KOST ENVIRONMENTAL SERVICES, INC.

117 NORTH 6TH STREET, LINDENHURST, NEW YORK 11757-TELEPHONE (516)241-9856-FAX(631)239-5112

November 12, 2012

Mr. Jamie Ascher
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region One
Stony Brook University
50 Circle Road, Stony Brook, New York 11790-0248

Re: Glaro, Inc. #1-52-124
Revised Groundwater & Air Sampling Results Report: November 2012

Dear Mr. Ascher:
Reference is made to your correspondence of September 26, 2012 regarding comments pertaining to the previously submitted **Groundwater & Air Sampling Results Report: July 2012** and your request for the submission of a revised report and a mitigation work plan.

Attached are two copies of the revised report which also includes a section pertaining to the requested sub-slab mitigation work plan.

The following are replies to your comments noted in the September 26, 2012 correspondence:

- Sub-slab soil gas and indoor air sampling has revealed that the two exterior soil vapor extraction systems (SVES) are not effectively capturing sub-slab vapors or mitigating impacts to indoor air. In light of these samples results, please prepare and submit to the DEC and DOH a plan for additional mitigation measures.
  Comment: Section 4.0 of the revised Report includes the proposal for additional mitigation measures.

- A Data Usability Summary report has not yet been received for the referenced report. Please include one in the revised Groundwater & Air Sampling Results Report.
  Comment: The Data Usability Summary Report has been supplied under separate cover via a CD.

- Vacuum measurements were not reported as requested in DEC's February 7, 2012 letter. Please include them in the revised report.
  Comment: Vacuum measurements are included in Table 3 of the report located in the Appendix.

- Please include in the revised report a figure showing the locations of all previously installed exterior soil gas sampling points. Indicate whether they were temporary or permanent points and include a table presenting all sample results. The figure should clearly identify the site property boundaries relative to the building and the soil gas points. The DEC and DOH must make a determination as to whether the exterior soil gas sampling has adequately defined the areal extent of the soil gas plume or whether additional sampling is necessary.
  Comment: Figure 3 of the revised report indicate the site property boundaries relative to the building and soil gas points and the locations of all previously installed exterior soil gas sampling points which are all permanent. A table presenting all sample results will be provided shortly as soon as the environmental data is compiled in an approved electronic deliverables format.

- Please indicate in the revised report why no analytical results are available for groundwater monitoring well ML-8a.
  Comment: "Section 2 – Groundwater Results" of the revised report provides an explanation regarding ML-8a.

- Process exhaust samples collected from both the SVES should be used to prepare separate DAR-1 analyses to ensure that emissions are below the AGC/SGC limits. Please submit the analysis to Mr. Shaun Snee of the Division of Air Resources.
  Comment: Separate DAR-1 analyses have been submitted to Mr. Snee. Further discussions are needed regarding questions pertaining to modeling results. Section 6 of the revised report discusses this issue.

- Please include a figure in the revised report which calculates and describes the zone of influence based upon the vacuum measurements collected with both SVES operational.
  Comment: Figure 2 – Vacuum Contour Map, of the revised report indicates the zone of influence based upon vacuum measurements collected on November 15, 2010. Figure 3 indicates the site property boundaries.

- Pursuant to the DOH's Guidance for Evaluating Soil Vapor Intrusion in the State of New York, please confirm that the exhaust from the two SVES complies with Section 4.2.2.c.6 of the guidance and that exhaust is not being captured by the facility's HVAC system.
  Comment: Section 5 – Conformance To NYSDOH Section 4.2.2.c.6, addresses this issue.

- The DEC requires that all environmental data be submitted to the Department in the department approved electronic data deliverables format. Information on the format of data submissions can be found at: http://www.dec.ny.gov/chemical/62440.html. Information on document submission can be found at: http://www.dec.ny.gov/regulations/2586.html . **Comment: Environmental Assessment & Remediations (EAR) is presently compiling this data package and will be submitted within the next two weeks.**

If you have any questions regarding this submission feel free to contact me at (516) 241-9856.

Sincerely,

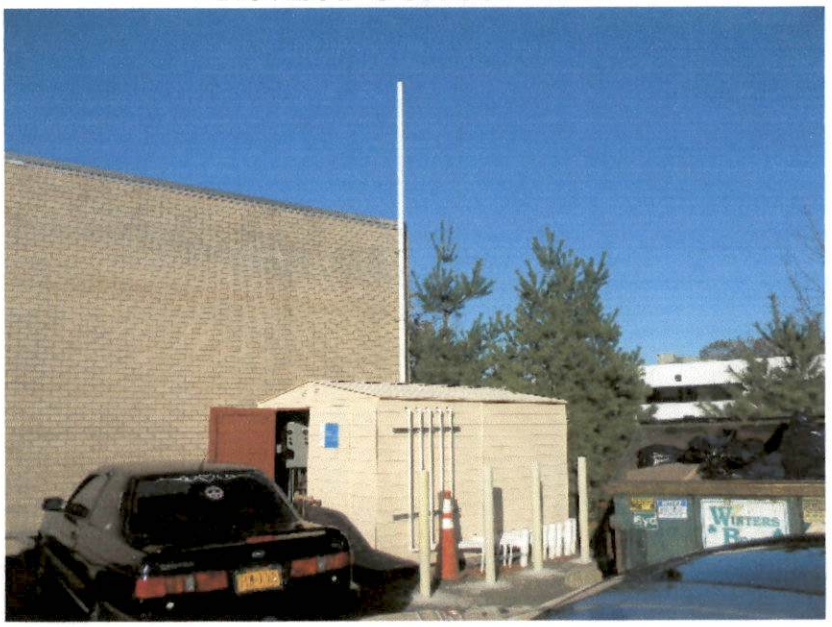
Darrel J. Kost P.E.

cc. N. Glass, Glaro

SUMMARY OF GROUNDWATER AND AIR SAMPLING RESULTS

For
GLARO, INC.
Site No. 152124
735 Old Willets Path
Hauppauge, New York 11788

July 2012
Revised October 2012



PREPARED FOR:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SUNY @ STONY BROOK
50 CIRCLE ROAD
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PREPARED BY:
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1.0 INTRODUCTION

Groundwater sampling of multi-level wells **ML-2 (A-I), ML-4 (A-I), ML-5 (A-I), ML-8 (B-G)** and monitoring well **MW-2** was performed as requested. Environmental Assessment & Remediation (EAR) performed the work (See Figure 1 - Site Plan).

In addition to the existing permanent interior sub-slab vapor points VMP-SS-1 through VMP-SS-4 , air sampling of additional interior temporary sub-slab vapor points (VP-4 thru VP-9) in the work area and interior ambient air in an office area (NW Indoor) was also performed as requested (See Figure 1 - Site Plan).

The additional interior temporary sub-slab vapor points were located in a grid-pattern approximately fifty (50) feet south of the north wall of the structure (VP-4 and VP-5), one-hundred (100) feet south of the north wall of the structure (VP-6 and VP-7) and one-hundred fifty (150) feet south of the north wall of the structure (VP-8 and VP-9). These locations were also located approximately seventy (70) feet and one-hundred forty (140) feet of the east wall of the structure, respectively. The temporary sub-slab vapor points were located in a concrete floor area with the monitoring points located no greater than 2" beneath the concrete slab. Sample collection was 0.125 litre/minute for eight hours.

An interior sampling point was identified as "Northwest Indoor" and was located in the northwesterly office area. The sampling point was located approximately 3' above the floor. Sample collection was 0.125 litre/minute for eight hours.

2.0 GROUNDWATER RESULTS

The analytical laboratory results for the groundwater sampling are summarized in the Appendix. The results were as follows regarding the sampling performed on 02/22/2012, 02/23/2012 and 02/24/2012:

ML-2 (A-I) (137'-138' to 74'-75') (02/23/2012)
No detectable concentrations greater than 1 ppb.

ML-4 (A-I) (74'-75' to 149'-150') (02/22/2012)
No detectable concentrations greater than 1 ppb except for:
1.2 ppb of tetrachloroethene @149-150' (ML-4I);

ML-5 (A-I) (74'-75' to 149'-150') (02/22/2012, 02/23/2012)
No detectable concentrations greater than 1 ppb.

