

November 18, 2009 Ref. No. 31129-062

Mr. Jaspal Walia Project Manager New York State Department of Environmental Conservation, Region 9 270 Michigan Avenue Buffalo, NY 14203-2999

Subject: Groundwater Monitoring Results Leica, Inc. Site; Erie County, Cheektowaga, NY Inactive Hazardous Waste Disposal Site No. 915156

Dear Mr. Walia:

Enclosed please find the report entitled "Rowan Road Groundwater Investigation Report, Leica, Area C, Cheektowaga, New York," prepared for Energy*Solutions* by EnviroGroup Limited. The report highlights the installation and groundwater sampling of two monitoring well pairs, consisting of a shallow overburden monitoring well and a bedrock monitoring well, and identified as monitoring wells MW-25, MW-25A, MW-26, and MW-26A as shown on the attached Figure 1.

Groundwater samples were collected from the monitoring wells on September 2, 2009. The groundwater data from the MW-25 well pair indicates that chlorinated solvent compounds have migrated only in the bedrock aquifer to a location south of Rowan Road. The groundwater data from the MW-26 well pair indicates that chlorinated solvent compounds have migrated in the overburden and bedrock aquifers to the south of Rowan Road.

Based on the results of the groundwater sampling from the two monitoring well pairs, Energy*Solutions* proposes to install two additional monitoring well pairs for the purpose of further delineating the chlorinated solvent plume south of the facility. One monitoring well pair will be installed to the west of the MW-26 well pair on Rowan Road, and one well pair to the south of MW-26 on Preston Road. The proposed locations are identified on Figure 1.

Due to the presence of volatile organic compound (VOC) concentrations in the groundwater samples collected from the MW-26 well pair, and the proximity to residential properties, we are also planning indoor air sampling at the two residential properties south of the MW-26 well pair (along the west side of Preston Road). Indoor

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ENERGYSOLUTIONS

air sampling at each residence will consist of the collection of both sub-slab samples and indoor air samples. The proposed indoor air sampling locations are shown on Figure 1.

We are currently preparing a Work Plan to perform these activities. We anticipate submitting this Plan to the Department for approval by December 11, 2009. In the interim, if you have any questions or would like to discuss the results, please feel free to call me at 801-303-1092.

Sincerely,

Rund Milean

Robert E. McPeak, Jr., P.E., LEP Department Manager, Environmental Services

Enclosures

ce: C. Grabinski E. Lovenduski B. Sye Marvuglio



Figure 1

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REVISION NO.	DRAWING	PROPOSED WELL AND INDOOR AIR SAMPLING LOCATIONS	100 Mill Plain Road Danbury, CT 06811 203-797-8301	SEE SCALEBAR 11/17/09 BY: CK: MT FIGURE # 1



Enclosure 1

EnviroGroup Limited

Rowan Road Groundwater Investigation Report Leica, Area C, Cheektowaga, New York

Rowan Road Groundwater Investigation Report Leica, Area C Cheektowaga, New York

Prepared by:

EnviroGroup Limited Centennial, Colorado

Prepared for:

Energy*Solutions* Danbury, CT

November 16, 2009

Project No. LE-0614

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1.0 INTRODUCTION

This report presents the results of a limited offsite groundwater investigation that was performed in conjunction with an offsite vapor intrusion assessment adjacent to Area C of the former Leica facility in Cheektowaga, New York (the Site), as shown in Figures 1 and 2. The investigation was conducted by EnviroGroup Limited (EnviroGroup) personnel on behalf of Energy*Solutions*.

1.1 BACKGROUND INFORMATION

According to Energy*Solutions*, several environmental investigation and remediation activities have occurred at the Site since the early 1990s. Groundwater monitoring wells at the Site are mainly located between the facility and Rowan Road. Overburden groundwater flows to the south and southeast in the direction of Rowan Road and a residential area, which extends several hundred feet south of the Site. Figure 3 shows the location of the various groundwater monitoring wells in relation to the site and offsite residential properties south of the Site.

