA	9.9 J	NA	1.6 J	NA	NA	NA	290 J	NA	12,000	100,000	500,000	1,000,000
Naphthalene, 1,2,3,4-tetrahydro-1-	001559-81-5	NA	NA	28.9 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
Naphthalene, 1,2,3,4-tetrahydro-6-	001680-51-9	NA	NA	19.4 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
Naphthalene, 2-ethyl-1,2,3,4-tetra	032367-54-7	NA	NA	17.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE
n-Butylbenzene	104-51-8	1.4 J	29100 J	1.3 J	NA	2950 J	NA	NA	NA	2.1 J	NA	NA	NA	NA	NA	NA	12,000	100,000	500,000	1,000,000
n-Propylbenzene	103-65-1	7.4 J	25400 J	2.2 J	NA	11000 J	840 J	2.4 J	67.4 J	NA	1.2 J	4.4 J	NA	1.4 J	470 J	NA	3,900	100,000	500,000	1,000,000
o-Xylene	95-47-6	<5.3 U	<620 U	<5.4 U	<5.7 U	780	<570 U	<5.4 U	<5.5 U	<5.7 U	<5.4 U	31.8	<5.7 U	<5.6 U	<280 U	3.3 J	NE	NE	NE	NE
Tetrachloroethylene	127-18-4	<5.3 U	<620 U	<5.4 U	<5.7 U	<520 U	<570 U	<5.4 U	<5.5 U	<5.7 U	<5.4 U	36.6	<5.7 U	<5.6 U	<280 U	<6.3 U	1,300	19,000	150,000	300,000
Toluene	108-88-3	<5.3 U	<620 U	<5.4 U	<5.7 U	<520 U	<570 U	<5.4 U	<5.5 U	<5.7 U	<5.4 U	5 J	<5.7 U	<5.6 U	<280 U	<6.3 U	700	100,000	500,000	1,000,000
trans-1,2-Dichloroethylene	156-60-5	<5.3 U	(<620) U	<5.4 U	<5.7 U	(<520) U	(<570) U	<5.4 U	<5.5 U	<5.7 U	<5.4 U	<5.4 U	<5.7 U	<5.6 U	(<280) U	<6.3 U	190	100,000	500,000	1,000,000
Trichloroethylene	79-01-6	<5.3 U	(<620) U	<5.4 U	<5.7 U	(<520) U	(<570) U	<5.4 U	<5.5 U	<5.7 U	<5.4 U	8.6	<5.7 U	<5.6 U	<280 U	<6.3 U	470	21,000	200,000	400,000
Vinyl chloride	75-01-4	<5.3 U	(<620) U	<5.4 U	<5.7 U	(<520) U	(<570) U	<5.4 U	<5.5 U	<5.7 U	<5.4 U	<5.4 U	<5.7 U	<5.6 U	(<280) U	<6.3 U	20	900	13,000	27,000
Xylene-Total		<BRL	<BRL	<BRL	<BRL	6280	210 J U	1.3 J U	7.5 J U	<BRL	1.4 J U	131.8	<BRL	23.8	290 J U	13.1 J	260	100,000	500,000	1,000,000
Total BTEX		1.7	<BRL	<BRL	<BRL	16980	580	4.7	29.3	1.3	1.4	161.9	<BRL	27	290	15.2	NE	NE	NE	NE
Total VOCs		69	160600	540.9	<BRL	97840	10750	40.9	1067.3	5.2	21.4	535.2	9.6	87.4	4870	42.8	NE	NE	NE	NE

Soil Sample ID		SB-8		SB-9			SB-10		SB-11		SB-12					375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health - Industrial
Sample Depth (ft.)		4-5	6-7	4-5	5-6	40-45	4-5	6-7	4-5	7-8	12-14	38-40	54-56							
Date Collected		4/10/2014		4/11/2014			4/14/2014		4/15/2014			02/17/15								
SOIL-8260B (µg/kg)	CAS #																			
1,2,4-Trimethylbenzene	95-63-6	NA	NA	8.8 J	420 J	8.3 J	1.7 J	1.6 J	2.5 J	1.6 J	<,580	<0.059	<0.059				3,600	52,000	190,000	380,000
1,3,5-Trimethylbenzene	108-67-8	NA	NA	4.2 J	240 J	1.9 J	NA	NA	NA	1.1 J	<,580	<0.059	<0.059				8,400	52,000	190,000	380,000
1H-Indene, 2,3-dihydro-1,1,5-trime	040050-41-7	NA	NA	NA	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				NE	NE	NE	NE
1-Methylnaphthalene	90-12-0	NA	NA	NA	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				NE	NE	NE	NE
2-Butanone (MEK)	78-93-3	<26.7 U	<28.5 U	<27.3 U	<27.4 U	<27.6 U	<28.1 U	<26.8 U	<27.1 U	<27.7 U	<,580	<0.059	<0.059				120	100,000	500,000	1,000,000
2-Methylnaphthalene	91-57-6	NA	NA	NA	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				NE	NE	NE	NE
2-Propenal, 3-(4-methylphenyl)-	001504-75-2	NA	NA	NA	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				NE	NE	NE	NE
Acetone	67-64-1	<26.7 U	<28.5 U	<27.3 U	<27.4 U	16.1 J	<28.1 U	<26.8 U	<27.1 U	<27.7 U	<,580	<0.059	14.3				50	100,000	500,000	1,000,000
Benzene, 1-methyl-2-(2-propenyl)-	001587-04-8	NA	NA	NA	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				NE	NE	NE	NE
Benzene, 4-(2-butenyl)-1,2-dimethyl-	54340-86-2	NA	NA	NA	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				NE	NE	NE	NE
Carbon disulfide	75-15-0	<5.3 U	<5.7 U	<5.6 U	<5.5 U	<5.5 U	<5.6 U	<5.8 U	<5.4 U	<5.5 U	<,580	<0.059	<0.059				NE	NE	NE	NE
Ethylbenzene	100-41-4	<5.3 U	<5.7 U	2.6 J	2.7 J	<5.5 U	<5.6 U	<5.8 U	<5.4 U	<5.5 U	<,580	<0.059	<0.059				1,000	41,000	390,000	780,000
Isopropylbenzene	98-82-8	<5.3 U	<5.7 U	<5.6 U	11	<5.5 U	<5.6 U	<5.8 U	<5.4 U	<5.5 U	6.9	<0.059	3.7				NE	NE	NE	NE
m/p-Xylenes	179601-23-1	<10.7 U	<11.4 U	10.9	17.9	<11 U	<11.2 U	<11.5 U	<10.8 U	<11.1 U	<,580	<0.059	1.3				NE	NE	NE	NE
Methyl isobutyl ketone (MIBK)	108-10-1	<26.7 U	9 J	<27.3 U	<27.4 U	11.6 J	19 J	14.2 J	16.7 J	16.6 J	<,580	<0.059	<0.059				NE	NE	NE	NE
Methylcyclohexane	108-87-2	<5.3 U	<5.7 U	<5.5 U	3.5 J	<5.5 U	<5.6 U	<5.8 U	<5.4 U	<5.5 U	16.1	<0.059	9.6				NE	NE	NE	NE
Methylene chloride (Dichloromethane)	75-09-2	<5.3 U	<5.7 U	<5.5 U	<5.5 U	1.6 J	<5.6 U	<5.8 U	2.6 J	<5.5 U	<,580	0.0019	<0.059				50	100,000	500,000	1,000,000
Naphthalene	91-20-3	NA	NA	NA	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				12,000	100,000	500,000	1,000,000
Naphthalene, 1,2,3,4-tetrahydro-1-	001559-81-5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				NE	NE	NE	NE
Naphthalene, 1,2,3,4-tetrahydro-6-	001680-51-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				NE	NE	NE	NE
Naphthalene, 2-ethyl-1,2,3,4-tetra	032367-54-7	NA	NA	NA	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				NE	NE	NE	NE
n-Butylbenzene	104-51-8	NA	NA	1.2 J	NA	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				12,000	100,000	500,000	1,000,000
n-Propylbenzene	103-65-1	NA	NA	3 J	69.7 J	NA	NA	NA	NA	NA	<,580	<0.059	<0.059				3,900	100,000	500,000	1,000,000
o-Xylene	95-47-6	<5.3 U	<5.7 U	2.9 J	8.3	<5.5 U	<5.6 U	<5.8 U	<5.4 U	<5.5 U	<,580	<0.059	<0.059				NE	NE	NE	NE
Tetrachloroethylene	127-18-4	<5.3 U	<5.7 U	1.6 J	<5.5 U	<5.5 U	<5.6 U	<5.8 U	<5.4 U	<5.5 U	<,580	<0.059	<0.059				1,300	19,000	150,000	300,000
Toluene	108-88-3	<5.3 U	<5.7 U	<5.6 U	<5.5 U	<5.5 U	<5.6 U	<5.8 U	<5.4 U	<5.5 U	<,580	<0.059	<0.059				700	100,000	500,000	1,000,000
trans-1,2-Dichloroethylene	156-60-5	<5.3 U	<5.7 U	<5.5 U	<5.5 U	<5.5 U	<5.6 U	<5.8 U	<5.4 U	<5.5 U	<,580	<0.059	<0.059				190	100,000	500,000	1,000,000
Trichloroethylene	79-01-6	<5.3 U	<5.7 U	<5.5 U	<5.5 U	<5.5 U	<5.6 U	<5.8 U	<5.4 U	<5.5 U	<,580	<0.059	<0.059				470	21,000	200,000	400,000
Vinyl chloride	75-01-4	<5.3 U	<5.7 U	<5.5 U	<5.5 U	<5.5 U	<5.6 U	<5.8 U	<5.4 U	<5.5 U	<,580	<0.059	<0.059				20	900	13,000	27,000
Xylene-Total		<BRL	<BRL	13.9 J	26.2	<BRL	<BRL	<BRL	<BRL	<BRL	<BRL	<BRL	<BRL				260	100,000	500,000	1,000,000
Total BTEX		<BRL	<BRL	15.4	28.9	<BRL	<BRL	<BRL	<BRL	<BRL	<BRL	<BRL	1.3				NE	NE	NE	NE
Total VOCs		<BRL	8	49	799.3	39.3	20.7	15.8	20.8	18.3	23	0.0019	28.9				NE	NE	NE	NE

Soil Cleanup Objectives = NYSDEC 6 NYCRR Part 375-6

Bold	Sample is Above Non-Detect Value but Below Objective	J	Indicates an estimated value	ft BGS	Feet Below Ground Surface
Bold	Sample Exceeds Unrestricted Objective	U	Undetected, Analyte included in the analysis, but not detected	SB	Soil Boring
Bold	Sample Exceeds Residential Objective	CAS	Chemical Abstract Service	µg/kg	Micrograms per Kilogram
Bold	Sample Exceeds Commercial Objective	<BRL	below reporting level	VOCs	Volatile Organic Compounds
Bold	Sample Exceeds Industrial Objective				

Table 2
FORMER ELKA CHEMICAL COMPANY - SITE NUMBER 152239
340 West Hoffman Avenue
Lindenhurst, New York 11757
April 23, 2014
375-6 SCO - Protection of Public Health - Unrestricted, Residential, Commercial, and Industrial
Surface Soil Samples - Analyzed for Volatile Organic Compounds (VOCs)
(Only detected constituents are listed)

Surface Soil Sample ID		SS-1	SS-2	SS-3	SS-4	375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health -Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health - Industrial
Sample Depth (ft. BGS)		0 - 6"	0 - 6"	0 - 6"	0 - 6"				
Date Collected		4/23/2014	4/23/2014	4/23/2014	4/23/2014				
SURFACE SOIL-8260B (µg/kg)	CAS #								
Tetrachloroethylene	127-18-4	7.8	4.9 J	5.9	<5.2 U	1,300	19,000	150,000	300,000
Trichloroethylene	79-01-6	8.4	5.9	6.4	1.5 J	470	21,000	200,000	400,000

Soil Cleanup Objectives = NYSDEC 6 NYCRR Part 375-6

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
ug/kg	Micrograms per Kilogram
VOCs	Volatile Organic Compounds
ft BGS	Feet Below Ground Surface
SS	Surface Soil
J	Indicates and estimated value
U	Undetected. Analyte included in the analysis, but not detected
CAS	Chemical Abstract Servies

Table 3
FORMER ELKA CHEMICAL COMPANY - SITE NUMBER 152239
340 West Hoffman Avenue
Lindenhurst, New York 11757
3/31-4/15/2014 and 2/17/2015
Grab Groundwater Samples - Analyzed for EPA Method VOCs 8260 B (ug/L)
(Only detected constituents are listed)