ML-8 (B-G) (79-80' to 129'-130') (02/23/2012)
No detectable concentrations greater than 1 ppb.

There were no analytical results available for sampling location ML-8A due to a decrease to the depth of groundwater at the sampling point. The screened portion of ML-8A is between 69'-70'. The depth to groundwater at the time of sampling was 72.96 feet.

MW-2 @ 70'(02/24/2012)
No detectable concentrations greater than 1 ppb.

Analytical results including field blanks, trip blanks, etc. are also located in the Appendix of this report.

3.0 AIR SAMPLING RESULTS

Sub-Slab Vapor Results

Subsequent to the installation and sampling of sub-slab vapor points VMP-SS-1, VMP-SS-2, VMP-SS-3 and VMP-SS-4, six (6) additional temporary sub-slab vapor points (VP-4 thru VP-9) were installed in the work area in March and May of 2012. These vapor points were sampled with results indicating elevated concentrations of trichloroethene (30 ug/m3 to 1,000 ug/m3) and tetrachloroethene (14,000 ug/m3 to 23,000 ug/m3).

Vacuum measurements for sub-slab vapor points VMP-SS-1, VMP-SS-2, VMP-SS-3 and VMP-SS-4 are summarized in the Appendix. The vacuum measurements indicated that there was no influence on these sampling points.

Indoor Air Results

Indoor air sampling was also performed in an office area located in the northwest sector of the Glaro building. Sampling results indicated elevated concentrations of tetrachloroethene (190 ug/m3) and pentane (200 ug/m3).

Remediation System Exhausts

NORTH SYSTEM

The sampling results obtained from the north system exhaust stack indicated elevated concentrations of cis-1,2-dichloroethene (240 ug/m3), trichloroethene (640 ug/m3) and tetrachloroethene (1500 ug/m3).

EAST SYSTEM

The sampling results obtained from the east system exhaust stack indicated elevated concentrations of cis-1,2-dichloroethene (350 ug/m3), 1,1,1-trichloroethane (1200 ug/m3), trichloroethene (7600 ug/m3) and tetrachloroethene (26000 ug/m3).

The analytical laboratory results for the air sampling are summarized in the Appendix. Figure 1- Site Plan, indicates the locations of the various vapor points. The analysis utilized TO15 (CatB Deliverables) via 6 litre Suma canisters. The results were as follows:

Indoor Air – Northwest Office
Concentrations of significance were:
Pentane -200 ug/m3
Acetone – 31 ug/m3
Toluene – 32 ug/m3
Tetrachloroethene – 190 ug/m3

Sub-Slab (VP-4) (Temporary)
Concentrations of significance were:
Acetone – 27 ug/m3
Chloroform – 42 ug/m3
1,1,1-Trichloroethane – 56 ug/m3
Trichloroethene – 260 ug/m3
Tetrachloroethene – 21000 ug/m3

Sub-Slab (VP-5) (Temporary)
Concentrations of significance were:
Acetone – 31 ug/m3
Chloroform – 500 ug/m3
1,1,1-Trichloroethane – 31 ug/m3
Trichloroethene – 1000 ug/m3
Tetrachloroethene – 23000 ug/m3

Sub-Slab (VP-6) (Temporary)
Concentrations of significance were:
Acetone – 22 ug/m3
Trichloroethene – 250 ug/m3
Tetrachloroethene – 14000 ug/m3

Sub-Slab (VP-7) (Temporary)
Concentrations of significance were:
Acetone – 18 ug/m3
Chloroform – 500 ug/m3
1,1,1-Trichloroethane – 27 ug/m3
Trichloroethene – 460 ug/m3
Tetrachloroethene – 21000 ug/m3

Sub-Slab (VP-8) (Temporary)
Concentrations of significance were:
Acetone – 21 ug/m3
1,1,1-Trichloroethane – 41 ug/m3
Trichloroethene – 340 ug/m3
Tetrachloroethene – 14000 ug/m3

Sub-Slab (VP-9) (Temporary)
Concentrations of significance were:
1,1,1-Trichloroethane – 17 ug/m3
Trichloroethene – 30 ug/m3
Tetrachloroethene – 17000 ug/m3

North System Exhaust
Concentrations of significance were:
Cis-1,2-dichloroethene – 240 ug/m3
Trichloroethene – 640 ug/m3
Tetrachloroethene – 1500 ug/m3

East System Exhaust
Concentrations of significance were:
Freon 113 – 110 ug/m3
Cis-1,2-dichloroethene – 350 ug/m3
1,1,1-trichloroetane – 1200 ug/m3
Trichloroethene – 7600 ug/m3
Tetrachloroethene – 26000 ug/m3

4.0 SUB-SLAB DEPRESSURIZATION SYSTEM (SSD) PROPOSAL

Conduct quantitative diagnostic test to determine air flow characteristics and capacity of materials beneath the slab.

Diagnostic testing will be conducted by drilling small diameter holes through the building slab, applying a vacuum to one hole, and measuring pressure drops at surrounding holes. The object of the diagnostic test testing will be to investigate and evaluate the development of a negative pressure field, via the induced movement of soil gases beneath the slab. This information will be used to determine the number and location of needed system extraction points. Pressure testing will provide a direct and quantitative means to measure a negative pressure field. Diagnostic extraction holes Typically .75" diameter, and test holes, typically .375" to .625", will be placed at representative locations, such that the size of the effective pressure field under the slab can be evaluated.

A "shop vac" will be used to pump soil gas from the extraction hole (and vented to the outside). The pressure drop and flow rate at this extraction point will be monitored and recorded. The pressure drop at the test holes will be measured qualitatively with a pressure gauge. Following the test, the extraction and most of the test holes will be sealed with a Portland cement grout. After the installation of the SSD system the unsealed test holes can be used to demonstrate the establishment of a negative pressure field.

Location and Construction of Extraction Points

Final system extraction points will be located based upon pressure test results, to ensure a sub-slab negative pressure field under the entire building. Extraction points are constructed by drilling or cutting holes through the building slab making sure that any vapor barriers are breached and the sub slab materials are encountered. A 10 to 20" diameter pit should be excavated at the extraction point points to a depth of around 10", then backfilled with crushed stone around the extraction pipe. The extraction hole is then

patched using mortar, to ensure a good seal. The pit will enhance the pressure field any water vapor condensation in the piping can run back into the subsoil. Differential settlement may occur over time beneath a poured slab creating interconnected void spaces. Car will be taken to intercept any thin void zone that is beneath the slab.

Fan and Piping Design

Based on the prior observations the sub-slab material characteristics are relatively permeable sub-soils. The diagnostic test will determine the type of fan or blower to be used for the SSD system. It is anticipated that a low vacuum will be needed to produce a negative pressure field. Typically an in-line centrifugal fan unit is used. These units are simple, quiet, inexpensive and consumes minimal power. Typically, these units are capable of inducing 0 – 4 inches of water vacuum, while moving 50 to 300 cfm of air. A fan selected for this site will have performance characteristics suited (or optimally suited) for the site specific conditions.

Four inch diameter PVC piping will be used for the low pressure/high flow SSD system. Fans placed inside the building will be placed to minimize the amount of discharge piping inside the building.

System Gauges

An in-line pressure gauge will be installed on every unit. Each gauge will have lines or marks showing acceptable vacuum levels.

5.0 CONFORMANCE TO NYSDOH SECTION 4.2.2.c.6

Section 4.2.2.c.6 of the **NYSDOH Soil Vapor Intrusion Guidance** indicates the following criteria "to avoid entry of extracted subsurface vapors into the building, the vent pipe's exhaust should be

i. above the eave of the roof (preferably, above the highest eave of the building at least 12 inches above the surface of the roof)

ii. at least 10 feet above ground level,

iii. at least 10 feet away from any opening that is less than 2 feet below the exhaust point, and

iv. 10 feet from any adjoining or adjacent buildings, or HVAC intakes or supply registers."

The two (2) exhaust pipes that are located on the northerly and easterly sides of the Glaro structure satisfy and exceed the above-noted criteria (See Appendix - Photolog for photos of systems).