The results of groundwater monitoring in the spring of 2008 indicated that concentrations of volatile organic compounds (VOCs) in overburden or shallow groundwater were generally low. At that time, the highest VOC concentrations in shallow groundwater were at wells MW-10 (cis-1,2-DCE, 190 μ g/L and vinyl chloride, 73 μ g/L) and MW-14 (cis-1,2-DCE, 220 μ g/L and vinyl chloride 25 μ g/L). In the fall of 2007, a concentration of 12 μ g/L of vinyl chloride was detected at the southernmost monitoring well (MW-22) near the presumed leading edge of the groundwater plume just north of Rowan Road, although in the spring of 2008 vinyl chloride was not detected in this well. Concentrations were below detection in other shallow wells immediately north of the residences along Rowan Road (MW-3 and MW-5) in the spring of 2008. Bedrock groundwater concentrations in the spring of 2008 were (cis-1,2-DCE, 10 μ g/L and vinyl chloride, 14 μ g/L) at MW-5A; (cis-1,2-DCE, 160 μ g/L, trans-1,2-DCE, 6.1 μ g/L, and vinyl chloride 56 μ g/L) at MW-14A; and (acetone, 160 μ g/L) at MW-22A.

A separate letter report for indoor air sampling at two homes on the north side of Rowan Road (30 and 34 Rowan Road) was submitted to Energy*Solutions* in May, 2009. Indoor air and sub-slab vapor samples were collected at each home. The purpose of this sampling was to investigate the potential for vapor intrusion at these homes based on detections of volatile organic compounds (VOCs) in nearby monitoring well MW-5A. VOCs were not detected in the sub-slab vapor or indoor air, indicating that VOCs in local groundwater had not affected the residences at 30 and 34 Rowan Road at that time.

1.2 INVESTIGATION OBJECTIVES

The activities described in this report were designed to gather information that would fill data gaps down gradient of the site. The focus area was chosen based on previous detections of VOCs at the Site, as discussed above, with the objectives of a) identifying the nature and extent of VOCs in groundwater immediately south of monitoring wells MW-22, MW-14, and MW-5A by collecting additional down gradient overburden and bedrock groundwater samples, and b) focusing any further investigations that may be required to address vapor intrusion potential.

The following sections of the report present the field investigation and laboratory procedures (Section 2.0); a summary of the Results of the Investigation (Section 3.0); and references (Section 4.0).

2.0 FIELD INVESTIGATION AND LABORATORY PROCEDURES

This section presents a description of the field investigations and laboratory procedures followed by EnviroGroup. Field activities included installation and sampling of two overburden monitoring wells (MW-25 & MW-26) and two shallow bedrock monitoring wells (MW-25A & MW-26A). The locations of these new monitoring wells are shown in Figure 3.

Prior to any field work, access to the investigation area was secured from the Town of Cheektowaga and each borehole location was approved by the Town Engineer. Also, the organization Dig Safely New York was contacted to identify and locate subsurface utilities.

2.1 BOREHOLE CONSTRUCTION AND SAMPLING

During this investigation, four boreholes were advanced and completed as two well pairs. The first well pair, MW-25 and MW-25A, was installed on the grassy area just south of Rowan Road, adjacent to the 135 Preston Road residential property. The second well pair, MW-26 and MW-26A, was installed on the grassy area south of Rowan Road, adjacent to the 134 Preston Road residential property.

MW-25/MW-25A Boreholes

The borehole for overburden monitoring well MW-25 was drilled through unconsolidated deposits from ground surface to 13 feet below ground surface (BGS), the presumed bedrock surface, using a 4.25-inch inside diameter (ID) hollow stem auger (HSA) drill rig. Soil samples were not collected from this borehole, but were collected from the adjacent borehole MW-25A, as discussed below.

The borehole for monitoring well MW-25A was drilled from the ground surface to 35 feet BGS. Initially, 4.25-inch ID HSAs were used to drill through the overburden to the

bedrock surface. Soil samples were collected using a 4-foot long, 2-inch ID macrocore sampler with disposable acetate liners. Soil lithologies were logged from ground surface to the bedrock surface based on evaluation of soil cores and described according to the Unified Soil Classification System (USCS) based on appearance. The cores were then screened for the presence of organic vapors using a MiniRAE 2000 photo-ionization detector (PID) and the results were recorded in parts per million (ppm) on borehole logs.