Sample (Boring) Identification	Sample Depth (feet below ground surface)	Date Collected	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichlorobenzene	Acetone	Benzene	Carbon Disulfide	Chlorobenzene	Chloroform	Chloromethane	Cis-1,2-Dichloroethylene	Cyclohexane	Dichlorodifluoromethane	Ethylbenzene	Isopropylbenzene (Cumene)	Methyl Ethyl Ketone (2-Butanone)	Methylcyclohexane	Tert-Butyl Methyl Ether	Tetrachloroethylene (PCE)	Toluene	Trichloroethylene (TCE)	Xylene Total	Total BTEX	Total VOCs
SB-1(10)	10	03/31/14	ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	2.9	ND<0.2	ND<0.2	ND<0.2	5.8	9.9 J	ND<0.2	0.87 J	140	ND<1.3	17.8	ND<0.35	15.8	0.35 J	5.2	ND<0.4	1.22	198.62
SB-1(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	2.3	ND<1.3	0.86 J	ND<0.35	1.6	ND<0.2	ND<0.2	ND<0.4	<BRL	4.76
SB-1(30)	30		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	0.63 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	1.4	ND<1.3	ND<0.2	ND<0.35	1.2	ND<0.2	ND<0.2	ND<0.4	<BRL	3.23
SB-1(40)	40		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	0.7 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	2.1	ND<1.3	ND<0.2	ND<0.35	1.2	ND<0.2	ND<0.2	ND<0.4	<BRL	4
SB-1(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.48 J	ND<0.2	1	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	4	ND<1.3	1.5	ND<0.35	1.6	ND<0.2	ND<0.2	ND<0.4	<BRL	8.58
SB-1(60)	60		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	1	ND<0.2	0.79 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	28.3	ND<1.3	3.3	ND<0.35	2.6	0.28 J	ND<0.2	ND<0.4	0.28	36.27
SB-1(70)	70		ND<0.2	ND<0.2	ND<0.2	27.4 J	0.75 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	1.5 J	0.5 J	58.3 J	6 J	2.1 J	ND<0.35	3.2 J	1.2 J	ND<0.2	ND<0.4	2.45	100.95
SB-1(70)D	70		ND<0.2	ND<0.2	ND<0.2	19.3 J	0.39 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.85 J	0.26 J	34.2 J	3.8 J	1.1 J	ND<0.35	1.6 J	0.6 J	ND<0.2	ND<0.4	1.25	62.1
SB-2(10)	10	04/01/14	ND<0.2	ND<0.2	ND<0.2	ND<0.5	0.8 J	0.3 J	ND<0.2	ND<0.2	ND<0.2	0.7 J	14.3	ND<0.2	23.4	5.1	ND<1.3	32.8	ND<0.35	0.97 J	ND<0.2	0.4 J	2.57 J	26.77	81.34
SB-2(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.33 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.63 J	ND<0.2	ND<1.3	1.9	ND<0.35	0.65 J	ND<0.2	ND<0.2	ND<0.4	0.63	3.51
SB-2(30)	30		ND<0.2	ND<0.2	ND<0.2	5.8	ND<0.2	ND<0.2	ND<0.2	1.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.41 J	ND<0.2	ND<1.3	0.92 J	ND<0.35	1	ND<0.2	ND<0.2	ND<0.4	0.41	9.33
SB-2(40)	40		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.77 J	ND<0.2	1.1	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.64 J	ND<0.2	ND<1.3	1.5	ND<0.35	0.77 J	ND<0.2	ND<0.2	ND<0.4	0.64	4.78
SB-2(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	1.4	ND<0.2	1.1	ND<0.2	ND<0.2	1.9 J	ND<0.2	1.8	0.52 J	ND<1.3	4.2	ND<0.35	1	ND<0.2	ND<0.2	0.46 J	2.26	12.38
SB-2(60)	60		ND<0.2	ND<0.2	ND<0.2	8.8	0.38 J	3.8	ND<0.2	0.85 J	ND<0.2	ND<0.2	4.3 J	1.6	5.1	1.4	ND<1.3	8.9	ND<0.35	1.5	0.32 J	0.37 J	1.68 J	7.48	38.15
SB-2(70)	70		ND<0.2	ND<0.2	ND<0.2	9.2	0.4 J	4.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	4.3 J	6.9	6.3	1.7	ND<1.3	9.7	ND<0.35	1.2	0.35 J	ND<0.2	1.77 J	8.82	46.32
SB-3(10)	10	4/2/2014	ND<0.2	ND<0.2	ND<0.2	ND<0.5	1.2	0.74 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	170 J	ND<0.2	150 J	19.1	ND<1.3	710 E	ND<0.35	3	0.49 J	0.7 J	101.2 J	252.89	1156.43
SB-3(10)D	10		ND<2	ND<2	ND<2	ND<5	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	140 JD	ND<2	120 JD	15.9 D	ND<13.2	590 D	ND<3.5	2.8 JD	ND<2	ND<2	78.1 JD	198.1	946.8
SB-3(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.77 J	ND<0.2	24.2 J	ND<0.2	8 J	1.7	ND<1.3	93.4	ND<0.35	ND<0.2	ND<0.2	ND<0.2	6.06 J	14.06	134.13
SB-3(30)	30		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	1.7	ND<0.2	ND<0.2	10.5 J	ND<0.2	2.1 J	0.55 J	ND<1.3	28.7	ND<0.35	ND<0.2	ND<0.2	ND<0.2	1.5 J	3.6	45.05
SB-3(40)	40		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	23.1 J	ND<0.2	5.3 J	1.2	ND<1.3	68.9	ND<0.35	ND<0.2	ND<0.2	ND<0.2	3 J	8.3	101.5
SB-3(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.54 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	53.9 J	ND<0.2	12 J	3	ND<1.3	200 E	ND<0.35	0.55 J	ND<0.2	ND<0.2	8.36 J	20.36	278.35
SB-3(50)D	50		ND<1	ND<1	ND<1	ND<2.5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	40.9 JD	ND<1	11.5 JD	3.1 JD	ND<6.6	170 D	ND<1.8	ND<1	ND<1	ND<1	7.6 JD	19.1	233.1
SB-3(60)	60		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.64 J	0.43 J	ND<0.2	ND<0.2	ND<0.2	110 J	1.8	62.9 J	13.9	ND<1.3	510 E	ND<0.35	2.3	0.44 J	1.5	50.9 J	114.24	754.81
SB-3(60)D	60		ND<2	ND<2	ND<2	ND<5	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	73.3 JD	ND<2	41.8 JD	10.8 D	ND<13.2	370 D	ND<3.5	2.6 JD	ND<2	ND<2	32.3 JD	74.1	530.8
SB-3(70)	70		ND<0.2	ND<0.2	ND<0.2	23.8 UJ	1.4	0.92 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	180 J	8.5	220 E	33.9	ND<1.3	830 E	ND<0.35	0.88 J	1.2	ND<0.2	204.3	426.9	1504.9
SB-3(70)D	70		ND<2	ND<2	ND<2	ND<5	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	150 JD	ND<2	200 JD	33.5 D	ND<13.2	610 D	ND<3.5	ND<2	ND<2	ND<2	180 JD	380	1173.5
SB-4(10)	10	4/3/2014	ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	1.1	ND<0.2	4.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.36 J	0.7 J	ND<1.3	23.2	ND<0.35	0.34 J	ND<0.2	ND<0.2	ND<0.4	0.36	30.2
SB-4(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.74 J	ND<0.2	0.47 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<1.3	ND<0.2	ND<0.35	ND<0.2	ND<0.2	ND<0.2	ND<0.4	<BRL	1.21
SB-4(30)	30		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	1.2	ND<0.2	0.91 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<1.3	ND<0.2	ND<0.35	0.41 J	ND<0.2	ND<0.2	ND<0.4	<BRL	2.52
SB-4(40)	40		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.83 J	ND<0.2	1.4	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<1.3	ND<0.2	ND<0.35	ND<0.2	ND<0.2	ND<0.2	ND<0.4	<BRL	2.23
SB-4(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.56 J	ND<0.2	0.88 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<1.3	ND<0.2	ND<0.35	ND<0.2	ND<0.2	ND<0.2	ND<0.4	<BRL	1.44
SB-4(60)	60		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.52 J	ND<0.2	1.1	ND<0.2	ND<0.2	ND<0.2	3.7	ND<0.2	ND<0.2	ND<1.3	0.36 J	ND<0.35	0.23 J	ND<0.2	ND<0.2	ND<0.4	<BRL	5.91
SB-4(70)	70		3.2	ND<0.2	ND<0.2	4.2 J	ND<0.2	0.47 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	21.8	ND<0.2	ND<0.2	ND<1.3	0.37 J	0.62 J	ND<0.2	ND<0.2	ND<0.2	ND<0.4	<BRL	30.66
SB-5(10)	10	4/7/2014	ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.24 J	1.6	9.1 J	ND<0.2	31.1	8.7	ND<1.3	27	ND<0.35	3.1	ND<0.2	1.5	5.82 J	36.92	88.16
SB-5(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.45 J	0.23 J	ND<1.3	1.3	ND<0.35	ND<0.2	ND<0.2	ND<0.2	ND<0.4	0.45	1.98
SB-5(30)	30		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	0.55 J	0.31 J	ND<0.2	ND<0.2	ND<0.2	0.6 J	0.33 J	ND<1.3	1.3	ND<0.35	ND<0.2	ND<0.2	ND<0.2	0.8 J	1.4	3.89
SB-5(40)	40		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.26 J	ND<0.2	0.55 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.96 J	0.45 J	ND<1.3	2.2	ND<0.35	ND<0.2	ND<0.2	ND<0.2	0.47 J	1.43	4.89
SB-5(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.28 J	ND<0.2	0.59 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	2	0.99 J	ND<1.3	4.2	ND<0.35	ND<0.2	ND<0.2	ND<0.2	0.79 J	2.79	8.85
SB-5(60)	60		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.39 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.34 J	3.7	1.6	ND<1.3	7	ND<0.35	2.5	ND<0.2	1.2	1.3 J	5	18.03
SB-5(70)	70		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.49 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	3.6	4.3	1.6	ND<1.3	6.3	ND<0.35	ND<0.2	ND<0.2	ND<0.2	0.98 J	5.28	17.27
SB-6(10)	10	4/8/2014	ND<0.2	ND<0.2	ND<0.2	3.2 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.35	1.7	ND<0.2	ND<0.2	ND<0.4	<BRL	4.9
SB-6(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	0.22 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<1.3	ND<0.2	ND<0.35	0.28 J	ND<0.2	ND<0.2	ND<0.4	<BRL	0.5
SB-6(30)	30		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	0.65 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<1.3	ND<0.2	ND<0.35	ND<0.2	ND<0.2	ND<0.2	ND<0.4	<BRL	0.65
SB-6(40)	40		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	0.42 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<1.3	ND<0.2	ND<0.35	ND<0.2	ND<0.2	ND<0.2	ND<0.4	<BRL	0.42
SB-6(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.27 J	ND<0.2	0.33 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<1.3	ND<0.2	ND<0.35	ND<0.2	ND<0.2	ND<0.2	ND<0.4	<BRL	0.6
SB-6(60)	60		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.55 J	ND<0.2	ND<0.2	0.26 J	ND<0.2	ND<0.2	0.58 J	ND<0.2	ND<0.2	ND<1.3	ND<0.2	ND<0.35	0.81 J	ND<0.2	0.35 J	ND<0.4	<BRL	2.55
SB-6(70)	70		1.8	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.45 J	ND<0.2	ND<0.2	ND<0.2	0.51 J	ND<0.2	5.4	ND<0.2	ND<0.2	ND<1.3	ND<0.2	ND<0.35	2.6	ND<0.2	1.5	ND<0.4	<BRL	12.26
SB-7(10)	10	4/9/2014	ND<0.2	ND<0.2	ND<0.2	ND<0.5	1.6	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	170 J	ND<0.2	1200 E	65.9	ND<1.3	480 E	ND<0.35	1.2	380 E	ND<0.2	5700 E	7281.6	7998.7
SB-7(10) D	10		ND<8	ND<8	ND<8	ND<20	ND<8	ND<8	ND<8	ND<8	ND<8	ND<8	210 DJ	ND<8	1300 D	82.8 D	ND<52.8	420 JD	ND<14	ND<8	480 D	ND<8	8400 JD	10180	10892.8
SB-7(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	4.1	0.54 J	ND<1.3	12.9 J	ND<0.35	ND<0.2	1.3	ND<0.2	19.1	24.5	37.94
SB-7(30)	30		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	4.9	0.54 J	ND<1.3	7.3 J	ND<0.35	ND<0.2	1.7	ND<0.2	24.7	31.3	39.14
SB-7(40)	40		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.21 J	ND<0.2	0.51 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	6.6	0.74 J	ND<1.3	9.2 J	ND<0.35	ND<0.2	2.1	ND<0.2	24.5	33.2	43.86

Table 3
FORMER ELKA CHEMICAL COMPANY - SITE NUMBER 152239
340 West Hoffman Avenue
Lindenhurst, New York 11757
3/31-4/15/2014 and 2/17/2015
Grab Groundwater Samples - Analyzed for EPA Method VOCs 8260 B (ug/L)
(Only detected constituents are listed)

SB-7(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.22 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	9	0.93 J	ND<1.3	11.9 J	ND<0.35	ND<0.2	2.6	ND<0.2	27.9	39.5	52.55
SB-7(60)	60		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.42 J	0.77 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.51 J	29.5	2.9	ND<1.3	25 J	ND<0.35	2.7	8.2	1.4	128.3	166	199.7
SB-7(70)	70		0.47 J	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.74 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	7.1 J	62.3	5.8	ND<1.3	57.4 J	ND<0.35	ND<0.2	14.1	ND<0.2	415.8	492.2	563.71
SB-8(10)	10		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	1.7	ND<0.2	ND<0.2	ND<0.2	ND<0.2	44.5	ND<0.2	3.9	240 E	ND<1.3	55.8	ND<0.35	ND<0.2	0.34 J	ND<0.2	31.9	36.14	378.14
SB-8(10)D	10		ND<2	ND<2	ND<2	ND<5	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	ND<2	260 D	ND<13.2	55.9 D	ND<3.5	ND<2	ND<2	ND<2	ND<4	<BRL	315.9
SB-8(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.96 J	ND<0.2	0.32 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.47 J	5.3	ND<1.3	4.3	ND<0.35	ND<0.2	ND<0.2	ND<0.2	2.19	2.66	13.54
SB-8(30)	30	4/10/2014	ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.71 J	ND<0.2	0.68 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.34 J	0.61 J	ND<1.3	1.8	ND<0.35	ND<0.2	ND<0.2	ND<0.2	1.24 J	1.58	5.38
SB-8(40)	40		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	1.1	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.58 J	0.64 J	1.3	ND<1.3	3.7	ND<0.35	ND<0.2	ND<0.2	ND<0.2	3.78 J	4.42	11.1
SB-8(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	1	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	1.2	0.85 J	1.6	ND<1.3	4	ND<0.35	ND<0.2	ND<0.2	ND<0.2	4.8	5.65	13.45
SB-8(60)	60		0.98 J	ND<0.2	ND<0.2	ND<0.5	ND<0.2	1.7	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	4.6	1.4	2.5	ND<1.3	4.5	ND<0.35	ND<0.2	0.52 J	ND<0.2	7.9	9.82	24.1
SB-8(70)	70		1.8	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.53 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	8.8	1.5	2.2	ND<1.3	4.6	ND<0.35	ND<0.2	0.4 J	ND<0.2	8.7	10.6	28.53
SB-9(10)	10		ND<0.2	ND<0.2	1.2	ND<0.5	ND<0.2	0.46 J	ND<0.2	ND<0.2	ND<0.2	8.2	110 J	ND<0.2	1000 E	490 E	ND<1.3	380 E	ND<0.35	0.66 J	1.5	0.67 J	5000	6001.5	6992.69
SB-9(10) D	10		ND<8	ND<8	ND<8	ND<20	ND<8	ND<8	ND<8	ND<8	ND<8	ND<8	ND<8	ND<8	930 D	490 D	ND<52.8	310 JD	ND<14	ND<8	ND<8	ND<8	5400	6330	7130
SB-9(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	26.2 J	ND<0.2	16.8	79.9	ND<1.3	99.4 J	ND<0.35	ND<0.2	ND<0.2	ND<0.2	92.2	109	314.5
SB-9(30)	30		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	3.8	10	ND<1.3	26.6 J	ND<0.35	ND<0.2	ND<0.2	ND<0.2	19.7	23.5	60.1
SB-9(40)	40	4/11/2014	ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	2.9	7	ND<1.3	19.6 J	ND<0.35	ND<0.2	ND<0.2	ND<0.2	13.9	16.8	43.4
SB-9(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.24 J	ND<0.2	0.4 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	3.1	6.7	ND<1.3	17.4 J	ND<0.35	ND<0.2	ND<0.2	ND<0.2	9.7	12.8	37.54
SB-9(60)	60		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.3 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.63 J	8.1	16.4	ND<1.3	37.1 J	ND<0.35	ND<0.2	ND<0.2	ND<0.2	34	42.1	96.53
SB-9(70)	70		1.3	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.69 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	10.3 J	14.6	29	ND<1.3	64.8 J	ND<0.35	ND<0.2	ND<0.2	ND<0.2	82	96.6	202.69
SB-10(10)	10		ND<0.2	ND<0.2	3	ND<0.5	ND<0.2	0.96 J	ND<0.2	ND<0.2	ND<0.2	0.45 J	180 J	ND<0.2	770 E	520 E	ND<1.3	530 E	ND<0.35	0.87 J	ND<0.2	1.7	3440	4210	5446.98
SB-10(10)D	10		ND<8	ND<8	ND<8	ND<20	ND<8	ND<8	ND<8	ND<8	ND<8	ND<8	220 DJ	ND<8	710 D	570 D	ND<52.8	550 D	ND<14	ND<8	ND<8	ND<8	3530	4240	5580
SB-10(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.41 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	33 J	ND<0.2	9.7	140	ND<1.3	200	ND<0.35	ND<0.2	ND<0.2	ND<0.2	46.7	56.4	429.81
SB-10(30)	30	4/14/2014	ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.34 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	16.4 J	ND<0.2	6.9	37.3	ND<1.3	120	ND<0.35	ND<0.2	ND<0.2	ND<0.2	31.6	38.5	212.54
SB-10(40)	40		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.52 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	20.5 J	ND<0.2	13.1	61.8	ND<1.3	150	ND<0.35	ND<0.2	ND<0.2	ND<0.2	64	77.1	309.92
SB-10(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.49 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	21.3 J	ND<0.2	15.6	69	ND<1.3	160	ND<0.35	ND<0.2	ND<0.2	ND<0.2	71.9	87.5	338.29
SB-10(60)	60		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.5 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	19.9 J	0.6 J	18.3	67.9	ND<1.3	130	ND<0.35	0.74 J	ND<0.2	ND<0.2	88.8	107.1	326.74
SB-10(70)	70		1.8	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.45 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	14 J	7	12.7	49	ND<1.3	87.3	ND<0.35	1.3	ND<0.2	0.78 J	59.9	72.6	234.23
SB-11(10)	10		ND<4	ND<4	ND<4	ND<10	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	ND<4	230	160	ND<26.4	290	ND<7	ND<4	ND<4	ND<4	1070	1300	1750
SB-11(20)	20		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.24 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	25.7 J	ND<0.2	9.6	58.1	ND<1.3	140	ND<0.35	0.4 J	ND<0.2	ND<0.2	45.9	55.5	279.94
SB-11(30)	30		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.32 J	ND<0.2	0.54 J	ND<0.2	ND<0.2	ND<0.2	ND<0.2	13.1	20.2	ND<1.3	91.8	ND<0.35	ND<0.2	ND<0.2	ND<0.2	59.6	72.7	185.56
SB-11(40)	40	4/15/2014	ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.32 J	ND<0.2	0.48 J	0.23 J	ND<0.2	10 J	ND<0.2	12.9	17.5	ND<1.3	70.5	ND<0.35	0.33 J	ND<0.2	ND<0.2	57.3	70.2	169.56
SB-11(50)	50		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	0.28 J	ND<0.2	0.35 J	0.22 J	ND<0.2	ND<0.2	0.21 J	7.7	9.1	ND<1.3	34.6	ND<0.35	0.59 J	ND<0.2	ND<0.2	21.9	29.6	74.95
SB-11(60)	60		ND<0.2	ND<0.2	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	0.5 J	7.9	8	ND<1.3	19.8	ND<0.35	0.63 J	ND<0.2	ND<0.2	31	38.9	67.83
SB-11(70)	70		2.5	1	ND<0.2	ND<0.5	ND<0.2	ND<0.2	ND<0.2	ND<0.2	ND<0.2	1.4	ND<0.2	6.7	7.9	7.4	ND<1.3	13.8	ND<0.35	2.1	ND<0.2	1.6	30.5	38.4	74.9
SB-12(10)	10		ND<1	ND<1	7.5	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	2.5	33.6	ND<1	16.4	96	ND<1	170	ND<1	0.9	ND<1	1.3	61.5	77.9	389.7
SB-12(20)	20		ND<1	ND<1	12.6	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	0.66	17.4	ND<1	20.1	100	ND<1	96.2	ND<1	1.3	ND<1	4.4	75	#VALUE!	327.66
SB-12(30)	30		ND<1	ND<1	2.9	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	19	ND<1	5.7	52.6	ND<1	120	ND<1	ND<1	ND<1	ND<1	20.3	#VALUE!	220.5
SB-12(40)	40	2/17/2015	ND<1	ND<1	6.9	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	28.6	ND<1	16.2	110	ND<1	170	ND<1	0.43	ND<1	ND<1	59.5	#VALUE!	391.63
SB-12(50)	50		ND<1	ND<1	2.7	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1	17.6	ND<1	7.2	46.6	ND<1	120	ND<1	0.31	ND<1	ND<1	25.1	#VALUE!	219.51
SB-12(60)	60		ND<1	ND<1	5.4	ND<1	ND<1	0.34	ND<1	ND<1	ND<1	ND<1	24.2	ND<1	14.7	84.8	ND<1	170	ND<1	0.53 J	ND<1	ND<1	54.7	#VALUE!	354.14
SB-12(70)	70		ND<1	ND<1	9.9	ND<1	ND<1	0.48	ND<1	ND<1	ND<1	ND<1	28.7	ND<1	26.9	130	ND<1	180	ND<1	0.76	ND<1	ND<1	104.2	#VALUE!	480.94
NYSDEC Class GA Criteria			5	5	3.0	50	1	60	5	7	5	5	NE	5	5	5	50	NE	10	5	5	5	5	NE	NE

NYSDEC class GA criteria are from NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1), Ambient water quality, class GA standards/guidance values from Table 1.