6.0 DAR-1 ANALYSES FOR SVE SYSTEMS

The process exhaust samples were collected from both SVE systems and have been analyzed separately in conformance with DAR-1 requirements. The analyses have been submitted to the Region One Division of Air Resources (DAR) under separate cover for their review. Further discussions with the Region One DAR are needed to resolve various issues regarding modeling techniques and conclusions differing between the consultant (Environmental Assessment & Remediations – EAR) and the Region One DAR.

A summary of the DAR-1 submission and subsequent comments is as follows: As part of the facility registration application, a DAR-1 analysis was conducted for the two soil vapor extraction systems operating on the Glaro Inc property. All chemicals reported above detection from effluent air samples collected on 11/15/2010 were compared with applicable guidance concentrations utilizing the DAR-1 software program (version 3.6). The submitted file contained screening analyses input and output for each system individually, as well as combined discharge.

DAR-1 evaluation conducted for the North System (Sys 1) indicated that all chemicals are within guidance values. DAR-1 evaluations conducted for the East System (Sys 2), and "Combined" indicates that all chemicals are within the guidance values, except for tetrachloroethene (cas# 127-18-4). Please note that the submitted file included DAR-1 step-by-step summaries for the three discharge scenarios, for tetrachloroethene.

For both the East System (Sys 2), and "Combined" the input parameters were carried through to the ISCLT2 model. The ISCLT2 input questions under both discharge scenarios have also been included in the submitted file for review.

Model output under both discharge scenarios, and within both "Urban" and "Rural" settings indicated that the modeled concentrations of tetrachloroethene are within acceptable discharge standards.

The DAR-1 documents/analyses for the two remediation systems at Glaro, including the Air facility Registration signed by Glaro was submitted in April 2011. A request was made to send documentation to the Regional Air Engineer, with a comment indicating that no permit will be required since remedial work is being done under consent order with DER. However, the air emissions from the systems might require carbon treatment.

Upon review of the DAR-1 analyses, the final DEC response was as follows:
-the emissions should be below the AGC and SGC numbers
-there is no requirement for a permit or registration, since DEC is providing oversight
-based on the modeling, the project design needs to be changed to bring the concentrations within the AGC/SGC limits. DAR reviewed the DAR-1 and ISCLT2 software programs and found no errors with the input datasets or methodology. Please use the previously submitted file for reference (Glaro-Haupp compiled DAR-1 ISCLT2.pdf).

East system emissions: given the input parameters listed on page 9, tetrachloroethylene (127-18-4) is flagged by the DAR-1 screening method. This is due to an exceedence of the applicable discharge limits illustrated on pages 7 & 8; a "screening level failure" is indicated in red (bold-faced), and a "possible failure" in white (bold-faced). Results are expressed as a percentage of the AGC/SGC, chemical concentration (ug/m3), and emissions (lb/year). Following the DAR-1 user's guide document, when the screening method reports that a potential and/or actual annual impact exceeds an agc or annual standard, the input parameters

should be verified. Pages 10 & 11 list the input parameters and model run sequence for the east system tetrachloroethylene discharge. Since no errors were detected, following the user's guide, a refined analysis using the DAR-1 ISCLT2 model was conducted. The USEPA's Industrial Source Complex Long Term 2model calculates annual concentrations, concentration/agc ratios, inhalation cancer risks, and inhalation hazard indices for one or more grid receptor displays. In addition, ISCLT2 reduces the conservatism of the screening method. For example, if a stack height is short (less than 33 feet) or very small (less than 10 feet), the predicted impact may be greatly exaggerated (low plume height). A stack height of 28 feet was used for all east system simulations. In an effort to resolve potential compliance problems, the more refined ISCLT2 was run for tetrachloroethylene with the input parameters listed on page 13. The grids displayed on page 14 indicate the receptor impacts from the source under two settings, rural and urban. Receptor coefficients are presented in a 13 x 8 modeling grid and the exponential power of ten is shown in the title of the display. The blue highlighted values are the model-estimated, maximum concentrations for the rural and urban settings. These maximum values (rural=0.36 ug/m3 & urban=0.51 ug/m3) are less than the agc for tetrachloroethylene (1 ug/m3).tetrachloroethylene concentration summary for east system effluent: lab-reported concentration = 29,000 ug/m3 screening level actual annual concentration = 2.058 ug/m3 (greater than agc of 1.0 ug/m3) ISCLT2 maximum concentration = 0.51 ug/m3 (urban), 0.36 ug/m3 (rural) (less than agc of 1.0 ug/m3).

7.0 FINDINGS

The following findings are based upon the previously discussed groundwater sampling, sub-slab vapor sampling and interior air sampling:

GROUNDWATER

NORTH SYSTEM

The groundwater contamination associated with the original spill event located on the northwesterly sector of the property concerning trichloroethylene and tetrachloroethylene has been adequately remediated (North System) with respect to groundwater standards. The March 2010 and February 2012 groundwater results for sampling points MW-2 and ML-2 continue to indicate no concentrations in excess of the "New York State Ambient Water Quality Standards and/or Guidance Values" (TOGS 1.1.1).

EAST SYSTEM

The groundwater contamination associated with the most recently identified source area at leaching basin SD-3 indicated the area of contamination to terminate at the approximate location of multi-level well ML-8. Concentrations obtained from the March 2010 sampling indicated concentrations of tetrachloroethene and trichloroethylene ranging from 15 ppb to 120 ppb (ML-8B). Subsequent to the March 2010 sampling the East Remediation System was installed and made operational. The February 2012 groundwater results for the monitoring locations situated directly down-gradient from the spill source at SD-3 indicated no concentrations in excess of the "New York State Ambient Water Quality Standards and/or Guidance Values" (TOGS 1.1.1). the highest concentration detected was 1.2 ppb of tetrachloroethene at ML-4I.

SUB-SLAB VAPOR MONITORING

Sub-slab vapor monitoring was performed at six (6) temporary locations within the work area as designated on the Site Plan. The results from the monitoring points indicated elevated concentrations of tetrachloroethene and trichloroethene at all six locations. Based upon these concentrations and the radius of influence measured and calculated for the SVE systems, a **Sub-Slab Depressurization System (SSD)** protocol has been developed and submitted within this report for review and comment.

INTERIOR AIR SAMPLING

Indoor air sampling was also performed in an office area located in the northwest sector of the Glaro building. Sampling results indicated elevated concentrations of tetrachloroethene and pentane. Additional sampling will be performed.