The HSAs were then removed and a 6-inch temporary steel casing was inserted into the borehole. Next, a bedrock socket was advanced using nominal 6-inch diameter wash rotary tools to 16.5 feet BGS. A 4-inch ID steel casing was then grouted in place and the temporary casing removed. Sufficient time (at least 24 hours) was allotted for grout to cure before drilling resumed. After the grout cured, a nominal 4-inch diameter open hole interval was advanced using wash rotary tools to a depth of 35 feet BGS consistent with on-site bedrock well depths.

MW-26/MW-26A Boreholes

The borehole for overburden monitoring well MW-26 was drilled through unconsolidated deposits from ground surface to19.2 feet BGS, the presumed bedrock surface, using a 4.25-inch ID hollow stem auger (HSA) drill rig. Soil samples were collected using a 4-foot long, 2-inch ID macrocore sampler with disposable acetate liners. Soil lithologies were logged from ground surface to the bedrock surface based on evaluation of soil cores. Soils were described based on appearance and were screened for the presence of organic vapors using a MiniRAE 2000 photo-ionization detector (PID). Results were recorded in parts per million (ppm) on borehole logs. The drill rig operator noted that the HSAs encountered a subsurface feature at approximately 13 feet BGS that caused the lead auger to migrate to the north as the drill string was advanced. Refusal was encountered at 19.2 feet BGS. Little to no soil was recovered in the macrocore samples collected from 13 feet to 19.2 feet BGS.

After completion of well MW-26, a separate borehole was drilled approximately 5 feet west to be completed at bedrock well MW-26A. The borehole for monitoring well MW-26A was drilled from the ground surface to approximately 35 feet BGS. Soil samples were not collected during drilling of this borehole. HSAs of 4.25-inch ID were used to drill through the overburden to the bedrock surface at 13.1 feet BGS. The HSAs were then removed and a 6-inch temporary steel casing was inserted into the borehole. Next, a bedrock socket was advanced using nominal 6-inch diameter wash rotary tools to 16.5 feet BGS. A 4-inch ID steel casing was then grouted in place and the temporary casing was removed. Sufficient time (at least 24 hours) was allotted for grout to cure before drilling resumed. After the grout cured, a nominal 4-inch diameter open hole interval was advanced using wash rotary tools to a depth of 35 feet BGS, consistent with on-site bedrock well depths.

Borehole logs are provided in Appendix A.

2.2 OVERBURDEN MONITORING WELL INSTALLATION

Two overburden monitoring wells (MW-25 and MW-26) were installed within the upper saturated section of each borehole at the locations shown on Figure 3. The screens for these wells were set at or near the water table with screened intervals of 5 feet to identify concentrations at the water table and evaluate any potential for vapor intrusion into nearby buildings.

Overburden wells MW-25 and MW-26 were constructed with 2-inch ID, schedule 40 flush joint threaded PVC materials with 0.010-inch screen slots. An appropriate sized (e.g. 10/20 sieve) washed silica sand pack was placed in the annulus of each borehole to a level of approximately 2 feet above the top of the screen interval. Following installation of the filter material, a bentonite seal (bentonite chips) was placed on top of the filter material to a minimum thickness of two feet. Distilled water was added to ensure proper

hydration of the bentonite. All monitoring wells were completed with locking caps and flush mount road boxes.

As noted above, the borehole for monitoring well MW-26 was advanced to 19 feet BGS. The well was set at a total depth of 11 feet BGS with a screened interval from 11 feet to 6 feet BGS. The borehole was backfilled with sand from 19 feet to 14 feet BGS, then with bentonite from 14 feet to 12 feet BGS, and finally with sand from 12 feet to 11 feet BGS. This was done to ensure that the well was completed to screen the water table.