Bold Sample Exceeds NYSDEC Class GA Criteria
Bold Sample is above Non-Detect Value but Below NYSDEC Class GA Criteria
ND<### Sample is Non-Detect at Laboratory
SB Soil Boring
NA Not Analyzed
NE Not Established

ug/l micrograms per liter
VOCs Volatile Organic Compounds
J Detected but below the Reporting Limit or Method Detection Limit (lowest calibration standard): therefore, result is an estimated concentration (CLP J-Flag).
D indicates all compounds identified in an analysis at a secondary dilution factor.
<BRL below recording level

Table 4
FORMER ELKA CHEMICAL COMPANY - SITE NUMBER 152239
340 West Hoffman Avenue
Lindenhurst, New York 11757
April 23, 2014
NYSDEC Class GA Criteria
Groundwater Samples Analytical Results: SVOCs 8270 C
(Only detected constituents are listed)

WATER-8270C (ug/L)	PZ-1	PZ-2	PZ-3	NYSDEC Class GA Criteria
Date Collected	04/23/14	04/23/14	04/23/14	
Bis(2-ethylhexyl)phthalate	**5.2 J**	(<11.1) U	(<10.3) U	5
Dimethyl phthalate	**5.3 J**	3.9 J	11.4	50
1,1-Biphenyl, 3,4-dimethyl-	**4.4 J**	NA	NA	NE
Decane, 5-propyl-	**4.3 J**	NA	NA	NE
Hexadecane, 2,6,10-trimethyl-	**8.5 J**	NA	NA	NE
Hexane, 3,3,4-trimethyl-	**4.6 J**	NA	NA	NE
Hexanoic acid, 4-methyl-	**5.3 J**	NA	NA	NE
Naphthalene, 1-(2-propenyl)-	**6.1 J**	NA	NA	NE
Naphthalene, 2,3,6-trimethyl-	**5.8 J**	NA	NA	NE
Pentadecane, 2,6,10,14-tetramethyl	**5.2 J**	NA	NA	NE
Undecane, 6-ethyl-	**4.3 J**	NA	NA	NE
unknown10.16	**4.3 J**	NA	NA	NE
unknown4.90	**91.3 J**	NA	NA	NE
Hexanedioic acid, bis(2-ethylhexyl	NA	**2.4 J**	NA	NE
unknown4.94	NA	**100 J**	**91.7 J**	NE
2-Pentanone, 4-hydroxy-4-methyl-	NA	NA	**2.2 J**	NE
Phthalic acid, 2-hexyl ester	NA	NA	**3.2 J**	NE
Tetradecanoic acid	NA	NA	**10.5 J**	NE
Tridecanoic acid	NA	NA	**7.9 J**	NE

NYSDEC class GA criteria are from NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1), Ambient water quality, class GA standards/guidance values from Table 1.

Bold	Sample Exceeds NYSDEC Class GA Criteria
Bold	Sample is above Non-Detect Value but Below NYSDEC Class GA Criteria
( )	Indicates the stated minimum detectable level exceeds an RSR criteria.
PZ	Piezometer
NE	Not Established
NA	Not analyzed
ug/l	micrograms per liter
SVOCs	Semi Volatile Organic Compounds
J	Indicates and estimated value
U	Undetected. Analyte included in the analysis, but not detected

Table 5
FORMER ELKA CHEMICAL COMPANY - SITE NUMBER 152239
340 West Hoffman Avenue
Lindenhurst, New York 11757
April 23, 2014
NYSDEC Class GA Criteria
Groundwater Samples - Analyzed for Target Analyte List (TAL) Metals
(Only detected constituents are listed)

WATER-Metals (mg/L)	PZ-1	PZ-2	PZ-3	NYSDEC Class GA Criteria
Date Collected	04/23/14	04/23/14	04/23/14	
Aluminum, Total	**0.279**	**0.605**	**5.65**	**NE**
Barium	**0.0235 J**	**0.0179 J**	**0.034 J**	**1**
Calcium	**24.10**	**15.40**	**17.30**	**NE**
Chromium, Total	**0.00314 J**	**0.00258 J**	**0.0226**	**0.05**
Copper	**0.00398 J**	<0.010 U	**0.0119**	**0.2**
Iron	**2.050**	**0.866**	**9.530**	**0.3**
Lead	<0.006 U	<0.006 U	**0.00804**	**0.025**
Magnesium	**3.71**	**2.60**	**3.53**	**35**
Manganese	**0.0926**	**0.0164**	**0.159**	**0.3**
Nickel	<0.020 U	<0.020 U	**0.00528 J**	**0.1**
Potassium, Total	**2.34**	**2.14**	**2.31**	**NE**
Sodium, Total	**26.40**	**18.30**	**21.40**	**20**
Vanadium	<0.020 U	<0.020 U	**0.00954 J**	**NE**
Zinc	0.00802 J	<0.020 U	**0.0304**	**2**

NYSDEC class GA criteria are from NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1), Ambient water quality, class GA standards/guidance values from Table 1.

Bold	Sample Exceeds NYSDEC Class GA Criteria
Bold	Sample is above Non-Detect Value but Below NYSDEC Class GA Criteria
( )	Indicates the stated minimum detectable level exceeds an RSR criteria.
PZ	Piezometer
NE	Not Established
mg/l	milligrams per liter
J	Indicates and estimated value
U	Undetected. Analyte included in the analysis, but not detected

Table 6
FORMER ELKA CHEMICAL COMPANY - SITE NUMBER 152239
340 West Hoffman Avenue
Lindenhurst, New York 11757
19-Feb-15
Soil Vapor Samples Analytical Results: TO-15
(Only detected constituents are listed)

Vapor Sample ID		NYSDOH	AA-1	AA-2	DUP	SVP-1	SVP-2	SVP-3	SVP-4	SVP-5	SVP-6
Date Collected		Guidance	2/19/2015	2/19/2015	2/19/2015	2/19/2015	2/19/2015	2/19/2015	2/19/2015	2/19/2015	2/19/2015
AIR-TO15 (µg/m3)	CAS #	Values									
1,1,1-Trichloroethane	71-55-6	100	<0.19 UD	<0.19 UD	<0.19 UD	<82 UD	**1.3 D**	**1.5 D**	**4.8 D**	<0.55 UD	<0.55 UD
1,1,2-Trichloroethane	79-00-5	NE	<0.19 UD	<0.19 UD	<0.19 UD	**1400 D**	<0.55 UD	<0.55 UD	<0.55 UD	<0.55 UD	<0.55 UD
1,1-Dichloroethane	75-34-3	NE	<0.14 UD	<0.14 UD	<0.14 UD	**120 D**	<0.4 UD	<0.4 UD	<0.4 UD	<0.4 UD	<0.4 UD
1,2,4-Trimethylbenzene	95-63-6	NE	**0.24 D**	**0.26 D**	**0.3 D**	<74 UD	<0.49 UD	<0.49 UD	**0.66 D**	<0.49 UD	<0.49 UD
2-Butanone (MEK)	78-93-3	NE	<4.1 U	<4.1 U	<4.1 U	**81000 D**	<12 U	<12 U	<12 U	<12 U	<12 U
2-Hexanone (Methyl butyl ketone/MBK)	591-78-6	NE	**0.16 D**	**0.2 D**	**0.24 D**	<61 UD	<0.41 UD	<0.41 UD	<0.41 UD	<0.41 UD	**0.42 D**
Acetone	67-64-1	NE	**17 D, L-05, V-06**	**15 D, L-05, V-06**	**20 D, L-05, V-06**	<1400 U	79 D, L-05, V-06	76 D, L-05, V-06	99 D, L-05, V-06	50 D, L-05, V-06	66 D, L-05, V-06
Benzene	71-43-2	NE	**0.91 D**	**1.1 D**	**1.3 D**	**1100 D**	**1.9 D**	**1.9 D**	**1.4 D**	**2 D**	**1.8 D**
Carbon disulfide	75-15-0	NE	<1.1 UD	<1.1 UD	<1.1 UD	<470 U	<3.1 U	<3.1 U	5.2 D	<3.1 U	<3.1 U
Carbon tetrachloride	56-23-5	NE	**0.43 D**	**0.43 D**	**0.41 D**	<94 UD	<0.63 UD	<0.63 UD	<0.63 UD	<0.63 UD	<0.63 UD
Chloroethane	75-00-3	NE	<0.092 UD	<0.092 UD	<0.092 UD	**150 D**	<0.26 UD	<0.26 UD	<0.26 UD	<0.26 UD	<0.26 UD
Chloromethane	74-87-3	NE	**0.86 D**	**0.89 D**	**0.88 D**	<62 UD	**0.43 D**	<0.41 U	**0.44 D**	**0.46 D**	**0.75 D**
Cyclohexane	110-82-7	NE	**0.21 D**	**14 D**	**9.5 D**	**96000 D**	**3.3 D**	**0.39 D**	**0.5 D**	**4.4 D**	**0.83 D**
Dichlorodifluoromethane	75-71-8	NE	**1.6 D**	**1.6 D**	**1.6 D**	<74 UD, L-03	**2.8 D**	**2.3 D**	**2.1 D**	**2.2 D**	**2.2 D**
Ethanol	64-17-5	NE	**6.1 D**	**5.6 D**	**7.6 D**	<1100 UD, L-03, V-05	**76 D**	**100 D**	**75 D**	**95 D**	**120 D**
Ethyl Acetate	141-78-6	NE	**0.72 D**	<0.13 UD	<0.13 UD	**120 D**	**2.1 D**	**1.1 D**	**1.6 D**	**1 D**	**1.2 D**
Ethylbenzene	100-41-4	NE	**0.3 D**	**0.29 D**	**0.3 D**	<65 UD	<0.43 UD	<0.43 UD	<0.43 UD	<0.43 UD	<0.43 UD
Heptane	142-82-5	NE	**0.35 D**	**1.8 D**	**1.3 D**	**14000 D**	**1.4 D**	**0.98 D**	**1.1 D**	**1.4 D**	**1 D**
Hexane	110-54-3	NE	<4.9 U	**16 D**	**11 D**	**83000 D**	<14 U	<14 U	<14 U	<14 U	<14 U
m/p-Xylenes	179601-23-1	NE	**1 D**	**1 D**	**1.1 D**	<130 UD	<0.87 U	**0.89 D**	**1.1 D**	**0.96 D**	**1.1 D**
Methylene chloride (Dichloromethane)	75-09-2	60	<1.2 U	**1.9 D**	<1.2 U	(<520) U	<3.5 U	<3.5 U	<3.5 U	<3.5 U	<3.5 U
o-Xylene	95-47-6	NE	**0.32 D**	**0.34 D**	**0.34 D**	<65 UD	<0.43 UD	<0.43 UD	<0.43 UD	<0.43 UD	<0.43 UD
Propene	115-07-1	NE	<2.4 UD	<2.4 UD	<2.4 UD	<1000 U	**100 D**	**19 D**	**20 D**	<6.9 U	<6.9 U
Tetrachloroethylene (PCE)	127-18-4	30	**0.41 D**	**0.47 D**	**0.4 D**	**130 D**	**0.9 D**	<0.68 UD	<0.68 UD	<0.68 UD	<0.68 UD
Tetrahydrofuran	109-99-9	NE	<0.1 UD	<0.1 UD	<0.1 UD	<44 UD	**0.77 D**	**0.63 D**	**0.65 D**	**0.57 D**	**0.63 D**
Toluene	108-88-3	NE	**3 D**	**2.4 D**	**2.9 D**	<57 UD	**2.9 D**	**3.2 D**	**3.5 D**	**3.3 D**	**4 D**
Trichloroethylene (TCE)	79-01-6	5	<0.19 UD	<0.19 UD	<0.19 UD	(<81) UD	**1.3 D**	<0.54 UD	<0.54 UD	<0.54 UD	<0.54 UD
Trichlorofluoromethane	75-69-4	NE	**1.5 D**	**1.6 D**	**1.4 D**	<340 UD	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 U
Vinyl acetate	108-05-4	NE	<2.5 UD	<2.5 UD	<2.5 UD	**29000 D**	<7 UD	<7 UD	<7 UD	<7 UD	<7 UD
Vinyl chloride	75-01-4	NE	<0.089 UD	<0.089 UD	<0.089 UD	**120 D**	<0.26 UD	<0.26 UD	<0.26 UD	<0.26 UD	<0.26 UD
Xylene-Total		NE	**1.32 D**	**1.34 D**	**1.44 D**	<BRL	<BRL	**0.89 D UD**	**1.1 D UD**	**0.96 D UD**	**1.1 D UD**

Legend

1	Parameter reported at a concentration greater than applicable regulatory standard/criterion
( )	Indicates the laboratory reporting limit is greater than one or more applicable comparison criteria
BRL	Parameter consists of multiple isomers and were not detected above the laboratory reporting limit
1	Bold indicates parameter detected above reporting limit

µg/m3 = micrograms per cubic meter
NE = None Established
D = Data reported from a dilution
U = Undetected. Analyte included in the analysis, but not detected.
UD = Undetected at a dilution

CAS # = Chemical Abstract Service Number
L-05 = Laboratory fortified blank / laboratory control sample recovery is outside of control limits.
Reported value for this compound is likely to be biased on the high side.
V-06 = Continuing calibration did not meet method specifications and was biased on the high side for this compound.
Increased uncertainty is assocaited with the reported value which is likely to be biased on the high side.

Appendix H- Compact Disc of Reports and Information Regarding the Environmental History of the Site

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

New York Public Water Wells
Source: New York Department of Health
Telephone: 518-458-6731

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Database
Department of Environmental Conservation
Telephone: 518-402-8072
These files contain records, in the database, of wells that have been drilled.

RADON

State Database: NY Radon
Source: Department of Health
Telephone: 518-402-7556
Radon Test Results

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

Appendix J- Health and Safety Plan and Community Air Monitoring Plan

Health and Safety Plan
(with Community Air Monitoring Plan)
for
The Former Elka Chemical Corporation Site
340 West Hoffman Avenue
Lindenhurst, New York

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LIST OF ATTACHMENTS

SECTION 1.0
INTRODUCTION

This Health and Safety Plan (HASP) has been written for compliance with "OSHA Hazardous Waste Operations Standards (29 CFR 1910.120)", the guidance documents, "Standard Operating Safety Guidelines (Office of Solid Waste and Emergency Response, 1988)" and the "Occupational Safety and Health Guidance Manual for Hazardous Waste Activities" (U.S. Department of Health and Human Services, 1985).

1.1 Scope and Applicability of the HASP

This HASP is designed to be applicable to locations where soil and groundwater may be encountered at the Former Elka Chemical Corporation property (the Site) located at 340 West Hoffman Avenue, Lindenhurst, New York by all parties that either perform or witness the activities on Site. This HASP may also be modified or amended to meet specific needs of the work proposed. This HASP will detail the Site safety procedures, Site background, and safety monitoring. Contractors will be required to adopt this HASP in full.

The Health and Safety Officer (HSO) will be present at the Site to inspect the implementation of the HASP, however, it is the sole responsibility of the contractor(s) to comply with the HASP.

The HASP has been formulated as a guide to complement professional judgment and experience. The appropriateness of the information presented should always be evaluated with respect to unforeseen Site conditions which may arise.

1.2 Site Work Zone and Visitors

The Site work zone (a.k.a. exclusion zone) during well installations will be a 30-foot radius about the work location. This work zone may be extended if, in the judgment of the HSO, Site conditions warrant a larger work zone.

No visitors will be permitted within the work zone without the consent of the HSO. All visitors will be required to be familiar with, and comply with the HASP. The HSO will deny access to those whose presence within the work zone is unnecessary or those who are deemed by the HSO to be in non-compliance with the HASP.

All Site workers, including the contractors, will be required to have 40-hour hazardous material training (eight-hour refresher courses annually) and respirator fit test certification as stated in 29 CFR 1910.120. Copies of documentation certifying the above-listed requirements will be kept at the Site in the possession of the HSO.