DAR-1 ANALYSES FOR SVE SYSTEMS

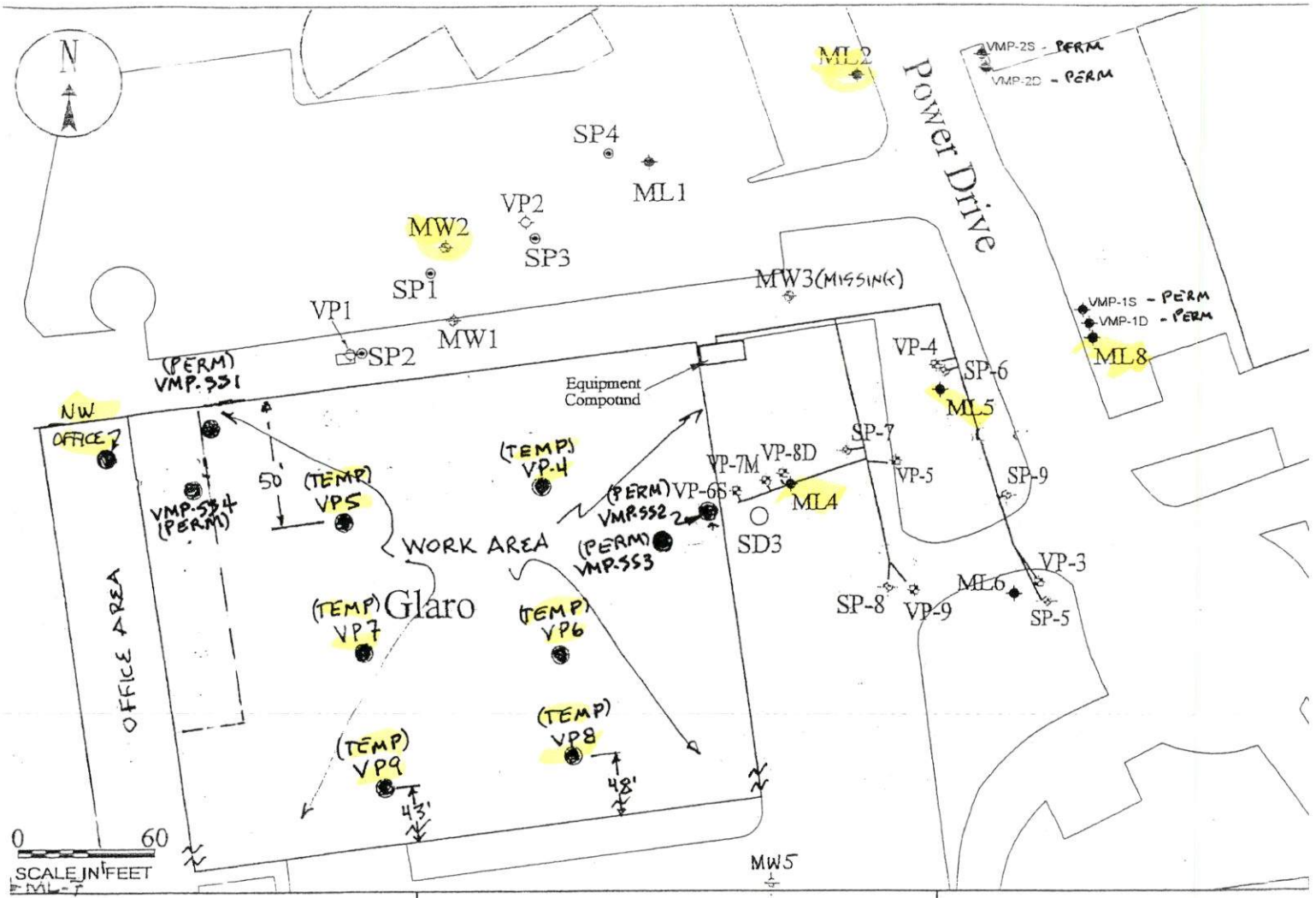
Further discussions with the Region One DAR are needed to resolve various issues regarding modeling techniques and conclusions differing between the consultant (Environmental Assessment & Remediations – EAR) and the DEC Region One DAR.

CONFORMANCE TO NYSDOH SECTION 4.2.2.c.6

The two (2) system exhausts that are located on the northerly and easterly sides of the Glaro structure satisfy and exceed the criteria established by Section 4.4.4.c.6