2.3 BEDROCK MONITORING WELL INSTALLATION

Two bedrock wells (MW-25A and MW-26A) were installed at the locations shown in Figure 3. As noted above, the overburden was sealed off from the bedrock using grouted in place 4-inch ID steel casing. A bedrock open hole interval was then advanced from 16.5 to 35 feet BGS to be consistent with on-site bedrock well depths.

Bedrock wells were completed with locking caps and flush mount road boxes.

2.4 WELL DEVELOPMENT

Overburden wells were developed using dedicated, disposable polyethylene bailers and nylon rope and bedrock wells were developed using the onboard pump on the drill rig. Prior to well development, static water level was measured with an electronic watersensing probe. Then the wetted casing volume was determined (i.e., the volume of groundwater standing in the casing under steady-state conditions) by using the static water level, well diameter and well depth. After recording initial water levels from each well, the wells were developed by surging the water column with a bailer or drill tools to flush fine particles from the sand filter (overburden wells) or open hole wall (bedrock wells). Surging and purging continued until five wetted casing volumes were removed or the well was purged dry. Purge water was containerized in 55-gallon drums and staged on the Leica Site pending analytical results.

After monitoring well development, sufficient time was allowed to elapse (approximately 10 days) for all wells to equilibrate with ambient conditions before sampling.

2.5 GROUNDWATER SAMPLING

After monitoring well installation, development and equilibration, the static water level was measured with an electronic water-sensing probe and used to calculate the wetted casing volume. A minimum of three wetted casing volumes, or until the well was dry in the case of well MW-26A were purged prior to sampling. Overburden wells were purged using dedicated polyethylene bailers and bedrock wells were purged using dedicated submersible pumps.

Before purging and collecting groundwater samples, field water quality parameters-- pH, temperature, specific conductance, dissolved oxygen, and oxidation-reduction potential---were measured in situ using a calibrated field meter. The final set of field parameters from MW-26A was not collected in situ due to the low water level in the well as a result of poor recharge. Field water quality data collected during groundwater sampling was recorded on field water quality sampling and analysis forms (Appendix B).

Groundwater samples were collected using dedicated, disposable polyethylene bailers and nylon rope. Groundwater in the bailer was quickly transferred into clean, laboratorysupplied containers. Low–flow tips were used for collecting samples for VOC analysis. All sample containers were labeled, logged onto chain-of-custody documents, and stored on ice for submittal to an ELAP certified laboratory for analyses. These analyses included pH, total organic carbon, chloride, nitrate, sulfate, dissolved iron, dissolved manganese, and VOCs by EPA Method 8260B.

2.6 FIELD QUALITY CONTROL SAMPLES

Field quality control (QC) samples were collected including one duplicate sample (DUP 09/02/09 from well MW-25A) to determine the degree of data variations due to sampling technique and/or laboratory procedures. Quality control samples were obtained by analyzing a representative sample taken from the same medium and collected sequentially at the same location. The sample/sample duplicate pair was collected at the same time to ensure representative duplicate groundwater. One trip blank (TB090209) was collected to determine if cross contamination had occurred during sample transport. The duplicate sample was analyzed for pH, total organic carbon, chloride, nitrate, sulfate, dissolved iron, dissolved manganese, and VOCs by EPA Method 8260B. The trip blank sample was analyzed for VOCs only.

2.7 INVESTIGATIVE DERIVED WASTES

Soil cuttings generated from borehole drilling, decontamination (decon) water, purge water, sampling supplies and PPE were placed in 55 gallon drums and staged at the Leica site for management by Energy*Solutions*.

3.0 RESULTS OF INVESTIGATION

This section summarizes the results of this investigation. Complete laboratory analytical data reports for the groundwater samples are provided in Appendix C.

3.1 SOIL RESULTS

No soils samples were submitted for laboratory analysis. However, soils samples were collected from the bedrock well borehole at MW-25A, and the overburden well borehole at MW-26, and screened for total VOCs using a PID.