The HSO will also give an on-Site health and safety discussion to all Site personnel, including the contractors, prior to initiating the Site work. Workers not in attendance during the health and safety talk will be required to have the discussion with the HSO prior to entering the work zone.

Emergency telephone numbers and directions to the nearest hospital are found in Attachment A.

SECTION 2.0
KEY PERSONNEL

The co-project managers for this project are Peter Dermody, C.P.G. and James Mulvey. Mr. Mulvey will also act as HSO.

SECTION 3.0
SITE BACKGROUND

3.1 Site History and Known Chemical Constituents at the Site

The Site is located at 340 West Hoffman Avenue, Lindenhurst. The Site is developed with a an industrial/commercial building. Topography at the Site is essentially flat. The primary chemicals known to be present at the Site are non-chlorinated VOCs, primarily BTEX and other petroleum constituents.

TABLE 3.1.1
PRIMARY CHEMICALS DETECTED AT THE SITE WITH THRESHOLD LIMIT VALUES

CONTAMINANT	SHORT TERM EXPOSURE LIMIT (STEL) 15 MINUTES	TIME-WEIGHTED AVERAGE 8 HOUR EXPOSURE LIMIT
Xylene	150 ppm	100 ppm
1,2,4- trim	125 ppm	100 ppm
Trimethylbenzenes (mixed isomers)	Not listed	25 ppm

ppm: parts per million

SECTION 4.0
TASK/OPERATION HEALTH AND SAFETY ANALYSIS

This section will present health and safety analyses.

4.1 Safety Analysis

The tasks will include the installation of components of the remediation system. In general, one to two consultants will be present at the Site along with environmental drilling personnel. No other site operations will be conducted by contractors without the presence of the HSO or assistant HSO on-Site.

Based on the Site history, it has been determined that known potential chemical concerns consist of petroleum-related VOCs in the soil, soil vapor, and groundwater at the Site.

Organic vapor concentrations will be monitored in the work zone by utilizing a MiniRae photoionization detector (PID) or similar. The PID will be calibrated according to its manufacturer's instructions. Background organic vapor concentrations will then be established in the work zone prior to drilling and recorded in the HSO field book. Upon commencement of drilling or trenching, PID readings will be obtained in the workers' breathing zone. A PID reading will also be obtained approximately 15 minute intervals during drilling or boring, including readings immediately following breakthrough to the subsurface. At the discretion of the HSO, PID readings may be obtained more frequently. All readings and observations will be recorded in the HSO field book.

Steady-state PID readings greater than five ppm in the worker's breathing zone will require upgrading to Level C personal protective equipment. Steady-state readings, for this purpose, will be defined as readings exceeding five ppm above background for a minimum of ten seconds. Readings will be obtained at points approximately three foot above the borehole. These points will define the worker's breathing zone.

Upon encountering PID levels greater than five ppm above background in the worker's breathing zone, all personnel will be evacuated from the work zone in the upwind direction (if discernable).

Specific evacuation routes will be discussed prior to commencement of work at each location based on work location and wind direction. In addition, an evacuation meeting place will be determined. Level C personal protection will be implemented including full-face air-purifying respirators with dust and organic vapor cartridges (personal protective equipment will be described in greater detail in Section 7.0). All personnel and contractors must be properly trained and fit tested prior to donning respirators. If, at any time, PID readings exceed steady-state levels greater than 25 ppm above background, or any conditions exist which the HSO determines will require Level B personal protective equipment, all work at the Site will cease immediately and all personnel will evacuate the work zone. Evacuation will occur in the upwind direction if discernable. Level B conditions are not anticipated to be encountered; however, if level B conditions arise, no further Site work will be performed, and a complete evaluation of the operation will be performed and this HASP will be modified.

All drilling personnel will be required to wear chemical-resistant gloves (such as butyl or nitrile) when the potential for dermal contact with soil is possible. Dermal contact with soils removed from the ground will be avoided.

4.2 Other Safety Considerations

4.2.1 Noise

During any operation which may generate potentially harmful levels of noise, the HSO may monitor noise levels with a Realistic^{tm} (or similar) hand-held sound level meter. Noise levels will be monitored in decibels (dBs) in the A-weighted, slow-response mode. Noise level readings which exceed the 29 CFR 1910.95 permissible noise exposure limits will require hearing protection (see Table 4.2.1.1 for permissible noise exposures).

TABLE 4.2.1.1
PERMISSIBLE NOISE EXPOSURES*

Duration Per Day Hours	Sound Level dBA Slow Response
8	90
6	92
4	95
3	97
2	100
12	102
1	105
2	110
3 or less	115

NOTES: When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C_1/T_1+C_2/T_2$ C_6/T_6 exceed unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level.

Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

* Standards derived from 29 CFR 1910.95

Hearing protection will be available to all Site workers. The hearing protection will consist of foam, expansion-fit earplugs (or other approvable hearing protection) with an Environmental Protection Agency noise reduction rating of at least 29 dB. Hearing protection must alleviate worker exposure to noise to an eight-hour time-weighted average of 85 dB or below. In the event that the hearing protection is inadequate, work will cease until a higher level of hearing protection can be incorporated.

4.2.2 Slip/Trip/Fall Preventative Measures

To reduce the potential for slipping, tripping, or falling, the work zone will be kept clear of unnecessary equipment. All Site workers will be required to wear work boots with adequate tread to reduce the potential for slipping (work boots must be leather or chemical-resistant and contain steel toes and steel shanks).

4.2.3 Heat/Cold Stress

Heat stress may become a concern especially if protective clothing is donned which will decrease natural ventilation. To assist in reducing heat stress the following measures will be taken:

- An adequate supply of water or other liquids will be brought on Site. To prevent dehydration, personnel will be encouraged to drink generous amounts of water even if not thirsty.
- A shady rest area will be designated to provide shelter during sunny days.
- In hot weather, workers wearing protective clothing may be rotated.

When the temperature is over 70 degrees Fahrenheit and personnel are wearing protective clothing, heat stress monitoring may be implemented as follows:

- Heart rate may be measured by counting the radial pulse for 30 seconds at the beginning of the rest period. The heart rate should not exceed 110 beats per minute. If the rate is higher, the next work period will be shortened by ten minutes (or 33%). If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle will be shortened by 33%. The HSO will decide on the length of work periods and rest periods based on Site conditions.

- Body temperature may be measured, if deemed necessary, at the beginning of the rest period. Oral temperature should not exceed 99 degrees Fahrenheit. If it does, the next work period will be shortened by ten minutes (or 33%). However, if the oral temperature exceeds 99.7 degrees Fahrenheit at the beginning of the next period, the following work cycle will be further shortened by 33%. Work will not re-commence until the worker's body temperature has dropped below 99 degrees Fahrenheit.

Indications of heat stress range from mild (fatigue, irritability, anxiety, decreased concentration, dexterity or movement) to fatal. Medical help will be obtained for serious conditions.

Heat-related problems are caused by:

Prolonged Exposure: continuous exposure to heat and humid air, which can be aggravated by chafing clothes. Decreases ability to tolerate heat as well as being a nuisance.

Heat cramps: caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs of heat cramps include muscle spasm and pain in the extremities and abdomen.

Heat exhaustion: caused by increased stress on various organs to meet increased demands to cool the body. Signs of heat exhaustion include shallow breathing; pale, cool, moist skin; profuse sweating; dizziness, and lassitude.

Heat stroke: the most severe form of heat stress, which can be fatal. Medical help must be obtained immediately. Body must be cooled immediately to prevent severe injury and/or death. Signs of heat stroke include red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

Cold stress is a concern if work is conducted during cold weather or marginally cold weather during precipitation periods or moderate to high wind velocity periods. To assist in reducing cold exposure the following measures will be taken:

- All personnel will be required to wear adequate and appropriate clothing. This will include head gear to prevent the high percentage loss of heat that occurs in this area (thermal liners for hard hats if hard hats are required).
- Provide a readily available warm shelter near each work zone.
- Carefully schedule work and rest periods to account for the current temperature and wind velocity conditions.
- Monitor work patterns and physical condition of workers and rotate personnel, as necessary.

Indications of cold exposure range from shivering, dizziness, numbness, confusion, weakness, impaired judgment, impaired vision to drowsiness. Medical help will be obtained for serious conditions if they occur.

Cold exposure related problems are:

Frost bite: Ice crystal formation in body tissues. The restricted blood flow to the injured part results in local tissue destruction.

Hypothermia: Severe exposure to cold temperature resulting in the body losing heat at a rate faster than the body can generate heat. The stages of hypothermia are shivering, apathy, loss of consciousness, decreasing pulse rate and breathing rate, and death.

Signs and symptoms of heat and cold stress are listed in Table 4.2.3.

4.2.4 Potential Electrical Hazards

Potential electric hazards consist mainly of underground power lines. Underground potential electrical hazards will be minimized by having a utility mark-out performed for the Site. In addition, available as-built Site blueprints will be used to avoid contact with subsurface utility lines or structures. As a final precaution, prior to drilling at any location, post-hole digging or hand augering will be performed by the drillers to a depth of three to four feet to check for the existence of subsurface utility lines or structures.

TABLE 4.2.3
SIGNS AND SYMPTOMS OF HEAT AND COLD STRESS

Type of Heat Stress	Signs and Symptoms
Heat Exhaustion	Clammy skin Confusion Dizziness Fainting Fatigue Heat rash Light-headedness Nausea Profuse sweating Slurred speech Weak pulse
Heat Stroke (may be fatal)	Confusion Convulsions Hot skin, high temperature (yet may feel chilled) Incoherent speech Staggering gait Sweating stops (yet residual sweat may be present) Unconsciousness
Type of Cold Stress	**Signs and Symptoms**
Frost bite	Pain or prickling progressing to numbness Pale, hard, cold skin with waxy appearance Flushing of skin subsequent to re-warming Burning sensation and swelling that may persist for weeks Blisters
Hypothermia (may be fatal)	Shivering Apathy Loss of consciousness Decreasing pulse rate and breathing rate

4.2.5 The Buddy System

All activities in contaminated or potentially contaminated areas will be conducted by pairing off the Site workers in groups of two (or three if necessary). Each person (buddy) will be able to:

- Provide his or her partner with assistance.
- Observe his or her partner for signs of chemical or heat or cold exposure.
- Periodically check the integrity of his or her partner's protective clothing.
- Notify the HSO or others if emergency help is needed.

The buddy system will be instituted at the beginning of each work day. If new workers arrive on Site, a buddy will be chosen prior to the new worker entering the work zone.

4.2.6 Site Communications

Two sets of communication systems will be established at the Site: internal communication among personnel on-Site, and external communication between on-Site and off-Site personnel.

Internal communication will be used to:

- Alert team members to emergencies.
- Pass along safety information such as heat stress check, protective clothing check, etc.
- Communicate changes in the work to be accomplished.
- Maintain Site control.

Due to ambient noise, verbal communications may be difficult at times. If necessary, the HSO will carry a whistle (or compressed air horn if respirators are donned) to signal Site workers. A single whistle blast will be the signal to immediately evacuate the work zone through the access control point. This signal will be discussed with all Site workers prior to commencement of work.

An external communication system between on-Site and off-Site personnel will be established to:

- Coordinate emergency response.
- Report to the Project Manager.
- Maintain contact with essential off-Site personnel.

4.2.7 General Safe Work Practices

Standing orders which will be applicable during Site operations are as follows:

- No smoking, eating, drinking, or application of cosmetics in the work zone.
- No matches or lighters in the work zone.
- All Site workers will enter/exit the work zone through the Site access point.
- Any signs of contamination, radioactivity, explosivity, or unusual condition such as dead animals will require evacuating the Site immediately and reporting the information to the HSO.
- Loose fitting clothing or loose long hair will be prohibited in the work zone during drilling operations.
- A signal person will direct the backing of work vehicles.
- Equipment operators will be instructed to check equipment for abnormalities such as oozing liquids, frayed cables, unusual odors, etc.

SECTION 5.0
PERSONNEL TRAINING REQUIREMENTS

All Dermody Consulting personnel and contractor personnel will receive adequate training prior to entering the Site. Site personnel will, at a minimum, have completed OSHA-approved, 40-hour hazardous materials Site safety training and OSHA-approved, eight-hour safety refresher course within one year prior to commencing field work. In addition, each worker must have a minimum of three days field experience under the direct supervision of a trained, experienced supervisor.

Prior to Site field work, the HSO will conduct an in-house review of the project with respect to health and safety with all Dermody Consulting personnel who will be involved with field work at the Site. The review will include discussions of signs and symptoms of chemical exposure and heat stress that indicate potential medical emergencies presented in Table 5.1. In addition, if necessary, review of personal protective equipment will be conducted to include the proper use of air-purifying respirators.

TABLE 5.1
SIGNS AND SYMPTOMS OF EXPOSURE TO CHEMICALS

Type of Hazard	Signs and Symptoms
~~Chemical Hazard~~	~~Behavioral changes~~
	Breathing difficulties
	~~Changes in complexion of skin color~~
	Confusion
	Coordination difficulties
	Coughing
	Depression
	Dermatitis
	Dilated Pupils
	Dizziness
	Euphoria
	Fatigue and/or weakness
	Flushed face and/or neck
	Insomnia
	Irregular heartbeat
	Irritability
	Irritation of eyes, nose, respiratory tract, skin or throat
	Headache
	Lacrimation
	Light-Headedness
	Muscle Fatigue
	Nausea
	Nervousness
	Numbness in limbs
	Paresthesia
	Sleepiness
	Tingling
	Tremors
	Vertigo
	Visual disturbance
	Vomiting

SECTION 6.0
PERSONAL PROTECTIVE EQUIPMENT

6.1 General Considerations

The two basic objectives of the personal protective equipment (PPE) are to protect the wearer from safety and health hazards, and to prevent the wearer from incorrect use and/or malfunction of the PPE.

All work is expected to be performed during daylight hours and workdays, and in general, are expected to be eight to ten hours in duration. Any work performed beyond daylight hours will require the permission of the HSO. This decision will be based on the adequacy of artificial illumination and the type and necessity of the task being performed.

Personal protection levels for the Site activities, based on past investigations, are anticipated to be Level D with the possibility of upgrading to Level C. The equipment included for each level of protection is provided as follows:

Level C Protection

Personnel protective equipment:

- Air-purifying respirator, full-face.
- Chemical-resistant clothing includes: Tyvek^{tm} (spun bonded olefin fibers) for particulate and limited splash protection or Saranex^{tm} (plastic film-laminated Tyvek) for permeation resistance to solvents.
- Coveralls*, or
- Long cotton underwear.*
- Gloves (outer), chemical-resistant.
- Gloves (inner), chemical-resistant.
- Boots (outer), leather or chemical-resistant, steel toe and shank.

- Boot covers (outer), chemical-resistant (disposable).*
- Hard hat (face shield).*
- Escape mask.*
- 2-way radio communications (inherently safe).*

(*) optional

Criteria for Selection of Level C Protection

Meeting all of these criteria permits use of Level C Protection:

- Oxygen concentrations are not less than 19.5% by volume.
- Measured air concentrations of identified substances will be reduced by the respirator to concentrations below the substance's threshold limit value (TLV).
- Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any body area left unprotected by chemical-resistant clothing.
- Job functions do not require self-contained breathing apparatus.
- Direct readings are below 50 ppm on the PID.

Level D Protection

Personnel protective equipment:

- Coveralls.
- Gloves.*
- Boots/shoes, leather or chemical-resistant, steel toe and shank.
- Safety glasses or chemical splash goggles.*
- Hard hat (face shield*).
- Escape mask.*

(*) optional

Criteria for Selection of Level D Protection

Meeting any of these criteria allows use of Level D Protection:

- No contaminant levels above 5 ppm organic vapors or dusty conditions are present.

- Work functions preclude splashes, immersion, or the reasonable potential for unexpected inhalation of any chemicals above the TLV.

Additional Considerations for Selecting Levels of Protection

Another factor which will be considered in selecting the appropriate level of protection is heat and physical stress. The use of protective clothing and respirators increases physical stress, in particular, heat stress on the wearer. Chemical protective clothing greatly reduces natural ventilation and diminishes the body's ability to regulate its temperature. Even in moderate ambient temperatures, the diminished capacity of the body to dissipate heat can result in one or more heat-related problems.

All chemical protective garments can be a contributing factor to heat stress. Greater susceptibility to heat stress occurs when protective clothing requires the use of a tightly fitted hood against the respirator face piece, or when gloves or boots are taped to the suit. As more body area is covered, less cooling takes place, increasing the probability of heat stress.

Wearing protective equipment also increases the risk of accidents. It is heavy, cumbersome, decreases dexterity, agility, interferes with vision, and is fatiguing to wear. These factors all increase physical stress and the potential for accidents. In particular, the necessity of selecting a level of protection will be balanced against the increased probability of heat stress and accidents.

6.2 Donning and Doffing Ensembles

Donning an Ensemble

A routine will be established and practiced periodically for donning a Level C ensemble. Assistance may be provided for donning and doffing since these operations are difficult to perform alone.