APPENDIX

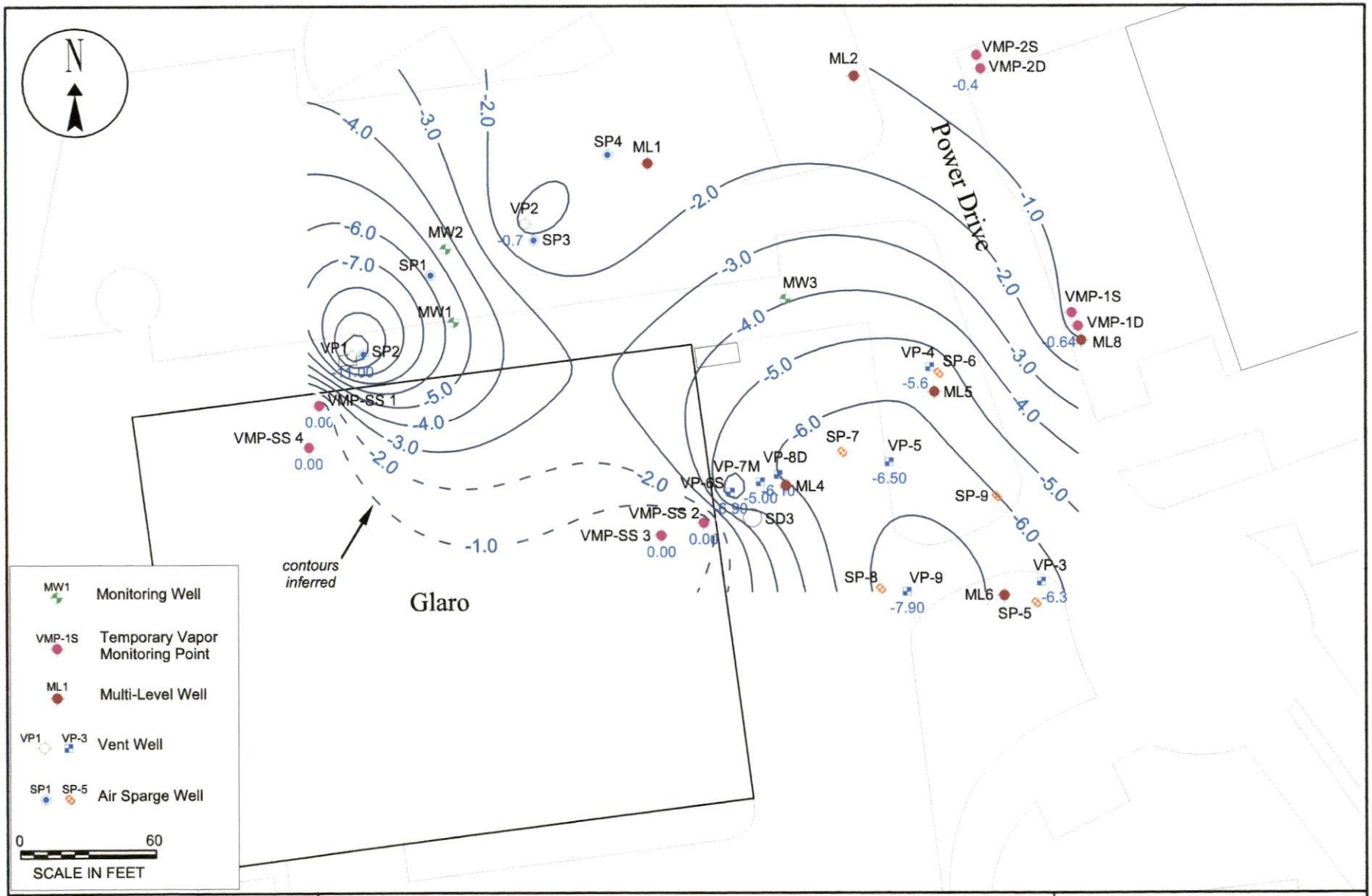
FIGURES



SITE PLAN

GLARO INCORPORATE
735 Calebs Path
Hauppauge NY, 11788

FIGURE 1

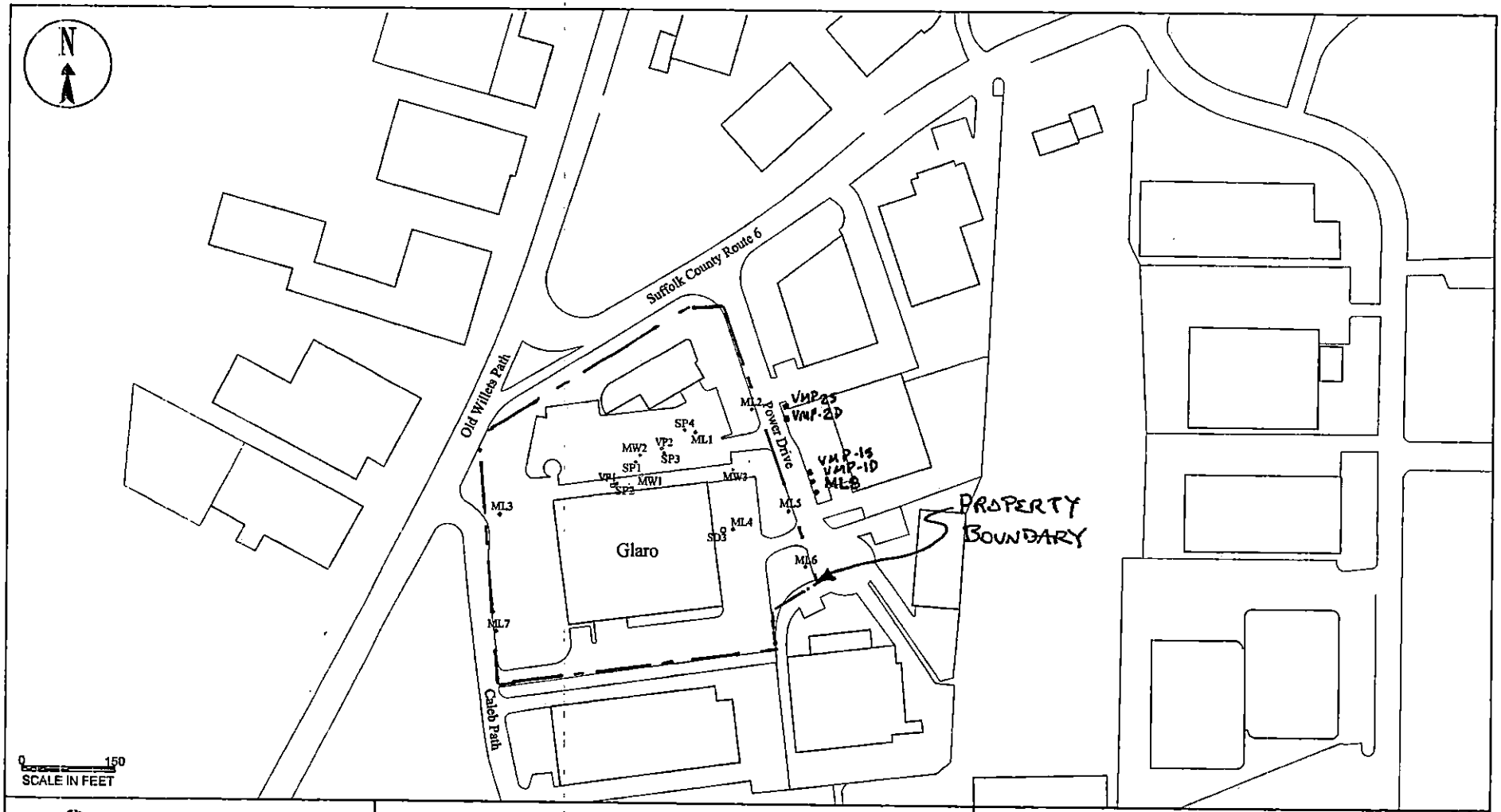


Observed Vacuum Contour Map
November 15, 2010

(vacuum units reported as inches of water)

GLARO INCORPORATED
735 Calebs Path
Hauppauge NY, 11788

FIGURE 2



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SITE PROPERTY BOUNDARY
Area Map

GLARO INCORPORATED
735 Old Willets Path
Hauppauge NY, 11788

FIGURE 3

TABLES

TABLE 1
GROUNDWATER ANALYTICAL RESULTS

735 Calebs Path
Hauppauge, NY
Spill # 1-52-124

ENVIRONMENTAL ASSESSMENT & REMEDIATIONS

Groundwater Analytical Results (February 22-24, 2012)
TestAmerica, Inc. - EPA Method 8260

Location	Date	Time Collected	1,1 Dichloroethane	1,1,1 Trichloroethar	Carbon Disulfide	cis-1,2-Dichloroeth	Ethylbenzene	t butylmethylether	Tetrachloroethene	Trichloroethlyene	Xylenes Total	Calculated Total VOC's	Calculated Total BTEX
ML-2A	2/23/2012	12:30 PM	<1	<1	<1	<1	<1	0.66 J	0.52 J	0.43 J	<3	1.61	<6
ML-2B	2/23/2012	12:50 PM	<1	<1	<1	<1	<1	1	0.52 J	0.27 J	<3	1.79	<6
ML-2C	2/23/2012	1:05 PM	<1	<1	<1	<1	<1	0.24 J	0.33 J	0.15 J	<3	0.72	<6
ML-2D	2/23/2012	1:20 PM	<1	<1	<1	<1	<1	<1	0.16 J	0.17 J	<3	0.33	<6
ML-2E	2/23/2012	1:30 PM	<1	<1	<1	<1	<1	<1	<1	<1	<3	<67	<6
ML-2F	2/23/2012	1:38 PM	<1	<1	<1	<1	<1	<1	0.21 J	0.15 J	<3	0.36	<6
ML-2G	2/23/2012	1:46 PM	<1	<1	<1	<1	<1	<1	<1	<1	<3	<67	<6
ML-2H	2/23/2012	1:58 PM	<1	<1	<1	<1	<1	<1	<1	0.11 J	<3	0.11	<6
ML-2I	2/23/2012	2:15 PM	<1	0.21 J	<1	<1	<1	<1	0.77 J	0.55 J	<3	1.53	<6
ML-4A	2/22/2012	9:30 AM	2.1	<1	<1	0.31 J	0.17 J	<1	0.35 J	0.23 J	0.47 J	3.63	0.64 J
ML-4B	2/22/2012	10:12 AM	<1	<1	<1	<1	<1	<1	0.12 J	<1	<3	0.12	<6
ML-4C	2/22/2012	10:27 AM	<1	<1	<1	<1	<1	<1	<1	<1	<3	<67	<6
ML-4D	2/22/2012	10:45 AM	<1	<1	<1	<1	<1	<1	0.13 J	<1	<3	0.13	<6
ML-4E	2/22/2012	10:58 AM	<1	<1	<1	<1	<1	0.19 J	0.23 J	<1	<3	0.42	<6
ML-4F	2/22/2012	11:17 AM	<1	<1	0.13 J	<1	<1	0.16 J	0.34 J	<1	<3	0.63	<6
ML-4G	2/22/2012	11:40 AM	<1	<1	<1	<1	<1	0.24 J	0.28 J	<1	<3	0.52	<6
ML-4H	2/22/2012	12:05 PM	<1	<1	<1	<1	<1	0.51 J	0.54 J	0.2 J	<3	1.25	<6
ML-4I	2/22/2012	1:00 PM	<1	<1	<1	<1	<1	0.26 J	1.2	0.45 J	<3	1.91	<6
ML-5A	2/22/2012	1:55 PM	<1	<1	<1	<1	0.15 J	<1	0.23 J	<1	<3	0.38	0.15
ML-5B	2/22/2012	1:33 PM	<1	<1	<1	<1	<1	<1	<1	<1	<3	<67	<6
ML-5C	2/22/2012	1:50 PM	<1	<1	<1	<1	<1	<1	<1	<1	<3	<67	<6
ML-5D	2/22/2012	2:08 PM	<1	<1	<1	<1	<1	<1	0.32 J	0.23 J	<3	0.55	<6
ML-5E	2/23/2012	8:45 AM	<1	<1	<1	<1	<1	0.19 J	0.54 J	0.35 J	<3	1.08	<6
ML-5F	2/23/2012	8:57 AM	<1	<1	<1	<1	<1	0.19 J	0.27 J	<1	<3	0.46	<6
ML-5G	2/23/2012	9:14 AM	<1	<1	<1	<1	<1	0.19 J	0.35 J	<1	<3	0.54	<6
ML-5H	2/23/2012	9:35 AM	<1	<1	<1	<1	<1	0.36 J	0.32 J	0.16 J	<3	0.84	<6
ML-5I	2/23/2012	9:45 AM	<1	<1	<1	<1	<1	0.33 J	0.39 J	<1	<3	0.72	<6
ML-8B	2/23/2012	11:28 AM	<1	<1	<1	<1	<1	<1	0.25 J	<1	<3	0.25	<6
ML-8C	2/23/2012	10:27 AM	<1	<1	<1	<1	<1	<1	<1	<1	<3	<67	<6
ML-8D	2/23/2012	10:45 AM	<1	<1	<1	<1	<1	<1	<1	<1	<3	<67	<6
ML-8E	2/23/2012	10:58 AM	<1	<1	<1	<1	<1	<1	<1	<1	<3	<67	<6
ML-8F	2/23/2012	11:15 AM	<1	<1	<1	<1	<1	0.44 J	0.25 J	<1	<3	0.69	<6
ML-8G	2/23/2012	11:40 AM	<1	<1	<1	<1	<1	0.19 J	0.26 J	<1	<3	0.45	<6
MW-2	2/24/2012	8:50 AM	<1	<1	0.48 J	0.62 J	<1	<1	0.64 J	0.74 J	<3	2.48	<6