Soils encountered from grade to approximately 13 feet BGS at both borehole locations (MW-25A and MW-26) consisted of brown and grayish brown, medium to fine-grained sands with some silt and trace amounts of gravel. As noted above, during drilling of the borehole for well MW-26, the driller noted a subsurface disturbance (sideways movement of the augers) at approximately 13 feet BGS. The presumed bedrock surface was encountered at 19.2 feet at this location. Based on discussions with Energy*Solutions* representatives, the bedrock surface has historically been observed between 10 and 15 feet BGS. Therefore, the interval between 13 and 19.2 feet may be due to the augers encountering the edge of a local channel in the bedrock. The soils encountered from 13 to 19.2 feet BGS consisted of grayish brown to light grayish brown medium-grained sands with some gravel and silt. No odors, staining, or elevated PID readings were observed in soils during drilling.

The bedrock section of each borehole was drilled using wash rotary drilling methods. As such, core samples of bedrock were not collected. However, drill cuttings of bedrock were noted to be dark grey limestone.

3.2 GROUNDWATER RESULTS

Shallow groundwater was observed during drilling and well construction at approximately 7 feet BGS. The groundwater analytical results are divided by well cluster and discussed below.

MW-25/25A Analytical Results

No VOCs were detected over the laboratory reporting limits in the shallow or overburden groundwater sample collected from overburden well MW-25. Detections of iron, manganese, TOC, chloride, nitrate, and sulfate were below the respective New York State Division of Water Technical and Operation Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Value (TOGS) values.

Vinyl chloride and chloroform were detected in the groundwater sample from bedrock well MW-25A at concentrations of 9.1 and 14 micrograms per liter ($\mu g/L$), respectively. Additionally, vinyl chloride and chloroform were detected in the duplicate sample from this well at concentrations of 9.9 and 14 $\mu g/L$ respectively. The vinyl chloride concentration exceeds the remedial action objective (RAO) for vinyl chloride of 5 $\mu g/L$. There is no RAO for chloroform, but the concentrations detected in the samples collected from MW-25A exceed the TOGS) standards for chloroform of 7 $\mu g/L$.

M,p-xylenes and toluene (8.3 ug/L and 8.7 μ g/L) were detected in the groundwater sample from well MW-25A and in the duplicate groundwater sample from this well (8.1 and 8.7 μ g/L) at concentrations exceeding the TOGS values of 5 μ g/L for these compounds. It is possible the source of these compounds is due to vehicular traffic and parking nearby the well location. No other VOCs were detected in the groundwater sample from well MW-25A. Detections of iron, manganese, TOC, chloride, nitrate, and sulfate were below the respective TOGS values.

MW-26/26A Analytical Results

Vinyl chloride and cis-1,2-dichloroethene (cis-1,2-DCE) were detected in the groundwater sample from overburden well MW-26 at concentrations of 28 and 46 ug/L, respectively, which are above the RAOs for these two compounds of 5. No other VOCs were detected in overburden well MW-26. Detections of iron, manganese, TOC, chloride, nitrate, sulfate were below the respective TOGS values.

Vinyl chloride and cis-1,2-DCE were detected in the groundwater sample from bedrock well MW-26A at concentrations of 560 and 750 ug/L respectively which is above the RAOs of 5. Also, trans-1,2-dichloroethene was detected in this well at a concentration of 16 ug/L which exceeds the TOGSs value of 5 ug/L. No other VOCs were detected in bedrock well MW-26. Detections of iron, manganese, TOC, chloride, nitrate, sulfate were below the respective TOGS values.

3.3 DISCUSSION AND CONCLUSIONS

The results of this limited investigation indicate that VOCs from the Leica site may have migrated in bedrock groundwater to the locations of the MW-25 well pair, and in both shallow and bedrock groundwater to the location of the MW-26 well pair, on the south side of Rowan Road. The bedrock surface in the area of the MW-26 well pair was encountered deeper than has been observed at other locations during previous investigations by Energy*Solutions*. Although this deeper bedrock surface feature may be of significance to the migration of groundwater and VOCs from the site, the extent and actual relationship it may have to the Site contamination is unclear.