Table 6.2.1 lists sample procedures for donning a Level C ensemble. These procedures should be modified depending on the particular type of suit and/or when extra gloves and/or boots are used.

TABLE 6.2.1
SAMPLE DONNING PROCEDURES

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1. Inspect the clothing and respiratory equipment before donning (see Inspection in subsection 7.4).

2. Adjust hard hat or headpiece if worn, to fit user's head.

3. Standing or sitting, step into the legs of the suit; ensure proper placement of the feet within the suit; then gather the suit around the waist.

4. Put on chemical-resistant safety boots over the feet of the suit. Tape the leg cuff over the tops of the boots.

5. Don the respirator and adjust it to be secure, but comfortable.

6. Perform negative and positive respirator facepiece seal test procedures.

   - To conduct a negative-pressure test, close the inlet part with the palm of the hand or squeeze the breathing tube so it does not pass air, and gently inhale for about 10 seconds. Any inward rushing of air indicates a poor fit. Note that a leaking facepiece may be drawn tightly to the face to form a good seal, giving a false indication of adequate fit.

   - To conduct a positive-pressure test, gently exhale while covering the exhalation valve to ensure that a positive pressure can be built up. Failure to build a positive pressure indicates a poor fit.

7. Depending on type of suit:

   - Put on inner gloves (surgical gloves).

   - Additional over gloves, worn over attached suit gloves, may be donned later.

8. Put on hard hat

9. Have assistant observe the wearer for a period of time to ensure that the wearer is comfortable, psychologically stable, and that the equipment is functioning properly

Doffing an Ensemble

Exact procedures for removing Level C ensembles must be established and followed to prevent contaminant migration from the work area and transfer of contaminants to the wearer's body, the doffing assistant, and others.

Doffing procedures are provided in Table 6.2.2. These procedures should be performed only after decontamination of the suited worker. They require a suitably attired assistant. Throughout the procedures, both worker and assistant should avoid any direct contact with the outside surface of the suit.

6.3 Respirator Fit Testing

The fit or integrity of the facepiece-to-face seal of a respirator affects its performance. Most facepieces fit only a certain percentage of the population; thus each facepiece must be tested on the potential wearer in order to ensure a tight seal. Facial features such as scars, hollow temples, very prominent cheekbones, deep skin creases, dentures or missing teeth, and the chewing of gum and tobacco may interfere with the respirator-to-face seal. A respirator shall not be worn when such conditions prevent a good seal. The worker's diligence in observing these factors shall be evaluated by periodic checks. Fit testing will comply with 29 CFR 1910.1025 regulations.

6.4 Inspection

The PPE inspection program will entail five different inspections:

- Inspection and operational testing of equipment received from the factory or distributor.
- Inspection of equipment as it is issued to workers.
- Inspection after use.
- Periodic inspection of stored equipment.
- Periodic inspection when a question arises concerning the appropriateness of the selected equipment, or when problems with similar equipment arise.

TABLE 6.2.2
DOFFING PROCEDURES

---

1. Remove any extraneous or disposable clothing, boot covers, outer gloves, and tape.

2. Remove respirator by loosening straps and pulling straps over the top of the head and move mask away from head. Do not pull mask over the top of the head.

3. Remove arms, one at a time, from suit, avoiding any contact between the outside surface of the suit and wearer's body and lay the suit out flat behind the wearer. Leave internal gloves on, if any.

4. Sitting, if possible, remove both legs from the suit.

5. After suit is removed, remove internal gloves by rolling them off the hand, inside out.

The inspection checklist is provided in Table 6.4.1. Records will be kept of all inspection procedures. Individual identification numbers will be assigned to all reusable pieces of equipment and records should be maintained by that number. At a minimum, each inspection should record the ID number, date, inspector, and any unusual conditions or findings. Periodic review of these records may indicate an item or type of item with excessive maintenance costs or a particularly high level of down-time.

6.5 Storage

Clothing and respirators will be stored properly to prevent damage or malfunction due to exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, and impact. Storage procedures are as follows:

Clothing:

- Potentially contaminated clothing will be stored in an area separate from street clothing.
- Potentially contaminated clothing will be stored in a well-ventilated area, with good air flow around each item, if possible.
- Different types and material of clothing and gloves will be stored separately to prevent issuing the wrong material by mistake.
- Protective clothing will be folded or hung in accordance with manufacturer's recommendations.

Respirators:

- Air-purifying respirators should be dismantled, washed, and placed in sealed plastic bags.

6.6 Maintenance

Specialized maintenance will be performed only by the factory or an authorized repair person. Routine maintenance, such as cleaning, will be performed by the personnel to whom the equipment is

TABLE 6.4.1
PPE INSPECTION CHECKLIST

CLOTHING

Before use:

! Determine that the clothing material is correct for the specified task at hand.

! Visually inspect for:

! imperfect seams
! non-uniform coatings
! tears
! malfunctioning closures

! Hold up to light and check for pinholes.

! Flex product:

! Observe for cracks
! Observe for other signs of shelf deterioration

! If the product has been used previously, inspect inside and out for signs of chemical attack:

! discoloration
! swelling
! stiffness

During the work task, periodically inspect for:

! Evidence of chemical attack such as discoloration, swelling, stiffening, and softening. Keep in mind, however, that chemical permeation can occur without any visible effects.

! Closure failure

! Tears

! Punctures

! Seam discontinuities

TABLE 6.4.1 - *CONTINUED*
PPE INSPECTION CHECKLIST

GLOVES

Before use:

Pressurize glove to check for pinholes. Blow into the glove then roll gauntlet toward fingers, or inflate glove and hold under water. In either case, no air should escape.

AIR-PURIFYING RESPIRATORS

Inspect air-purifying respirators:

before each use to be sure they have been adequately cleaned

Check material conditions for:

signs of pliability
signs of deterioration
signs of distortion

Examine cartridges to ensure that:

they are the proper type for the intended use
the expiration date has not been passed
they have not been opened or used previously

Check faceshields and lenses for:

cracks
fogginess

Air purifying respirators will be stored individually in resealable plastic bags.

assigned. Respirators will be cleaned at the end of each day with alcohol pads or, preferably, by washing with warm soapy water.

6.7 Decontamination Methods

All personnel, clothing, equipment, and samples leaving the contaminated (work zone) area of the Site must be decontaminated to remove any harmful chemicals or infectious organisms that may have adhered to them. Decontamination methods either (1) physically remove contaminants, (2) inactivate contaminants by chemical detoxification or disinfection/sterilization, or (3) remove contaminants by a combination of both physical and chemical means. In many cases, gross contamination can be removed by physical means involving dislodging/displacement, rinsing, wiping off, and evaporation. Contaminants that can be removed by physical means include dust, vapors, and volatile liquids. All reusable equipment will be decontaminated by rinsing in a bath of detergent and water (respirators, gloves to be reused). Monitoring equipment will be decontaminated by wiping with paper towels and water.

All used PPE to be discarded will be placed in a 55-gallon drum and stored in a secure place at the Site while awaiting final disposition.

The effectiveness of the decontamination will be evaluated near the beginning of Site activities and will be modified if determined to be ineffective. Visual observation will be used for this purpose. The HSO will inspect decontaminated materials for discoloration, stains, corrosive effects, visible dirt, or other signs of possible residual contamination.

SECTION 7.0
CALIBRATION PROCEDURES, FREQUENCIES, AND MAINTENANCE

This section will present the calibration procedures, frequencies, and maintenance for the health and safety field monitoring instruments.

The use of the monitoring equipment is presented as follows (the manufacturer's owner's manuals for all equipment used will be present at the Site):

1. MiniRae PID - this instrument is a photoionization detector that measures the concentration of airborne ionizable gases and vapors. The MiniRae does not distinguish between individual compounds and will not read methane. The calibration will be performed with a cylinder of "zero gas" (hydrocarbon free air) to "zero" the instrument and a 100 ppm cylinder of isobutylene to calibrate the span.

The calibration procedures and frequencies for each instrument are presented as follows:

MiniRae PID

Isobutylene at 100 ppm in air will be used as Span Gas. A commercial zero grade gas will be used as the zero gas. Calibrate the instrument as follows:

1. Connect the supplied regulator to the Span Gas cylinder. Hand tighten the fittings.
2. Open the valve on the gas bag by turning the valve stem fully counter clockwise.
3. Attach the gas bag adapter nut to the regulator. Hand tighten the fittings.
4. Turn the regulator knob counter clockwise about half turn to start the flow of gas.
5. Fill the gas bag about half full and then close the regulator fully clockwise to turn off the flow of gas.
6. Disconnect the bag from the adapter and empty it. Flush the bag a few times with the Span Gas and then fill it.
7. Close the gas bag by turning the valve clockwise.

8. Hold down the power and N/- button to get to the password screen.

9. Press the select button for Zero Calibration.

10. Apply the “zero” gas and allow the MiniRae to calibrate for 30 seconds.

11. Press the select button for Span Gas Calibration.

12. Apply the span gas and allow the MiniRae to calibrate for 30 seconds.

The instrument will be calibrated prior to the commencement of each day's work. The instrument will be charged overnight prior to each day's work.

SECTION 8.0
EMERGENCY RESPONSE PLAN

This section will present the Emergency Response Plan (ERP) for the Site. Pre-emergency planning will consist of reviewing the ERP with all workers at the Site prior to initiation of work.

Personnel Roles

Should an emergency situation arise at the Site, the HSO will assume control and decision-making. The HSO will also resolve all dispute concerning health and safety requirements and precautions. The HSO will also:

- Be authorized to seek and purchase supplies as necessary.
- Have control over activities of everyone entering the Site.

The HSO will communicate, by field telephone or other, with off-Site personnel to include the Project Manager to evaluate data and assist in the decision-making process. Phone numbers for the fire department, police, ambulance, poison control center, New York State Department of Health, and NYS Department of Environmental Conservation Spill Response Department are listed on the next-to-last page of this document. The hospital which will be utilized during an emergency will be Brookdale University Hospital and Medical Center. The directions to the hospital, along with the hospital's emergency room phone number are presented on the last page of this document.

Copies of the last page of this document will be available at the Site and will be placed in all vehicles of personnel involved in activities at the Site.

Internal communications will consist of a single whistle (or compressed air horn if Level C is donned) blast. This blast will signal all workers to evacuate the work zone by the nearest exit.

Response Follow-Up

Following an emergency, or incident, a detailed report will be generated by the HSO. All equipment will be restored to pre-emergency conditions. The HASP will be reviewed following an

emergency to determine if it provides adequate information to assist in dealing with the emergency. The HASP may be revised to incorporate additional information as needed.

Emergency Recognition and Prevention

Before daily work assignments begin, each day a brief on-Site meeting will be held by the HSO which will address health and safety issues related to the day's work. Prior to initiation of work, a detailed on-Site health and safety meeting will be held to review all potential hazards, contingencies, and safety measures.

Safe Distances and Places of Refuge

The main potential cause of work zone evacuation is a significant vapor release. Vapor release evacuation will be discussed prior to work at each location and in general will be in the upwind direction. Wind direction will be monitored at each work location and all workers will be notified of the direction of evacuation prior to commencement of work. Safe distances will be discussed at each location and determined by the HSO. The PID will be used to determine if workers have evacuated a sufficient distance.

At all times, vehicles which may be utilized in an emergency for transport to the hospital (or other destination) will have clear access to leave the Site. The HSO will assure that an emergency vehicle does not become blocked-in by other vehicles.

Site Security and Control

The HSO will control entry of personnel into the work zone. No unnecessary person shall be permitted in the work zone.

Decontamination Procedures During Emergencies

In the event of a medical emergency, decontamination will be performed if it does not interfere with essential treatment. Decontamination will be performed by washing, rinsing, and/or cutting off protective clothing and equipment.

If decontamination cannot be performed, the victim will be wrapped in plastic to reduce contamination to other personnel. Emergency and off-Site medical personnel will be alerted to the potential contamination.

Emergency Medical Treatment and First Aid

Medical emergencies will be treated, in general, by medical experts by transporting the victim to the nearby hospital.

A first aid kit will be present on-Site for minor medical treatment.

SECTION 9.0
COMMUNITY AIR MONITORING PLAN

This section includes procedures to address potential community health and safety issues associated with investigation and remediation at the Site.

Air Monitoring

A community air monitoring plan will be implemented at the Site during investigation and remediation activities. Under the community air monitoring plan, organic vapor concentrations will be monitored at the downwind edge of the immediate work area at the Site on a continuous basis. It will be the responsibility of the HSO to implement the plan and to ensure that proper action is taken in the event that any of the established action levels are exceeded.

To monitor organic vapors, a PID will be used. Calibration of the PID will be performed according to manufacturer's instructions. Background levels of organic vapors will be measured at the Site prior to beginning work and upwind of the work area periodically using a PID.

PID readings will be recorded in the field logbook for both background and work area perimeter. Logbook recordings will include the time, location, and PID readings.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil samples. Periodic monitoring during sample collection will generally consist of taking a reading upon arrival at a sample location, monitoring while overturning soil, and taking a reading prior to leaving a sample location.

VOC Monitoring, Response Levels, and Actions

VOCs will be monitored at the downward perimeter of the immediate work area on a continuous basis. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. VOCs will also be monitored between the work zone and the building, if the building is occupied at the time the work is being performed. The equipment will be

calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less, but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down.

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

Particulate Monitoring, Response Levels, and Actions

If activities are performed that have the potential to generate significant particulate concentrations, the air will be monitored at the upwind and downwind perimeters of the exclusion zone

at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring 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 will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for State regulatory personnel to review.

Noise Monitoring

Due to the use of heavy equipment at the Site during the investigation and remediation, there is the potential for noise to impact the Site workers and the surrounding community.

Since the facility is occasionally occupied, there is a potential that Site employees will be impacted by noise. In addition, work will be performed only during daytime hours. If appropriate, the HSO may periodically monitor noise levels at the work zone boundary and the closest property

boundary with a Realistic[tm] hand-held sound level meter (or similar). Noise levels will be monitored in dBs in the A-weighted, slow-response mode. If noise level readings exceed an eight-hour time-weighted average of 85 dB at the closest property boundary or noise complaints are received, the HSO will take appropriate measures to reduce noise exposure beyond these boundaries.

ATTACHMENT A

EMERGENCY TELEPHONE NUMBERS, CONTACT PERSONNEL, AND DIRECTIONS FROM THE SITE TO THE HOSPITAL

TABLE A.1

Emergency Telephone Numbers

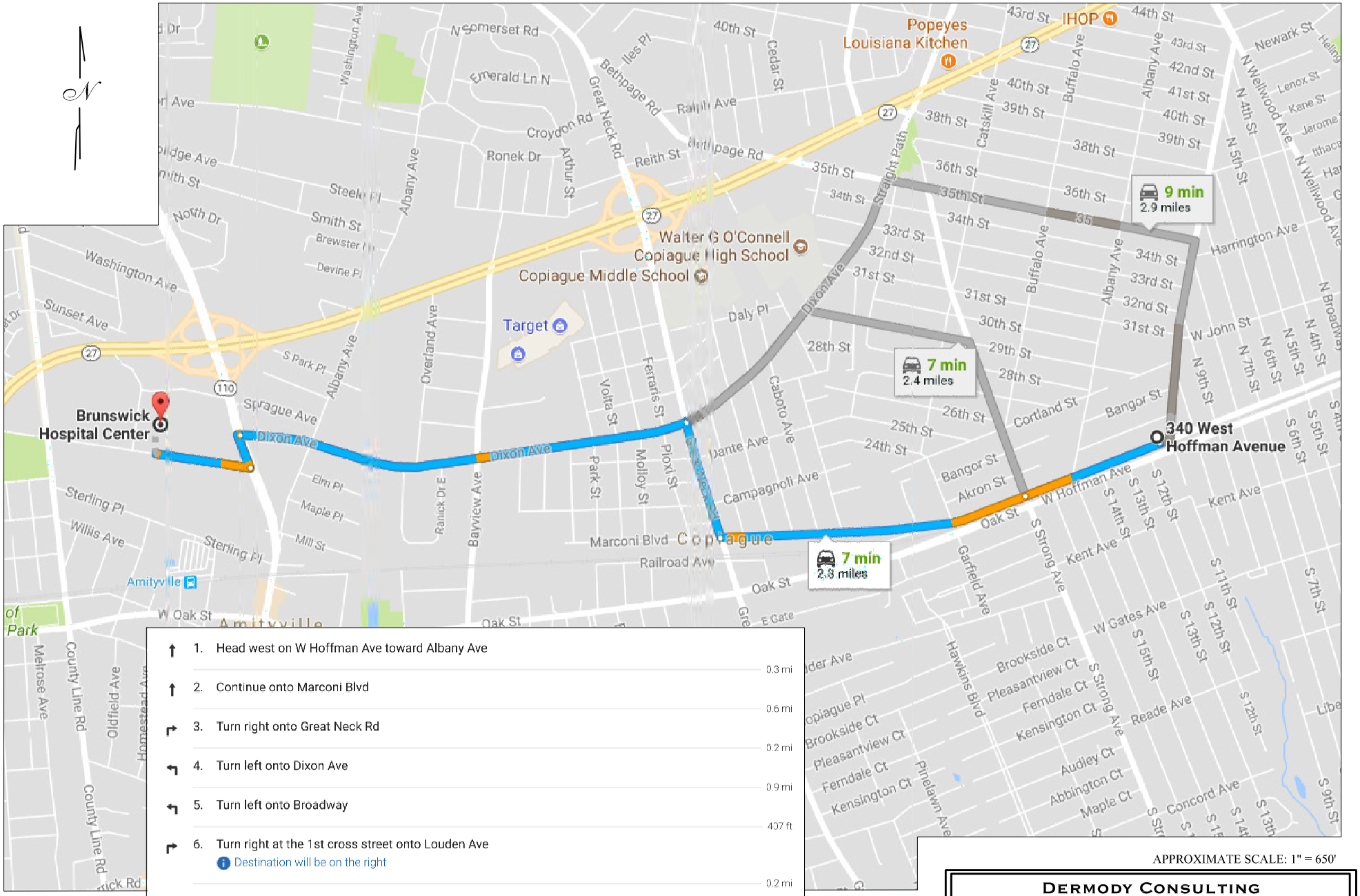
Suffolk County Police Department	911
Ambulance	911
Poison Control Center Hotline	1-800-222-1222
New York State Department of Health	1-800-458-1158
N.Y.S. Department of Environmental Conservation Spill Hotline	1-800-457-7362

Contact Personnel

James Mulvey (cell) 631 745-7581
Peter Dermody (cell) 631 905-4868
Eastern Environmental Solutions, Inc. 631 727-2700

Directions to Brunswick Hospital

Brunswick Hospital is located at 81 Louden Avenue, Amityville (at the northwest corner of Route 110 and Louden Ave. The phone number is 631-789-7421. A map and Mapquest directions to the hospital are included in the following page.