NYSDEC TOGS111 ClassGA Standard	5	5	n/a	5	5	n/a	5	5	n/a	n/a	n/a
NYSDEC TOGS111 ClassGA Guidance	n/a	n/a	60	n/a	n/a	10	n/a	n/a	n/a	n/a	n/a

Notes:

J - Indicates an estimated value below laboratory reporting limits

n/a - Not applicable. Analyzed value w/ no established value

The following analytes were not detected in concentrations above the method detection limit:

1,1 Dichloroethene	2-Hexanone	Chloroethane	Methyl acetate
1,1,2 Trichloroethane	4-Methyl-2-Pentanone	Chloroform	Methyl Ethyl Ketone
1,1,2,2 Tetrachloroethane	Acetone	Chloromethane	Methylene Chloride
1,2 Dibromoethane	Benzene	Cyclohexane	Styrene
1,2 Dichlorobenzene	Bromodichloromethane	Cyclohexane, methyl-	t 1,3 Dichloropropene
1,2 Dichloroethane	Bromoform	Dibromochloromethane	Toluene
1,2 Dichloropropane	Bromomethane	Dibromochloropropane	trans-1,2-Dichloroethene
1,2,4 Trichlorobenzene	c 1,3 Dichloropropene	Dichlorodifluoromethane	Trichlorofluoromethane
1,3 Dichlorobenzene	Carbon Tetrachloride	Freon 113	Vinyl Chloride
1,4 Dichlorobenzene	Chlorobenzene	Isopropylbenzene	

735 Calebs Path
Hauppauge, NY
Spill # 1-52-124

ENVIRONMENTAL
ASSESSMENT &
REMEDIATIONS

Groundwater Analytical Results (February 22-24, 2012)
TestAmerica, Inc. - EPA Method 8260
QA/QC Sample Results

Location	Trip Blank	Trip Blank	Trip Blank	Field Blank	Field Blank	ML-4 (MS)
Date Collected	2/22/2012	2/23/2012	2/24/2012	2/23/2012	2/24/2012	2/22/2012
Time Collected	-	-	-	8:20 AM	9:00 AM	9:09 AM
1,1 Dichloroethane	<1	<1	<1	<1	<1	<1
1,1 Dichloroethene	<1	<1	<1	<1	<1	<1
1,1,1 Trichloroethane	<1	<1	<1	<1	<1	<1
1,1,2 Trichloroethane	<1	<1	<1	<1	<1	<1
1,1,2,2 Tetrachloroethane	<1	<1	<1	<1	<1	<1
1,2 Dibromoethane	<1	<1	<1	<1	<1	<1
1,2 Dichlorobenzene	<1	<1	<1	<1	<1	<1
1,2 Dichloroethane	<1	<1	<1	<1	<1	<1
1,2 Dichloropropane	<1	<1	<1	<1	<1	<1
1,2,4 Trichlorobenzene	<1	<1	<1	<1	<1	<1
1,3 Dichlorobenzene	<1	<1	<1	<1	<1	<1
1,4 Dichlorobenzene	<1	<1	<1	<1	<1	<1
2-Hexanone	<5	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<5	<5	<5	<5	<5	<5
Acetone	<5	<5	<5	<5	<5	<5
Benzene	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1
c 1,3 Dichloropropene	<1	<1	<1	<1	<1	<1
Carbon Disulfide	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1
Chloroform	**0.27 J**	**0.25 J**	**0.23 J**	**0.23 J**	**0.21 J**	**0.32 J**
Chloromethane	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
Cyclohexane	<1	<1	<1	<1	<1	<1
Cyclohexane, methyl-	<1	<1	<1	<1	<1	<1
Dibromochloromethane	<1	<1	<1	<1	<1	<1
Dibromochloropropane	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	<1

735 Calebs Path
Hauppauge, NY
Spill # 1-52-124

ENVIRONMENTAL
ASSESSMENT &
REMEDIATIONS

Groundwater Analytical Results (February 22-24, 2012)
TestAmerica, Inc. - EPA Method 8260
QA/QC Sample Results

Location	Trip Blank	Trip Blank	Trip Blank	Field Blank	Field Blank	ML-4 (MS)
Date Collected	2/22/2012	2/23/2012	2/24/2012	2/23/2012	2/24/2012	2/22/2012
Time Collected	-	-	-	8:20 AM	9:00 AM	9:09 AM
Freon 113	<1	<1	<1	<1	<1	<1
Isopropylbenzene	<1	<1	<1	<1	<1	<1
Methyl acetate	<2	<2	<2	<2	<2	<2
Methyl Ethyl Ketone	<5	<5	<5	<5	<5	<5
Methylene Chloride	**2**	**1.9**	**1.9**	**2.1**	**2**	**2.2**
Styrene	<1	<1	<1	<1	<1	<1
t 1,3 Dichloropropene	<1	<1	<1	<1	<1	<1
t butylmethylether	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1	<1
Trichloroethlyene	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1
Vinyl Chloride	<1	<1	<1	<1	<1	<1
Xylenes Total	<3	<3	<3	<3	<3	<3
Calculated						
Total VOC	**2.27**	**2.15**	**2.13**	**2.33**	**2.21**	**2.52**
Total BTEX	<6	<6	<6	<6	<6	<6

Notes:
J - Indicates an estimated value below laboratory reporting limits

TABLE 2
AIR SAMPLING ANALYTICAL RESULTS

LOCATION	NW OFFICE INDOOR	NORTH SYSTEM EXHAUST	EAST SYSTEM EXHAUST	VP-4	VP-5	VP-6	VP-7	VP-8	VP-9
DATE COLLECTED	03/01/12	03/01/12	03/01/12	03/06/12	03/06/12	03/09/12	03/09/12	05/31/12	05/31/12
DICHLORODIFLUOROMETHANE	4.2	3.3							
CHLORODIFLUOROMETHANE		1.1							
FREON 114									8.7
CHLOROMETHANE	1.5	1.9							
VINYL CHLORIDE		6.4							
1,3-BUTADIENE									
BROMOMETANE									
CHLOROETHANE									
DICHLOROFLUOROMETHANE									
TRICHLOROFLUOROMETHANE	2	1.6	16						
PENTANE	200	3.3	12						
1,1-DICHLOROETHENE		1.2							
FREON 113			110						
ACETONE	31	12	19	27	31	22	18	21	
CARBON DISULFIDE									
3-CHLOROPROPENE									
METHYLENE CHLORIDE	5.2	0.89							
TRANS-1,2-DICHLOROETHENE			14						
METHYL T-BUTYL ETHER									
HEXANE	8.7								
1,1-DICHLOROETHANE			33						
CIS-1,2-DICHLOROETHENE		240	350						
2-BUTANONE	3.5	1.5	18	22	20	16	15		17
CHLOROFORM				42	500	9.8	15		
1,1,1-TRICHLOROETHANE		2.8	1200	56	31	22	27	41	17
CARBON TETRACHLORIDE			37						
1,2-DICHLOROETHANE									
BENZENE	1.2	0.73							
ISOOCTANE									
HEPTANE									
TRICHLOROETHENE		640	7600	260	1000	250	460	340	30