With regard to the vapor intrusion pathway, the presence of VOCs in MW-26 could increase the potential for vapor intrusion in structures in this vicinity. Although the VOC concentrations in bedrock (deeper) groundwater at MW-26A are not relevant to vapor intrusion at this location, they indicate the potential for more groundwater impacts extending further south than suggested by prior data.

The presence of a clean water lens (no detections of VOCs) at MW-25 suggests a low vapor intrusion potential to structures in the vicinity of this well. In addition, the relatively low concentrations of vinyl chloride and chloroform in bedrock groundwater at well MW-25A also suggests that the risk of vapor intrusion is low in this area. On the other hand, if basements in nearby homes extend beneath the clean water lens, a vapor intrusion condition could exist.

4.0 **REFERENCES**

New York State Division of Water Technical and Operation Guidance Series (1.1.1). Ambient Water Quality Standards and Guidance Values. New York, June 1998.

Vapor Intrusion Sampling Results, 30 and 34 Rowan Road, Cheektowaga, New York. Prepared by EnviroGroup Limited, May 15, 2009.

Standard Practice for Classicfication of Soils for Engineering Purposes, Unified Soil Classification System, ASTM D2487 TABLE

TABLE 1

GROUNDWATER ANALYTICAL RESULTS

Leica

Cheektowaga, NY

Analytical Method	Parameter	TOGS Value (ug/L)	RAO (ug/L)	SAMPLE IDENTIFICA	FION:	MW-25	MW-26	MW-25A	DUP 09/02/09 ***	MW-26A	TB090209
				SAMPLING DATE:		9/2/2009	9/2/2009	9/2/2009	9/2/2009	9/2/2009	9/2/2009
				Method Reporting Limit	Unit						
8260B	Chloroform	7	NA	0.50	ug/L	5.0 U	5.0 U	14	14	5.0 U	5.0 U
	cis-1,2-Dichloroethene	5	5	0.50	ug/L	5.0 U	46	5.0 U	5.0 U	740 D	5.0 U
	trans-1,2-Dichloroethene	5	NA	0.50	ug/L	5.0 U	5.0 U	5.0 U	5.0 U	16	5.0 U
	Toluene	5	NA	0.50	ug/L	5.0 U	5.0 U	8.7	8.7	5.0 U	5.0 U
	Vinyl Chloride	2	5	0.50	ug/L	5.0 U	28	9.1	9.9	560 D	5.0 U
	m,p-Xylenes	5	NA	0.50	ug/L	5.0 U	5.0 U	8.3	8.1	5.0 U	5.0 U
6010B	Iron, Dissolved	500*	NA	100	ug/L	100 U	100 U	100 U	100 U	130	NA
	Manganese, Dissolved		NA	10	ug/L	110	217	10 U	10 U	10 U	NA
SM20 5310C	Carbon, Total Organic (TOC)	-	NA	1.0	ug/L	17.1	14.6	4.2	3.5	4.9	NA
300.0	Chloride	250,000	NA	2**	ug/L	49.4	550	50.3	59.9	46.1	NA
	Nitrate as Nitrogen	10,000	NA	0.5	ug/L	0.88	0.50 U	0.91	0.91	0.50 U	NA
	Sulfate	250,000	NA	2.0	ug/L	91.9	99.9	43.0	43.8	73.3	NA
SM 4500-H+B	pН	-	NA	No reporting limit	ug/L	7.15	7.18	7.69	8.34	8.49	NA

Notes:

1. ug/L - Microgram per liter.

2. TOGS 1.1.1 Ambient Value from NYS Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.

3. RAO: Remedial Action Objective value.

4. "-" - TOGS 1.1.1 standard or guidance value does not exist.

5."D" - D flag; Sample re-analyzed at dilution.

6. Bold - Compound detected at or above TOGS 1.1.1 Ambient Value or RAO.

7. * Indicates the value applies to the sum of iron and manganese.

8. ** Indicates method reporting limit for cloride in the sample MW-26 was 20 ug/L.

9. *** Sample DUP 09/02/09 is a duplicate of sample MW-25A.

FIGURES