APPROXIMATE SCALE: 1" = 650'

DERMODY CONSULTING
CENTER MORICHES, NEW YORK

DIRECTIONS FROM SITE
TO BRUNSWICK HOSPITAL CENTER
81 LOUDEN AVENUE AMITYVILLE, NEW YORK
631-789-7421

Appendix K- PFAS Field Sampling Guidelines

EPA 537 (PFAS) Field Sampling Guidelines

PLEASE READ INSTRUCTIONS ENTIRELY PRIOR TO SAMPLING EVENT

Sampling for PFAS via EPA 537 can be challenging due to the prevalence of these compounds in consumer products. The following guidelines are strongly recommended when conducting sampling.

Reference-NHDES https://www.des.nh.gov/organization/divisions/waste/hwrb/documents/pfc-stakeholder-notification-20161122.pdf

FIELD CLOTHING and PPE

- No clothing or boots containing Gore-Tex®
- All safety boots made from polyurethane and PVC
- No materials containing Tyvek®
- Do not use fabric softener on clothing to be worn in field
- Do not used cosmetics, moisturizers, hand cream, or other related products the morning of sampling
- Do not use unauthorized sunscreen or insect repellant (see reference above for acceptable products)

SAMPLE CONTAINERS

- All sample containers made of HDPE or polypropylene
- Caps are unlined and made of HDPE or polypropylene (no Teflon® -lined caps)

WET WEATHER (AS APPLICABLE)

Wet weather gear made of polyurethane and PVC only

EQUIPMENT DECONTAMINATION

- "PFAS-free" water on-site for decontamination of sample equipment. No other water sources to be used
- Only Alconox and Liquinox can be used as decontamination materials

FOOD CONSIDERATIONS

No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

OTHER RECOMMENDATIONS

Sample for PFAS first! Other containers for other methods may have PFAS present on their sampling containers

FIELD EQUIPMENT

- Must not contain Teflon® (aka PTFE) or LDPE materials
- All sampling materials must be made from stainless steel, HDPE, acetate, silicon, or polypropylene
- No waterproof field books can be used
- No plastic clipboards, binders, or spiral hard cover notebooks can be used
- No adhesives (i.e. Post-It® Notes) can be used
- Sharpies and permanent markers not allowed; regular ball point pens are acceptable
- Aluminum foil must not be used
- Keep PFC samples in separate cooler, away from sampling containers that may contain PFAS
- Coolers filled with regular ice only - Do not use chemical (blue) ice packs

EPA 537 (PFAS) Field Sampling Guidelines

PLEASE READ INSTRUCTIONS ENTIRELY PRIOR TO SAMPLING EVENT

Sampler must wash hands before wearing nitrile gloves in order to limit contamination during sampling. Each sample set requires a set of containers to comply with the method as indicated below. **Sample set is composed of samples collected from the same sample site and at the same time.*

Container Count	Container Type	Preservative
3 Sampling Containers - Empty	250 mL container	Pre preserved with 1.25 g Trizma
1 Reagent Water for Field Blank use	250 mL container	Pre preserved with 1.25 g Trizma
P1 Field Blank (FRB) - Empty	250 mL container	Unpreserved

Sampling container must be filled to the neck. For instructional purposes a black line has been drawn to illustrate the required fill level for each of the 3 Sample containers

Field blanks are recommended and the containers have been provided, please follow the instructions below.

Field Blank Instructions:

1. Locate the Reagent Water container from the bottle order. The Reagent Water container will be pre-filled with PFAS-free water and is preserved with Trizma.
2. Locate the empty container labeled "Field Blank".
3. Open both containers and proceed to transfer contents of the "Reagent Water" container into the "Field Blank" container.
4. If field blanks are to be analyzed, they need to be noted on COC, and will be billed accordingly as a sample.

Both the empty Reagent Water container and the filled Field Blank container must be returned to the lab along with the samples taken.

Sampling Instructions:

1. Each sampling event requires 3 containers to be filled to the neck of the provided containers for each sampling location.
2. Before sampling, remove faucet aerator, run water for 5 min, slow water to flow of pencil to avoid splashing and fill sample containers to neck of container (as previously illustrated) and invert 5 times.
3. Do not overfill or rinse the container.
4. Close containers securely. Place containers in sealed ZipLoc® bags, and in a separate cooler (no other container types).
5. Ensure Chain-of-Custody and all labels on containers contain required information. Place sample, Field Blank and empty Reagent Blank containers in ice filled cooler (do not use blue ice) and return to the laboratory. Samples should be kept at 4°C ±2. Samples must not exceed 10°C during first 48 hours after collection. Hold time is 14 days.

Please contact your Alpha Analytical project manager with additional questions or concerns.

Appendix L- Curricula Vitae of Personnel

James R. Mulvey
19 Meryl Lane, Nesconset, NY 11767
631-979-1091
email: jmulvey5@optonline.net

SUMMARY OF QUALIFICATIONS

I have over 25 years of experience in the environmental field, with concentration on environmental remedial management and I have managed projects small to large involving site characterization, remedial investigations, project scheduling, field site supervision, site inspections, contractor oversight, data evaluation and report writing. I have worked closely with clients, sub-contractors, and regulatory agencies to effectively manage field activities according to project plans, such as work plans, sampling and analysis plans, Health and Safety plans as well as Quality Assurance and Quality Control. To ensure efficient workflow and reliable data collection, I able to draw from my background and experience with groundwater, soil, and air quality investigation techniques.

PROFESSIONAL ACCOMPLISHMENTS

Phase I Environmental Site Assessments (ESA) on numerous properties to facilitate the property transfers for commercial banks and commercial property owners. The objective of the Phase I ESAs was to determine the environmental quality of the site and to address any environmental issues concerning the subject property and surrounding properties.
All the Phase I ESAs were completed to ASTM standard.

Phase II Site Investigation conducted on numerous commercial properties after the completion of a Phase I ESA to remediate environmental issues. As required, the remedial work was completed with the approval and assistance of the New York State Department of Environmental Conservation (NYSDEC) and in accordance with all State and Federal regulations.

I have successfully closed over 350 active spill files in Westchester, Nassau and Suffolk Counties. Worked for numerous commercial banks, insurance companies, State and Federal environmental agencies to successfully investigate numerous types of contaminated sites and design and implement economical remedial alternatives. Evaluate cost subrogation and remove the property owners from the NYSDEC active spill file.

Developed and implementing numerous sampling plans and over 500 sampling and remediation projects, coordinated sample preservation, and performed over 300 multimedia subsurface investigations. My experience also includes research data collection and assistance on various marine navigation projects.

PROFESSIONAL EXPERIENCE

- Eastern Environmental Solutions (2013-Present), Manorville, NY 631-727-2700
- Windmill Oil Tank Services (2011-2013), Saint James, NY 631-360-8901
- PWGC Consulting (2009-2011), Bohemia, NY 631-589-6353
- H2M (2001-2006), Melville, NY 631-756-8000
- Fenley and Nicol (2000-2001), Deer Park, NY 631-586-4900
- Impact Environmental (1991-1999), Bohemia, NY 631-269-8800
- Town of Smithtown, Department of Environmental Protection (1989-1990), Smithtown NY

EDUCATION

- Earth and Space Science, SUNY Stony Brook, Stony Brook, NY
- Business Administration, Suffolk Community College, NY

AREAS OF EXPERTISE

- Soil/Groundwater/Subsurface Investigation & Sampling
- Environmental Site Assessments
- Soil Excavations and Soil Logging
- Groundwater & Soil Investigations
- Health & Safety Oversight/Consulting
- Construction Management/Oversight
- Groundwater Treatment System (Construction, Installation, Start-up, Troubleshooting, O&M)
- Phase I, Phase II Investigations
- Remediation
- Hydrogeology

SEMINARS

- Foxboro Organic Vapor Analyzer
- Equipment and the Operation of Flame Ionization Detection
- Geoprobe Hydraulic Probing System Operation
- ILO for Better Management through Diversification
- OSHA Work Place Safety

CERTIFICATIONS

- Asbestos Air Sampling Handler
- Certified Health and Safety Operation at Hazardous Waste Sites (OSHA)
- America Red Cross CPR

References and work sample available upon request

PETER DERMODY, C.P.G.

Principal Hydrogeologist
Dermody Consulting

Experience Summary
Mr. Dermody has performed hydrogeologic investigations at hundreds of sites throughout the country. This experience includes federal and state Superfund sites, landfill investigations, golf course contamination investigations, environmental impact statements, underground storage tank evaluations, and Phase I and II investigations. Clients have included governmental agencies and industry.

Education
M.S. Hydrogeology, Adelphi Univ. 1991
B.S. Geology, Hofstra Univ. 1987
A.S. Biology, Nassau Community College 1985

-Certified Professional Geologist by the American Institute of Professional Geologists (C.P.G. No. 10356)
-Hydrogeology Course Instructor, Empire State College
-Instructor, OSHA Hazwoper Health and Safety Certification
-OSHA Hazardous Waste Operations Supervisor

Employment History
2005-present: Dermody Consulting, Principal
2000-2005: Enviroscience Consultants, Inc., Hydrogeology Department Manager
1988-2000: Fanning, Phillips & Molnar, Hydrogeology Department Manager

Key Projects

Landfills
Performed landfill closure investigations including the installation and sampling of groundwater and methane monitoring well networks, hydraulic conductivity analyses, infrared aerial photography analysis, groundwater flow modeling, and analysis closure requirements including landfill capping and capping alternatives, landfill reclamation, and post-closure monitoring as per the requirements of 6NYCRR Part 360 regulations. Analysis was performed at landfills at Fishers Island, Montauk, East Hampton, and Orange County, New York.

Superfund Investigations
Performed Remedial Investigations/ Feasibility Studies including consent order and work plan negotiations, work plan preparation, field investigations, data analysis, evaluation and selection of remedial alternatives at over 20 sites including New York sites in Westbury, Mattituck, Lindenhurst, Springs, Montauk, Farmingdale, New Cassel, Bay Shore, and Bronx, and at a New Jersey site in Jobstown.

Airport Subsurface Investigations
Mr. Dermody evaluated the history of contamination events at the Westchester County Airport including an analysis of site geological and hydrogeological conditions, spill history and areas of known and suspected contamination to

determine if the operations at the airport may have impacted the Kensico Reservoir (which is the drinking water supply for New York City and Westchester.

Environmental Impact Statements
Performed analysis of the feasibility of supplying the East Hampton Airport with sufficient supply of water for fire-fighting purposes. The proposed action entailed the installation of a Suffolk County Water Authority pipeline. The project entailed the calculation of fire fighting water requirements for the airport, calculation of head losses along the proposed course of the pipeline, and analysis of the impacts of increased pumpage on saltwater intrusion. The project also considered the potential impacts to surface water bodies, wetlands, and the ecology of the project area.

Performed an Environmental Impact Statements to determine the most technical and economically feasible method of providing potable water to a residential community on Long Island. The community, which had been served by private wells, was impacted by a spill of tetrachloroethylene that contaminated a number of private wells. Evaluated the direction of the plume migration, emergency measures such as bottled water and individual treatment system, and long-term solutions including importing public water and creation of a community water supply system. Groundwater modeling was employed to assist in the determination of the most feasible alternative.

Petroleum/Underground Storage Tanks
Performed evaluations of UST leakage at numerous sites. The evaluations included soil contamination analysis, groundwater well installation, sampling, and interpretation of results. Work plans were prepared and negotiated with the appropriate regulatory agency to determine the scope of work and objectives at each site. Soil and groundwater remediation was performed at numerous sites including soil vapor extraction, air sparging, bioremediation, or excavation of contaminated soil and removal of free floating petroleum from the water table surface.

Water Resources
Mr. Dermody was the principal author of a Water Resources Management Plan for the Town of East Hampton, New York. The plan including an evaluation of the current and future needs with regard to groundwater and an evaluation of supply and usage. Also, the quality of water throughout the town was evaluated to determine areas that may require public water supplies.

He also performed a water supply analysis for a vacation resort in central California. The analysis included the delineation of the watershed area, estimates of the groundwater reservoir, analysis of water usage, and the preparation of recommendations to be implemented to assure a plentiful, high-quality supply of potable water for the future.

Miscellaneous
Performed and interpreted data for aquifer pump tests to provide data for dewatering and water supply projects in Manhattan, Queens, and Brooklyn, Nassau, and Suffolk Counties.

Michael O. Flynn

258 Line Rd ● Manorville, New York 11949 ● (631) 727 - 2700 ● michaelflynn@easternenviro.com

EXPERIENCE

Mr. Flynn has over twenty years of diversified environmental experience.

PRESIDENT – Eastern Environmental Solutions, Inc. -- 2001 - present

Mr. Flynn created Eastern Environmental Solutions, Inc. (EES) in March of 2001. EES emerged as a hands-on environmental contracting and remediation company providing environmental services to select environmental engineering and geological firms. Mr. Flynn developed a highly trained efficient work force to staff the company's growing project requirements. EES is known throughout the regulatory community as being an example of excellence in the environmental services industries.

PRESIDENT – Earth Repair, LLC. -- 2007 - present

Earth Repair is a subsurface infrastructure evaluation and rehabilitation company based on Long Island and New York City. Earth Repair represents municipal and government and private entities. Mr. Flynn created Earth Repair LLC. in March of 2007.

VICE PRESIDENT – Able Environmental Group – 1998 - 2001

In 1998 Mr. Flynn formed a merger between his company and a division of another Long Island based environmental company to form Able Environmental group (AEG). AEG performed a wide range of environmental services to the environmental consulting and engineering community, as well as the Long Island automotive industry. AEG's clients were quick to realize that AEG was the environmental service company that they had been looking for. In 2001 Mr. Flynn sold his interest in AEG to pursue several challenging opportunities in the environmental trade.

PRESIDENT – Advance Environmental Services, Inc. -- 1993 - 1998

Mr. Flynn started Advance Environmental Services, Inc. in 1993 as an environmental service contracting company.

Mr. Flynn created a professional hands-on staff that enabled Advance to perform complete turnkey environmental remediation projects. AEG quietly became a leading force in the New York metropolitan area with a client list containing names such as Northrop Grumman, Lockheed Martin, NYSDEC, and many New York engineering firms.

NEW YORK DISTRICT MANAGER – Direct Environmental, Inc. – 1988 - 1993

Mr. Flynn joined Direct Environmental in 1988 as the project supervisor for the just opened New York division. He trained and developed an experienced staff capable of completing a wide variety of hazardous waste related projects, including several superfund sites. Mr. Flynn's responsibilities included project estimation, coordination, and completion.

OWNER/OPERATOR - M.C.C Contracting -- 1987 - 1988

With a staff of nine, Mr. Flynn's crew successfully completed several pre-construction/demolition projects which involved the removal of underground storage tanks and the disposal and recycling of over 4,000 tons of demolition debris. Mr. Flynn acted as a representative to Suffolk County and New York Regulatory agencies for a large real estate development firm.

ENGINEERING – U.S. Navy – 1984 - 1987

Mr. Flynn was responsible for day to day operations for items from spill counter measures to radiological decontamination. As a Senior Non-Commisioned Officer he had to maintain a high level of readiness for as many as 100 crew members. His total attention to project detail earned several decorations.