TABLE 2
AIR SAMPLING RESULTS

	NW OFFICE INDOOR	NORTH SYSTEM EXHAUST	EAST SYSTEM EXHAUST	VP-4	VP-5	VP-6	VP-7	VP-8	VP-9
DATE COLLECTED	03/01/12	03/01/12	03/01/12	03/06/12	03/06/12	03/09/12	03/09/12	05/31/12	05/31/12
1,2-DICHLOROPROPANE									
DIBROMOMETHANE									
BROMODICHLOROMETHANE									
CIS-1,3-DICHLOROPROPENE									
4-METHYL-2-PENTANONE									
TOLUENE	32	3.4							
OCTANE									
TRANS-1,3-DICHLOROPROPENE									
1,1,2-TRICHLOROETHANE									
TETRACHLOROETHENE	190	1500	26000	21000	23000	14000	21000	14000	17000
2-HEXANONE									
DIBROMOCHLOROMETHANE									
1,2-DIBROMOETHANE									
CHLOROBENZENE									
1,1,1,2-TETRACHLOROETHANE									
ETHYLBENZENE									
M/P-XYLENE	1.4	1.9							
O-XYLENE									
STYRENE									
BROMOFORM									
CUMENE									
1,1,2,2-TETRACHLOROETHANE									
1,2,3-TRICHLOROPROPANE									
BROMOBENZENE									
4-ETHYLTOLUENE	1.4								
1,3,5-TRIMETHYLBENZENE	1.3	3.2							
1,2,4-TRIMETHYLBENZENE	3.8	31							
1,3-DICHLOROBENZENE									
1,4-DICHLOROBENZENE									
1,2-DICHLOROBENZENE									
HEXACHLOROETHANE									

TABLE 2
AIR SAMPLING RESULTS

TABLE 3
SUB-SLAB VACUUM MEASUREMENTS

Glaro Inc.
735 Calebs Path
Hauppauge, NY

SYSTEMS START-UP VACUUM READINGS

Sample Point	Date vac reading (inches H2O) 11/15/2010	Date vac reading (inches H2O) 11/18/2010	Date vac reading (inches H2O) 11/24/2010	Description
SS-1	0.00	0.00	NR	Temporary vapor sampling point
SS-2	0.00	0.00	NR	Temporary vapor sampling point
SS-3	0.00	0.00	NR	Temporary vapor sampling point
SS-4	0.00	0.00	NR	Temporary vapor sampling point
VMP-1S	-0.25	0.00	-0.37	Permanent vapor sample point
VMP-1D	-0.64	-0.02	-0.75	Permanent vapor sample point
VMP-2S	-0.31	-0.06	-0.36	Permanent vapor sample point
VMP-2D	-0.40	-0.06	-0.40	Permanent vapor sample point
VP-1	-11.00	-6.70	-3.20	Soil Vapor Extraction Well
VP-2	-0.7	NR	NR	Soil Vapor Extraction Well
VP-3	-6.30	-11.00	-14.90	Soil Vapor Extraction Well
VP-4	-5.80	-9.90	-13.20	Soil Vapor Extraction Well
VP-5	-6.60	-10.60	-13.10	Soil Vapor Extraction Well
VP-6S	-5.80	-16.60	-21.40	Soil Vapor Extraction Well
VP-7M	-5.50	-10.30	-10.20	Soil Vapor Extraction Well
VP-8D	-6.20	-10.30	-12.30	Soil Vapor Extraction Well
VP-9	-8.60	-13.60	-16.00	Soil Vapor Extraction Well

SS Interior sub slab sample location
VMP Exterior vapor monitoring points
VP System vapor extraction points
NR No Reading

2012 Sub Slab Sampling

Sample Point	Date samples	Type of sample point
VP-4 (SS-4)	3/6/2012	Temporary
VP-5 (SS-5)	3/6/2012	Temporary
VP-6 (SS-6)	3/9/2012	Temporary
VP-7 (SS-7)	3/9/2012	Temporary
VP-8 (SS-8)	5/31/2012	Temporary
VP-9 (SS-9)	5/31/2012	Temporary

VP-4 thru VP-9 are Sub Slab Sample locations

Glaro Inc.
735 Calebs Path
Hauppauge, NY

Soil Vapor Extraction Systems Start-up Test - November 15, 2010

Location	System	Time	Vacuum Reading	Time	Vacuum Reading	Time	Vacuum Reading	Time	Vacuum Reading
SS-1	NS	9:05	0.00	10:20	0.00	11:15	0.00	12:30	0.00
SS-2	ES		0.00		0.00		0.00		0.00
SS-3	ES		0.00		0.00		0.00		0.00
SS-4	NS		0.00		0.00		0.00		0.00
VMP-1S	ES		-0.60		-0.29		-0.25		-0.25
VMP-1D	ES		-1.00		-0.65		-0.62		-0.64
VMP-2S	ES		-0.70		-0.27		-0.24		-0.31
VMP-2D	ES		-0.70		-0.34		-0.32		-0.40
VP-1	NS		-12.00		-11.00		-11.20		-11.00
VP-2	NS		-0.60		-0.70		-0.60		-0.70
VP-3	ES		-7.40		-0.63		-6.50		-6.30
VP-4	ES		-4.70		-5.70		-5.20		-5.60
VP-5	ES		-7.10		-6.60		-6.80		-6.50
VP-6S	ES		-6.40		-5.80		-6.30		-6.90
VP-7M	ES		-6.70		-5.50		-4.90		-5.00
VP-8D	ES		-6.40		-6.20		-5.90		-6.10
VP-9	ES		-8.30		-8.60		-8.30		-7.90

NS - North System
ES-East System
SS - Temporary Sub Slab Sample Point
VMP - Permenant Exterior Vapor Monitoring
VP - System Vapor Extraction Point

Technicians - Pat Benedetto, Matt Martino
Instuments - Digi-Mano 152501, 152507

SUB-SLAB DEPRESSURIZATION SYSTEM (SSD) PROPOSAL

Glaro Inc.
735 Calebs Path
Hauppauge, NY

#1-52-124

Mitigate Sub Slab Vapors: SUB-SLAB DEPRESSURIZATION SYSTEM (SSD)

Conduct quantitative diagnostic test to determine air flow characteristics and capacity of materials beneath the slab.

Diagnostic testing will be conducted by drilling small diameter holes through the building slab, applying a vacuum to one hole, and measuring pressure drops at surrounding holes. The object of the diagnostic test testing will be to investigate and evaluate the development of a negative pressure field, via the induced movement of soil gases beneath the slab. This information will be used to determine the number and location of needed system extraction points. Pressure testing will provide a direct and quantitative means to measure a negative pressure field. Diagnostic extraction holes Typically .75" diameter, and test holes, typically .375" to .625", will be placed at representative locations, such that the size of the effective pressure field under the slab can be evaluated.

A "shop vac" will be used to pump soil gas from the extraction hole (and vented to the outside). The pressure drop and flow rate at this extraction point will be monitored and recorded. The pressure drop at the test holes will be measured qualitatively with a pressure gauge. Following the test, the extraction and most of the test holes will be sealed with a Portland cement grout. After the installation of the SSD system the unsealed test holes can be used to demonstrate the establishment of a negative pressure field.

Location and Construction of Extraction Points

Final system extraction points will be located based upon pressure test results, to ensure a sub-slab negative pressure field under the entire building. Extraction points are constructed by drilling or cutting holes through the building slab making sure that any vapor barriers are breached and the sub slab materials are encountered. A 10 to 20" diameter pit should be excavated at the extraction point points to a depth of around 10", then backfilled with crushed stone around the extraction pipe. The extraction hole is then patched using mortar, to ensure a good seal. The pit will enhance the pressure field any water vapor condensation in the piping can run back into the subsoil. Differential settlement may occur over time beneath a poured slab creating interconnected void spaces. Car will be taken to intercept any thin void zone that is beneath the slab.