EDUCATION

U.S. NAVY, Non-Commissioned Engineering Officer **-** 1984 - 1988

HONORS

U.S. NAVY Commendation Medal

U.S. NAVY Achievement Medal

TECHNICAL EXPERIENCE

Mr. Flynn's technical experience in the hazardous waste industry includes site evaluation, implementation of remedial actions, waste clean-up plans, health and safety, oversight and providing his clients with the most effective waste disposal available. Mr. Flynn has implemented his knowledge in all types of remedial projects including tank removals, soil excavation, plant closures, transformer decommissioning, drum and tank sampling, drainage remediation, and sea-going environmental operations.

Scott E. Hamarich
Sr. Vice President

PROFESSIONAL EXPERIENCE

Eastern Environmental Solutions, Inc. (2004 – Present)

Vertex Engineering Services, Inc., a Tetra Tech, Inc. company (2001 – 2004)

Holzmacher, McLendon and Murrell, PC Architectes and Engineers . Consulting Engineers (H2M) (1997 - 2001)

North Atlantic Laboratories, Inc. (1996 - 1997)

General Contracting, Local 281 Carpenter s Union (1987-1993)

EDUCATION

B.A. Environmental Science, State University of New York at Plattsburgh

A.A.S., Civil Engineering, Broome Community College

University of Massachusetts , Division of Continuing Education – NE Regional Lead Training Program

CERTIFICATIONS & TRAINING (CURRENT/PAST)

Asbestos Air Sampling Technician and Asbestos Inspector (NYSDOH)

Asbestos Management Planner (NYSDOH)

Asbestos Project Designer (NYSDOH)

British Petroleum Safety Training

Confined Space Entry Inspector (29 CFR 1910.146)

Certified Health and Safety Operations at Hazardous Waste Sites (OSHA)

Fork Lift Operation and Safety Training

Hazardous Communications Training

Hazardous Materials Transportation Safety Training

Hazardous Waste Operations and Emergency Response (HAZWOPER)

Indoor Air Quality Awareness

Lead Inspector (USEPA

Lock-Out Tag-Out (29 CFR 1910.147)

OSHA 10-hour Construction Safety and Health

OSHA Lead Awareness

MSDS/Splll Cleanup & Bloodborne Pathogens Training

Radiation Safety Training

Railway Contractor Safety and Roadway Worker Protection Training

Respiratory Protection Training

Safe Lifting Training

MEMBERSHIPS

American Society of Civil Engineers (ASCE)

Long Island Professional Geologist (LIPG)

HIA-LI (Hauppauge Industrial Park Association)

NPMYAC Board (2010 – Present)

PMYFCC-Lacrosse Board (2011-Present)

PMYFCC – Lacrosse Director (

The Environmental Education Foundation of Soil and Water Conservation in New York –Board Member (2004-2005)

Mr. Hamarich has over 22 years of combined experience in general contracting /construction management, and environmental engineering, consulting, remediation and contracting and is currently Eastern's Senior Vice President. He is responsible for the execution, management and direction of Eastern's environmental remediation and contracting operations. His responsibilities also include the establishment and initial management of new profit centers; client development and management; personnel management; as well as quality control and quality assurance. The corporate employee training program is also one of his responsibility, in which he ensures each and every one of Eastern's employees are properly trained with the newest equipment and technologies available to the market, as well as proper on and offsite health and safety.

Mr. Hamarich also works as an executive advisor and manager on technical projects in both the environmental and construction fields. Specific experience in these areas includes subsurface soil, groundwater and air investigations; non-hazardous and hazardous remediation management and reconstruction efforts, remediation designs, environmental insurance claims management, facility closures (RCRA & non-RCRA), and underground/aboveground storage tank management.

Mr. Hamarich has previously held senior management positions at a nationally based environmental and geotechnical engineering firm (ENR top 200 Environmental Firm) and a regionally located architectural and engineering firm (ENR top 500 Design Firm).

Mr. Hamarich's current and past services include the following:

- Phase I and II environmental site assessments
- Contaminated soil and groundwater evaluation and delineation
- Hazardous and non-hazardous soils and groundwater remediation
- Hazardous and non-hazardous material storage tank compliance
- Underground and aboveground tank installations and removals
- Secondary containment system inspections and repairs
- Tank monitoring system evaluations, repairs and installations
- Permit applications and reporting (SPDES, SPCC, SWPP, Emissions /Stack)
- Air emission regulatory compliance
- Air testing and evaluation (dust, VOCs, SVOCs, metals)
- Microbial organism (bacterial/fungal) evaluations and remediation
- Hazardous waste generation reporting
- Waste reduction plans
- Hazardous waste storage area design and installation
- Closure plans
- Industrial wastewater treatment system design and evaluation
- Consent order negotiations
- Indoor air quality
- Asbestos management including inspections and abatement
- Hazardous materials management
- Emergency spill responses
- wastewater pretreatment system design
- RCRA compliance
- Design and evaluation of emission control and monitoring systems
- Facility audits

Mr. Hamarich's clients include municipal entities (fire departments, water departments and school districts), federal and state institutions and private corporations. Some of Mr. Hamarich's projects include:

- Managed the soil sampling, well installation and injection of chemical oxidation compounds to address soil and groundwater contamination at a proposed New York City School location, as well as active school locations. Injects at one school location exceeded 2 tractor trailer loads.
- Managed the excavation and disposal of PCB contaminated soils at several public schools located within New York City. Activities also included the backfilling and replacement of grass and landscaping.
- Managed the investigation of a 4.3 acre parcel in the metropolitan area, resulting in the excavation and removal of over 20,000-tons of non-hazardous and hazardous

soils to approximately 30 feet below street surface, as well as management of the community air monitoring program and groundwater investigation/aquifer characterization program.

- Managed the RCRA closure of manufacturing building for a global surface solution company. Other RCRA closures performed for printing, dry-cleaning, plating and other manufacturing operations.
- Managed asbestos and lead-based paint services under a term contract with the United States Postal Service (USPS). Asbestos inspections included quantification, classification, and sampling and analysis of all suspect asbestos containing building material. Lead-based paint inspections involve field analysis of painted surfaces through X-Ray Fluorescence technology. All abatement activities commence with Mr. Hamarich meeting the term abatement contractor to discuss the abatement activities. Once the proposed abatement activities were approved, a project kick-off meeting (inclusive of health and safety concerns discussions) was conducted at the subject postal facility.
- Managed and conducted a federally regulated underground injection well investigation and remediation effort at a former aerospace manufacturing facility located on Long Island, New York. The project included the identification of several formerly unknown UIC structures and the subsequent remediation of approximately 6,000 tons of PCB and VOC impacted soils.
- Directed and managed the removal of a 10,000 and 15,000-gallon aboveground No. 6 oil storage tank present with two individual boiler rooms at an inaccessible portion of an apartment complex.
- Direct and manage the ongoing tank contract for the Town of Hempstead, Nassau County, New York. The contract includes the removal, installation and repair of gasoline, diesel and fuel oil storage tanks. The contract also includes the removal of impacted groundwater, and other miscellaneous liquids.
- Direct and manage the ongoing spill cleanup operations for residential and commercial clientele. Activities typically include insurance coverages through firms such as Allstate, Statefarm, Firemans Fund, Chubb, Chartis, Etc.
- Conducted several large scale Phase I environmental site assessments of former power utility operations and service station sites, as well as managed national Phase I and II environmental site assessments for a global lending and leasing company.
- Prepared stormwater pollution prevention and best management practice plans for solid waste transfer stations within the Long Island and New York metropolitan area.
- Managed the operation and maintenance of a large scale groundwater pump and treatment system located in Bayshore, New York for the removal of tetracholoethylene present in the groundwater within the upper glacial aquifer. The system included two remediation wells, ultraviolet pretreatment, and a filtration and flocculation treatment system.
- Performance of a facility audit and preparation of air emission permit applications for small to large scale industrial facilities
- Preparation of hazardous waste reduction, facility closure, and spill prevention control and countermeasure (SPCC) plans for commercial operations within the Long Island and New York metropolitan area.
- Responsible for all environmental health and safety compliance projects addressing NIOSH, OSHA, ACGIH and USEPA guidelines.

Joshua E. Falk
Geoprobe & Equipment Operator/Driller

PROFESSIONAL EXPERIENCE

- Eastern Environmental Solutions, Inc. (2004 – Present)

CERTIFICATIONS & TRAINING

- Hazardous Waste Operations and Emergency Response (HAZWOPER) – 40-hour initial and annual 8-hour refresher
- OSHA 10-hour Construction Safety and Health
- Confined Space Entry (29 CFR 1910.146)
- Lock-Out Tag-Out (29 CFR 1910.147)

Mr. Falk has over 13 years of experience in the environmental investigation and remediation field. He started his environmental career at Eastern as the company's second fulltime direct push unit operator. In the years since he has become an accomplished operator and operates at the highest level taking on some of the most challenging projects with the company's six direct push or hollow stem auger units which include:

- Geoprobe track-mounted 7822 (includes hollow stem augers for installation of up to 4" diameter wells and geotechnical attachment for blow counts)
- Geoprobe track-mounted 6610 (includes hollow stem augers for installation of up to 4" diameter wells and geotechnical attachment for blow counts)
- Ford F550 Power Stroke truck-mounted 6610 (includes hollow stem augers for installation of up to 4" diameter wells and geotechnical attachment for blow counts)
- Caterpillar skidsteer mounted Geoprobe 540M
- Toro dingo-mounted Geoprobe 540M
- Geoprobe 420M Limited Access Unit

Mr. Falk regularly advances soil borings and installs 1-inch, 2-inch and 4-inch diameter wells throughout Long Island, the 5 boroughs of New York City and Lower Hudson regions. His investigations activities bring him to crawlspaces and basements for sub-slab soil vapor sample collection to the installation of permanent soil gas monitoring points for long-term soil gas monitoring projects.

Mr. Falk has performed large injection projects (i.e. RegenOx) for the attenuation of environmental contaminates with some sites including up to a tractor trailer equivalent of injection compounds.

Mr. Falk is also one of the company's equipment operators and can be found digging test pits, excavating soil or removing underground tanks using an excavator or backhoe.

Patrick A. Slavin
Geoprobe & Equipment Operator/Driller

PROFESSIONAL EXPERIENCE

- Eastern Environmental Solutions, Inc. (2016 – Present)
- Land, Air, Water Environmental Services, Inc. (2012 - 2016)

CERTIFICATIONS & TRAINING

- Hazardous Waste Operations and Emergency Response (HAZWOPER) – 40-hour initial and annual 8-hour refresher
- OSHA 10-hour Construction Safety and Health
- Class B Commercial Drivers License
- Confined Space Entry (29 CFR 1910.146)
- Lock-Out Tag-Out (29 CFR 1910.147)

Mr. Slavin has over 5 years of experience in the environmental investigation and remediation field. He is one of Eastern's direct push and drill rig operators and as such his daily activities include the operation and maintenance of a fleet of the company's six direct push or hollow stem auger units as follows:

- Geoprobe track-mounted 7822 (includes hollow stem augers for installation of up to 4" diameter wells and geotechnical attachment for blow counts)
- Geoprobe track-mounted 6610 (includes hollow stem augers for installation of up to 4" diameter wells and geotechnical attachment for blow counts)
- Ford F550 Power Stroke truck-mounted 6610 (includes hollow stem augers for installation of up to 4" diameter wells and geotechnical attachment for blow counts)
- Caterpillar skidsteer mounted Geoprobe 540M
- Toro dingo-mounted Geoprobe 540M
- Geoprobe 420M Limited Access Unit

Mr. Slavin routinely advances soil borings and installs 1-inch, 2-inch and 4-inch diameter wells throughout Long Island, the 5 boroughs of New York City and Lower Hudson regions. His investigation activities bring him to crawlspaces and basements for sub-slab soil vapor sample collection to the installation of permanent soil gas monitoring points for long-term soil gas monitoring projects. He also performs the injection of compounds (i.e. RegenOx) into soil to assist in the attenuation of environmental contaminates or impede their migration.

Aside from Mr. Slavin's direct push and well installation experience, he is also operates Vactors, Guzzlers, dump trucks, roll-off trucks and skidsteers.

Mr. Slavin is a pleasure for all to work with and is often referred to as a caring and compassionate gentle giant.

John F. Zinser
Geoprobe & Equipment Operator/Driller

PROFESSIONAL EXPERIENCE

- Eastern Environmental Solutions, Inc. (2015 – Present)
- AARCO Environmental Services Corp. Tetra Tech, Inc. company (2010 – 2015)
- JNM Environmental, Inc. (2000 - 2010)

CERTIFICATIONS & TRAINING

- Hazardous Waste Operations and Emergency Response (HAZWOPER) – 40-hour initial and annual 8-hour refresher
- OSHA 10-hour Construction Safety and Health
- Class B Commercial Drivers License
- Confined Space Entry (29 CFR 1910.146)
- Lock-Out Tag-Out (29 CFR 1910.147)

Mr. Zinser has over 17 years of combined experience in the environmental investigation and remediation field. He is one of Eastern's senior operators and as such his daily activities include the operation and maintenance of a fleet of the company's six direct push or hollow stem auger units as follows:

- Geoprobe track-mounted 7822 (includes hollow stem augers for installation of up to 4" diameter wells and geotechnical attachment for blow counts)
- Geoprobe track-mounted 6610 (includes hollow stem augers for installation of up to 4" diameter wells and geotechnical attachment for blow counts)
- Ford F550 Power Stroke truck-mounted 6610 (includes hollow stem augers for installation of up to 4" diameter wells and geotechnical attachment for blow counts)
- Caterpillar skidsteer mounted Geoprobe 540M
- Toro dingo-mounted Geoprobe 540M
- Geoprobe 420M Limited Access Unit

Mr. Zinser has advanced soil borings as well as installed 1-inch, 2-inch and 4-inch diameter wells to beyond 100 feet throughout Long Island, the 5 boroughs of New York City and Lower Hudson regions. He has collected soil gas and installed permanent soil gas monitoring points as well injected compounds (i.e. RegenOx) to assist in the attenuation of environmental contaminates and impede their migration.

Aside from Mr. Zinser's direct push and well installation experience, he is also operates Vactors, dump trucks, Vacuum/Pump trucks, skidsteers and excavators.

Mr. Zinser is a problem solver and always comes to work with a positive can do attitude. As such he always has positive feedback from those he works with.

UTILITY DETECTION, INC.
SUBSURFACE UTILITY INVESTIGATION / LOCATING CONSULTANTS

68 South Service Rd. Suite 100
Melville, NY 11747
Phone: (631) 681-1961
Fax: (631) 792-1137

90 Washington Valley Road
Bedminster, NJ 07921
Phone: (908) 644-3280
Fax: (908) 462-8100

December 27, 2017

Eastern Environmental Solutions, Inc.
258 Line Rd.
Manorville, NY 11949

Re: Qualifications

To Whom It May Concern:

UTILITY DETECTION, INC, is a New York State corporation started in 2000. We have been investigating for and locating subsurface utilities, underground storage tanks and structures for 17 years.

EQUIPMENT & TRAINING:
We currently own, operate and are trained with the following electromagnetic locators & GPR systems,
Metrotech
Radiodetection
Subsite
3M
MALA - Ground Penetrating Radar Systems.

CLIENTS:
We currently, and or halved worked for the following.
Public Utility Companies
Federal Government Agencies
State of New York (OGS)
Corporations
Contractors
Homeowners

If you have any questions, please feel free to contact me @ (632) 681-1961

Robert A. Fontaine
Robert A. Fontaine
UTILITY DETECTION, INC.

YORK Analytical Laboratories Qualifications

YORK is a full-service independent laboratory that provides analysis of environmental samples including water, soil, and air for regulated contaminants. YORK is a NELAP accredited laboratory and maintains comprehensive certification in various states including:

- New York 10854
- Connecticut PH-0723
- New Jersey CT-005
- Pennsylvania 68-04440

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2018
Issued April 01, 2017

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. ROBERT Q. BRADLEY
YORK ANALYTICAL LABORATORIES INC
120 RESEARCH DRIVE
STRATFORD, CT 06615

NY Lab Id No: 10854

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category
ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2018
Issued April 01, 2017

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. LARRY SINGH
YORK ANALYTICAL LABORATORIES, INC. (II)
132-02 89TH AVENUE
RICHMOND HILL, NY 11418

NY Lab Id No: 12058

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category
ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2018
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MR. ROBERT Q. BRADLEY
YORK ANALYTICAL LABORATORIES INC
120 RESEARCH DRIVE
STRATFORD, CT 06615

NY Lab Id No: 10854

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2018
Issued April 01, 2017

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MR. ROBERT Q. BRADLEY
YORK ANALYTICAL LABORATORIES INC
120 RESEARCH DRIVE
STRATFORD, CT 06615

NY Lab Id No: 10854

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category
ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

POLLY S. NEWBOLD
Sr. Environmental Chemist/QA Coordinator

Ms. Newbold has over 30 years of experience in the environmental industry. Her background includes sample collection, preparation and analysis, data validation, data review, and project management. She has collected samples of various matrices for both field and laboratory analyses, prepared and analyzed samples in a laboratory setting, and has performed field analyses. Her experience as a quality assessment/quality control (QA/QC) manager has provided her with a thorough understanding of the entire laboratory process. Ms. Newbold has extensive experience in the data review process having examined data for a variety of matrices for compliance with state and federal validation guidelines. She has also collaborated with state agencies to write validation guidelines when none existed for a particular method, and she has written data review courses to be used by the data end-user for internal data screening purposes. She has prepared Sampling and Analysis Plans (SAPs) for Superfund sites and assisted in developing laboratory QA/QC acceptance criteria. Ms. Newbold has served as project manager for numerous contaminated sites in which she provided oversight during sampling events, coordinated with the analytical laboratories, compiled and reviewed generated data, mapped laboratory results to observe trends in contamination, and prepared documents including expert reports. She has performed environmental site investigations evaluating the nature and extent of site contamination, and she is experienced in performing property transfer evaluations including Phase I and Phase II investigations in New Jersey and Pennsylvania. A representative sampling of her project experience is provided below:

Project Experience:

Data Validation/Quality Assurance
Performed validation of analytical data for samples analyzed pursuant to the U.S. EPA Contract Laboratory Program Statement of Work (CLP), U.S. EPA SW-846, and various other EPA methodologies. Thoroughly understands the U.S. EPA Functional Guidelines for data validation, as well as various regional and other agency guidelines. She has performed data validation for numerous projects.