Fan and Piping Design

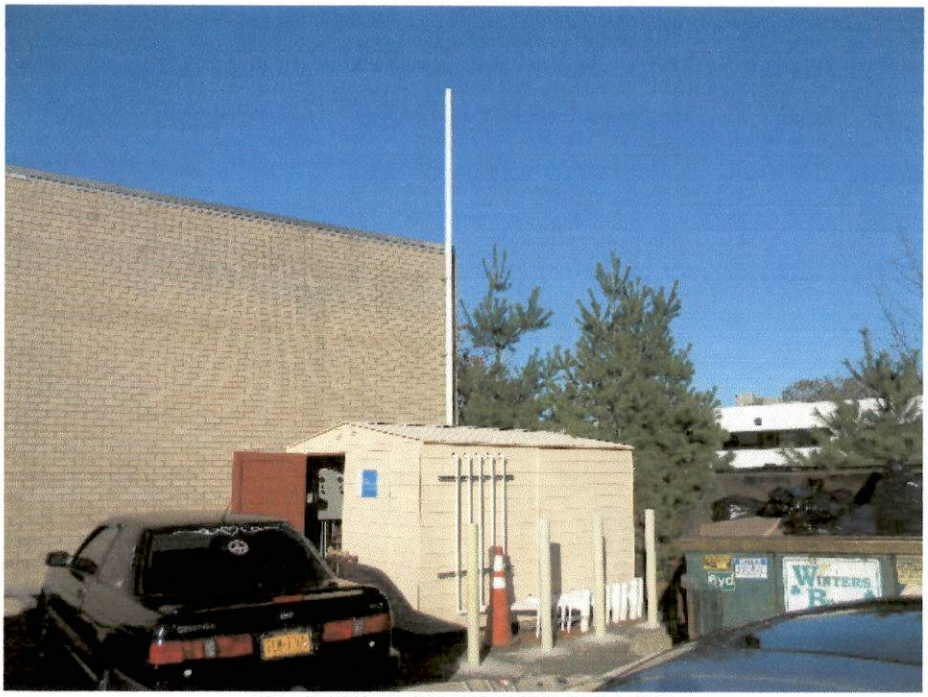
Based on the prior observations the sub-slab material characteristics are relatively permeable sub-soils. The diagnostic test will determine the type of fan or blower to be used for the SSD system. It is anticipated that a low vacuum will be needed to produce a negative pressure field. Typically an in-line centrifugal fan unit is used. These units are simple, quiet, inexpensive and consumes minimal power. Typically, these units are capable of inducing 0 – 4 inches of water vacuum, while moving 50 to 300 cfm of air. A fan selected for this site will have performance characteristics suited (or optimally suited) for the site specific conditions.

Four inch diameter PVC piping will be used for the low pressure/high flow SSD system. Fans placed inside the building will be placed to minimize the amount of discharge piping inside the building.

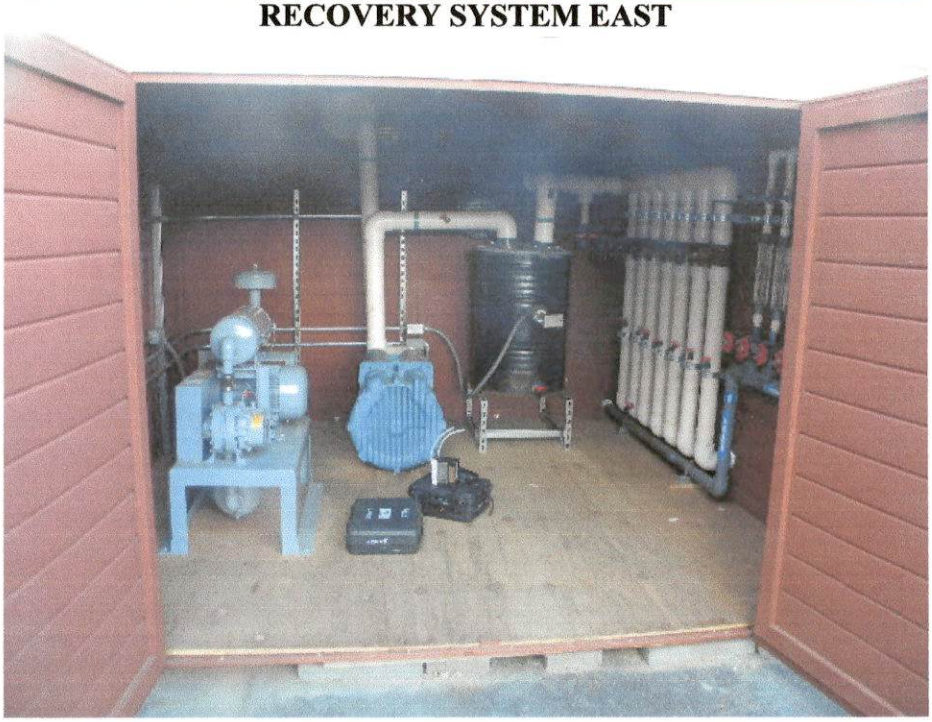
System Gauges

An in-line pressure gauge will be installed on every unit. Each gauge will have lines or marks showing acceptable vacuum levels

PHOTOLOG



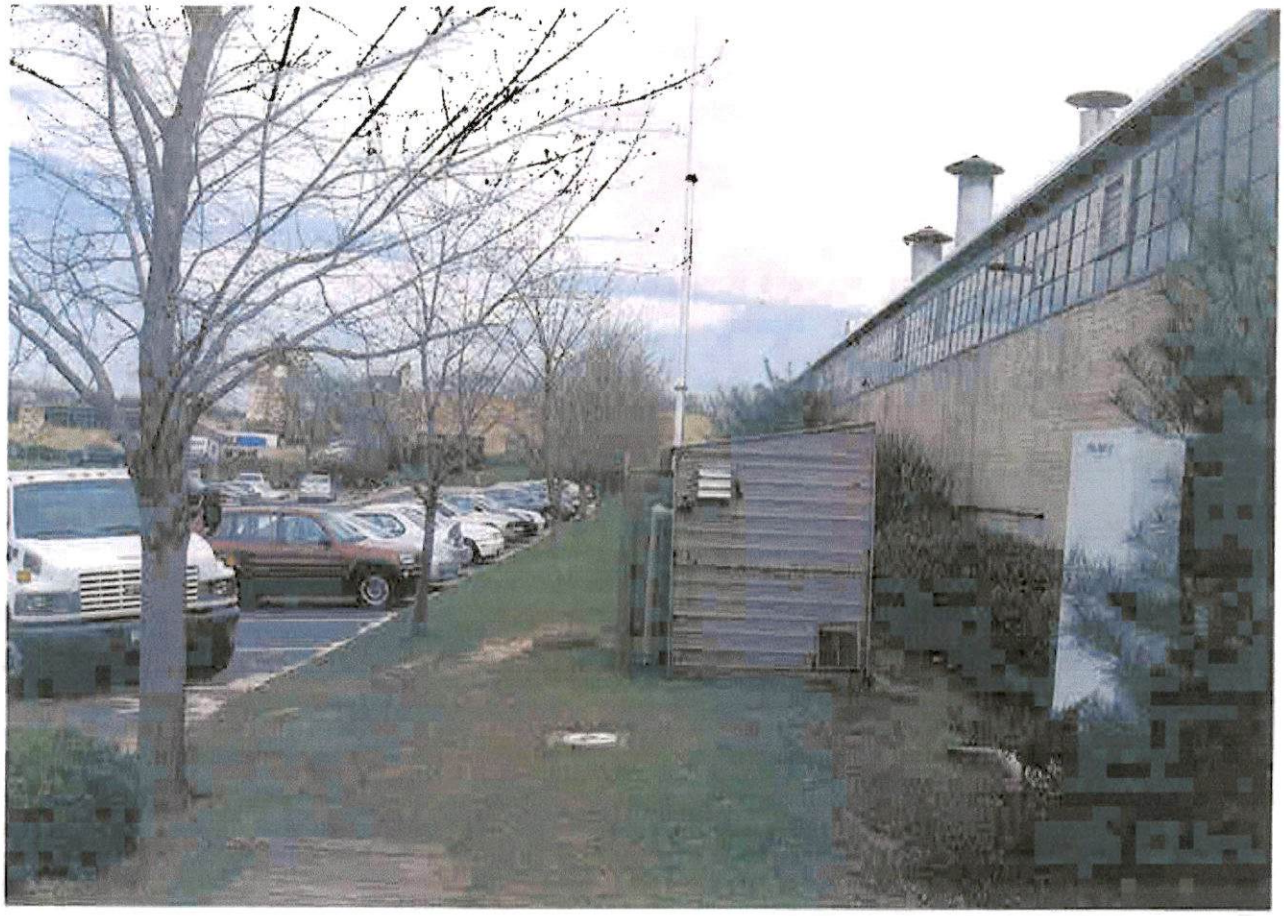
RECOVERY SYSTEM EAST



RECOVERY SYSTEM EAST

PERMANENT SOIL VAPOR POINT (TYPICAL)

SUB-SLAB INTERIOR SAMPLING (TYPICAL)



RECOVERY SYSTEM NORTH