Actively providing data validation and evaluation services for a sites located in Connecticut, Nevada, Florida, Pennsylvania, and New Jersey. The sites are contaminated with volatile and semivolatile compounds and metals. Activities include coordination of laboratory analyses, data review, comparison of results with historical data to determine trends, and preparation of validation and evaluation reports.

Performed critical review and validation of analytical data packages received from quarterly sampling rounds conducted at industrial client's plant site, which is highly contaminated with organic compounds. Sampling procedures and analytical results were reviewed for accuracy and consistency with past sampling rounds, and recommendations for modified analytical methods were offered to ensure more reliable analytical data.

Developed QA/QC manual for monitoring program for a major chemical company. Included appropriate methodology for sampling, analysis, and

Education

Masters Candidate, Environmental Science, Rutgers University - New Brunswick, NJ

BS, Textile Science, State University of New York at Buffalo

Registrations/ Certifications

Rutgers University Professional Certificate Program in Geomatics – New Brunswick, NJ

40-Hour OSHA Hazardous Waste Safety Training

Adult and Child CPR and AED

Professional Affiliations

National Ground Water Association

American Chemical Society

CIANJ – Environmental Business Roundtable

NJDEP LSRPA – member

TNI – The NELAC Institute – member.

NEMC - National Environmental Monitoring Conference – session chair

documentation for all phases of program. Served as quality assurance manager for the investigation phase of drug company's involvement of public water contamination. Included the development of alternative analysis program and implementation of program.

Conducted onsite audits of environmental analytical laboratories located in the eastern, southeastern, northwestern, and midwestern United States. Audits included review of organization and personnel; sample receipt and storage area; general laboratory facilities; analytical instrumentation; data handling, review and documentation; quality assurance program plan and standard operating procedures; and prior performance evaluation data.

Served as Quality Control/Quality Control Officer for the remediation of a Superfund site in Pennsylvania. Responsibilities included preparation of Sampling and Analysis Plan, completing field audits of sample collection, tracking of field sampling and laboratory activities, and appraisal of laboratory data corrective action procedures. Performed data validation and evaluation services and prepared QA/QC validation reports for data generated by cyclical sample collection episodes.

Project Oversight
Monitored sampling and processing techniques to ensure compliance with agency-approved operating procedures for a large sediment project located in the northeast. Reviewed field logbooks and field-generated forms for accuracy and completeness. Produced plots to examine trends in analytical data. Examined field procedures to determine sources of contamination.

Environmental Chemistry Consulting
Developed and conducted sampling methods at the plant site of a carbon treatment unit manufacturer to determine source of methylene chloride contamination. Sampling conducted in step-wise fashion to isolate the source of contamination. Coordinated with the laboratory to ensure quick turnaround time and the use of appropriate analytical methodology. Recommendations offered to client for development of in-house quality assurance program to detect and eliminate contamination prior to treatment unit shipment.

Project manager to a New Jersey law firm in support of its client, a local water company, who was accusing chemical manufacturing companies of contaminating the water supply system. Laboratory results from samples taken over an eighteen-year period from the water company's wells, facility, and monitoring wells were compiled into spreadsheet form. Graphs were created from spreadsheet data and ratios were calculated to assist with oral testimony.

Project manager for bioremediation of polynuclear aromatic compounds in coal tar. Tasks included the development of the analytical method, coordination with client and laboratory for expedited analytical results, data validation, and evaluation of results for compliance with project goals.

Conducted the sampling of water flowing over two outfalls into a New Jersey river to determine the extent, if any, of hexavalent chromium discharge into the river. Performed on-site analysis to determine the presence or absence of hexavalent chromium in outfall samples and standing water located on site.

POLLY S. NEWBOLD

Testified as fact witness.

Coordinated sampling and analysis project for firm needing to comply with tighter restrictions for their wastewater discharge.

Served as quality control coordinator for a large sediment sampling program of a New Jersey river. Participated in the preparation and review of the site-specific Quality Assurance Project Plan. Assisted in developing site-specific acceptance limits where none existed. Conducted audits of the field sampling techniques used for sediment sampling for compliance with site-specific sampling Standard Operating Procedures. Performed audits of participating analytical laboratories. Provided oversight to sample processing performed in field facility. Coordinated third-party data validation effort. Prepared data tables and supporting graphs for

Participated in the preparation and review of the site-specific Quality Assurance Project Plan for an industrial facility located in Connecticut. Assisted in developing site-specific acceptance limits where none existed. Coordinated analysis program with the participating laboratories prior to sample collection. Performed audit of primary analytical laboratory. Conducted an on-site audit of the field sampling for regulatory compliance. Performed third-party data validation effort.

Served as quality control coordinator for an industrial site located in New Jersey contaminated with trichloroethene. Assisted with the preparation of the site-specific Quality Control Project Plan (QAPP). Reviewed QAPP for completeness. Collected treatment system, soil, and groundwater samples. Coordinated laboratory analysis. Complied data and prepared reports for submission to oversight agency.

Developed site-specific sampling and analysis plan manual for remediation program for major chemical manufacturing company. Included appropriate methodology for sampling, analysis, QA/QC and documentation.

Served as environmental chemistry consultant to a firm located in Midlothian, Texas. Responsibilities included assistance with development of modified sample preparation and analytical protocols, coordination of sample preparation, communications with analytical laboratory during analytical process, and daily contact with client with respect to project progress.

Performed unannounced audits of a of network environmental laboratories at the request of management. Audits included evaluation of day-to-day quality control/quality assurance practices. Developed a program of quarterly program evaluation (PE) samples to monitor quality within a given laboratory.

Environmental chemistry consultant for a firm that screen printed highway signs. Responsibilities included observation of the removal of two underground storage tanks, investigation of area of stressed vegetation, development and implementation of field analytical protocols for the detection and quantification of hexavalent chromium, coordination of analytical program with the laboratory, and

compilation of final report.

Served as project manager in assisting a steel manufacturer with the delisting of co-product as a hazardous substance. Responsibilities included sampling, pulverizing, and sieving sample to obtain homogeneity, coordination of round robin analytical program among three laboratories, and preparation of final reports for submission to state agencies.

Litigation
Compiled and evaluated historical sample data and reports for preparation of an expert report with respect to a large Superfund site in Pennsylvania. Reviewed reports and assisted with the preparation of expert report.

Served as project manager for former gas station sites contaminated by gasoline. Conducted several rounds of sampling to determine source of contamination. Reviewed historical data, documents, and reports to assist with the preparation of expert reports. Provided oversight to site activities. Designed and developed exhibits to be used during trial.

Project manager to assist a New Jersey law firm with litigation for its client with respect to petroleum hydrocarbon and PCB contamination caused by previous owner. Conducted field sampling to determine location of contamination. Coordinated analytical efforts with laboratory. Compiled and evaluated historical sample data, documents, and reports for litigation preparation.

Project manager to assist a New Jersey law firm with litigation for its client with respect to heating oil No. 2 contamination, which occurred during the previous owner's occupancy. Coordinated and conducted field sampling to determine source and extent of contamination. Provided oversight during field activities. Coordinated analytical efforts with laboratory. Compiled and evaluated historical sample data, documents, and reports for litigation preparation. Prepared reports at request of counsel.

Project manager to assist a New York law firm with litigation for its client with respect to alleged contamination caused by fill material. Coordinated and conducted field sampling to determine source and extent of contamination. Coordinated analytical efforts with laboratory. Compiled and evaluated historical sample data, documents, and reports for litigation preparation.

Project manager to assist a New York law firm with the investigation and possible litigation for its client with respect to alleged lead contamination caused by the disposal of lead-containing metal sludges from a former dye manufacturing facility. Determined sampling locations using historical aerial photographs. Coordinated and conducted field sampling to determine source and extent of contamination. Coordinated analytical efforts with laboratory. Compiled and evaluated historical sample data, documents, and reports.

Project manager to assist a New Jersey law firm with litigation for its client with respect to contamination caused by the previous owner and the manufacture of relays. Coordinated and conducted field sampling to determine source and extent of contamination. Coordinated analytical efforts with laboratory. Compiled analytical data for use by engineering firm. Produced computer generated maps

of the locations of contamination on an analyte-by-analyte basis. Compiled and evaluated sample data, historical documents, and reports for litigation preparation.

Project manager to assist a New York law firm with litigation for its client with respect to jet fuel contamination found at a major airport. Reviewed quarterly data generated by on-site and off-site laboratories for the presence of petroleum hydrocarbons.

Hazardous Waste Investigation
Conducted environmental assessments in support of property transactions for industrial, commercial and residential properties. The projects at commercial and industrial sites in New Jersey have been conducted under the New Jersey Department of Environmental Protection ISRA regulations where preliminary assessments and site investigations are required.

Provided Phase I and Phase II program support at gas manufacturing facilities located in Pennsylvania and New Jersey.

Conducted Phase I assessments for residential redevelopment properties located throughout New Jersey. Activities include sampling, data collection, data analysis and management, and report preparation.

Conducted groundwater, monitoring well, and soils sampling at sites located primarily in New Jersey. Activities were performed in support of Phase II programs and ISRA remedial investigations.

Prepared Electronic Data Delivery (EDD) tables and program reports for submission to NJDEP.

Professional Publications/Presentations:

“Data Usability Part 1: Data Validation Is More Than Just A Checklist”, NEMC Presentation, August 2016.

“Setting Up a Project With a Laboratory”, NJ Licensed Site Remediation Professional Association Training, March 2013.

“Data Usability Assessment”, NJ Licensed Site Remediation Professional Association Training, March 2013.

Continuing Education/Specialized Training:

“Advanced Petroleum Forensics”, Rutgers University, October 2013.

"Professional Certificate Program in Geomatics", Rutgers University, 2001.

"Environmental Application of GC/MS", Indiana University Short Course, Bloomington, Indiana, July 1995.

"Source Sampling Course", Entropy Short Course, Raleigh, North Carolina, August 1994.

POLLY S. NEWBOLD

"Fundamentals of the 1990 Clean Air Act Amendments," conducted by Lancaster Laboratories, Lancaster, Pennsylvania, November 1992.

Environmental Analytical Chemistry: Air Toxics Monitoring - ACS, Washington, DC, August, 1992.

"Modern Practice of Gas Chromatography," Chromatography Forum of Delaware Valley Short Course, West Chester, Pennsylvania, May 1991.

"NPDES Permitting," USEPA Short Course, Arlington, Virginia, March 1991.

"Environmental Site Assessments in Conjunction with Real Estate Transactions," National Water Well Association, Philadelphia, Pennsylvania, March 1991

"Interpretation of Mass Spectra," conducted by Environmental Analytical Consulting, Inc., Edison, New Jersey, March 1990.

“Principles of Ground Water," National Water Well Association Short Course, Orlando, Florida, January, 1989.

“Shewhart Charting," George Washington University Short Course, Orlando, Florida, June, 1988.

“QA for Analytical Laboratories," AOAC Short Course, Arlington, Virginia, July, 1988.

Jeri L. Rossi
Sr. Environmental Chemist

Ms. Rossi has over 25 years of experience in the environmental industry and is a Certified Environmental Analytical Chemist through the National Registry of Certified Chemists. Her background includes sample preparation and analysis, method development, analytical data review and reduction, data validation, and project management. She has prepared and analyzed samples of various matrices in a laboratory setting. Her experience as a quality assurance/quality control (QA/QC) director coupled with her experience as an analyst has provided her with a thorough understanding of the entire laboratory process - six years as Quality Assurance/Quality Control Director for two laboratories as well as over 15 years in the laboratory as both Manager and analyst. She has extensive experience in reviewing data from the perspective of both an analyst and QA/QC Director. As a Project Manager, she has managed all aspects of client projects from coordinating sampling events through reporting results.

Professional Experience:

QA/QC Director
Implemented and maintained Quality System for entire laboratory. Strong emphasis placed on meeting State regulations as well as complying with NELAC standards. Performed internal audits on each department to confirm compliance with method requirements and laboratory quality standards. Implemented Corrective Action procedures based on results of internal audits. Reviewed and updated Standard Operating Procedures (SOPs) on an annual basis. Developed and implemented ethics training program. Ensured laboratory compliance with current State and Federal regulations. Evaluated laboratory compound lists and limits against various States' cleanup standards. Reviewed and approved all client QAPPs. Performed technical review of final reports prior to release to client. Resolved all client data inquiries. Maintained excellent relations with clients as well as State agencies through ongoing communication.

Authored technical memorandum delineating the analytical requirements for various agency regulatory programs. Used internally and as a resource for clients, these documents were created to ensure the laboratory analytical process complied with agency requirements.

Assisted with development, installation, and implementation of air analysis at the analytical level. Tasks included a comparative review of laboratory Standard Operation Procedures (SOPs) and agency approved methodologies, a review of method detection limits (MDLs), and coordination of the analyst-specific demonstration of capabilities necessary for certification. In addition, assisted with establishing analysis programs, reviewed data packages, and resolved client inquiries.

Reviewed project-specific QAPPs to confirm the laboratory's ability to achieve project goals. Verified QC tables, required reporting limits, and parameter lists. Identified QC requirements that could not be met by the lab and confirmed that the laboratory held the necessary certifications. Summarized project QAPP for use internally, identifying any anomalies affecting the sample preparation and analysis.

Prepared and presented technical seminars to clients detailing changes which

Education

BS, Environmental Science, Cook College, Rutgers University - New Brunswick, NJ

Professional Affiliations

CIANJ – Environmental Business Roundtable

NJ LSRPA – member

TNI – The NELAC Institute – member.

NEMC - National Environmental Monitoring Conference – session chair.

Chair, Environmental Laboratory Advisory Committee (ELAC) 2011.

Secretary, Environmental Laboratory Advisory Committee (ELAC) 2009-2010.

Certifications

Certified Environmental Analytical Chemist with the National Registry of Certified Chemists.

40-Hour OSHA Hazardous Waste Safety Training

had the potential to impact project needs. Topics included modifications to analytical methods, technical rules, and NELAC standards.

Chair/Secretary - New Jersey Environmental Laboratory Advisory Committee
Ms. Rossi held the positions of Chair (1yr) and Secretary (2yrs) of the New Jersey ELAC committee. During this time she actively contributed to the development and implementation of the NJ EPH method. She also co-chaired an analytical sub-committee that evaluated and recommended alternate methods for the analysis of 1,4-Dioxane. This effort led to the DEP offering certification for 1,4-Dioxane analysis by Method 8270 using isotopic dilution.

Project Manager
Managed projects for over 25 clients. Reviewed QAPPs to ensure laboratory met project and client needs. Efforts concentrated on coordinating sampling events with the laboratory, serving as technical resource for clients, meeting turn-around times and review and release of technically sound data.

Analyst/Manager
Performed analysis on various matrices for Volatile Organics, Semi-Volatile Organics, Total Petroleum Hydrocarbons and Petroleum Fingerprinting. Managed Volatile Organic and Semi-Volatile Organic departments. Ensured analyses were method compliant and were performed in accordance with project-specific requirements. Developed, implemented and trained laboratory personnel in laboratory-specific Standard Operating Procedures, focusing on good lab practices. Performed routine and non-routine maintenance of analytical instrumentation.

Professional Publications/Presentations:

“Uncertainty Associated with Field and Laboratory Activities”; CIANJ EBC Spring Conference presentation, May 2015.

Continuing Education/Specialized Training:

‘New Jersey DEP/Stroud Center Macroinvertebrate Fall Stream School, Rutgers University, October 2016.

“Advanced Petroleum Forensics”, Rutgers University, October 2013.

“Interpretation of Mass Spectra," conducted by Environmental Analytical Consulting, Inc., Edison, New Jersey, March 1990.