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April 20, 2012

GFL Environmental Corporation  
1048 Toy Ave.,  
Pickering, Ontario  
L1W 3P1

Attention: Claudio Villa

Re: Environmental Sampling Report  
3785 Sideline 14, Pickering  
Region of Durham  
Our Project No. G023256 E1

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Dear Mr. Villa,

Further to your request, Geo-Logic completed soil sampling in regards to fill deposited at the above referenced property. The sampling was requested after the removal of some of the fill from areas previously identified as containing elevated levels of hydrocarbons. The testing was completed to evaluate the chemical concentration of hydrocarbons F1 through F4 in the remaining fill soil at the areas where soil was removed. On-site sampling of selected fill materials was performed on March 29, 2012. Soil samples submitted for chemical analysis were collected from the locations of the previously sampled areas (on 21 October 2011) based on GPS coordinates.

### **Background**

The property is located on the east side of Sideline 14, approximately one (1) kilometre north of Highway 7, in the Town of Pickering, Regional Municipality of Durham. The project site has a municipal address of 3785 Sideline 14, and currently supports a rural residential property. The owner of the property had obtained a fill permit from the City of Pickering, to allow fill to be transported to the property.

The City of Pickering received a complaint concerning fuel oil like odours in the fill transported to the property. On November 26, 2010 Geo-Logic provided initial sampling results followed up on June 15, 2011 and October 21, 2011, Geo-Logic Inc. provided additional sampling and chemical analysis services after removal of soil on the remaining fill materials.

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Based on the soil testing conducted in October 2011 inspection, the imported soil at 3785 Sideline 14 in Pickering was still found to have concentrations which exceeded the Provincial Standards for petroleum hydrocarbons F2 (>C10 – C16) and F3 (>C16 – C34) for placement on a Table 2 residential site.

In a letter dated November 1, 2011, Geo-Logic detailed sampling locations and chemical testing where exceedences occurred and recommended to classify the soil according to Ontario Regulation 347. Once classified, the soil was recommended to be removed by a licensed hauler to a destination with an appropriate Certificate of Approval for the waste classification. It was recommended that confirmatory sampling of the onsite soils that came in contact with the fill soil should be carried out, to ensure the underlying soils were not detrimentally affected. It was further recommended that should any of the soils be found to be impacted such that it does not meet Table 2 residential standards, it was recommended that it should also be removed.

On March 29, 2012, Geo-Logic Inc. provided sampling and testing services relating to the remaining soil from the previously affected areas on the property. It was reported by the owner of the property (Gord Hamilton) that approximately ten (10) loads of fill had been removed from the three locations previously identified with elevated hydrocarbon readings reported in the November 1, 2011 letter. This confirmatory sampling was carried out with Laura Calvelli, from the City of Pickering on 29 March 2012. A Geo-Logic representative located the three (3) locations where fill had been removed based on GPS coordinates that correlated to the October 21, 2011 sample locations, and collected samples of the remaining fill materials.

### **Applicable Site Condition Standard**

Based on our review of the property, the applicable site condition standard for this Property falls under the Ministry of the Environment (MOE) Table 2 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition (residential/parkland/institutional property use), MOE, April 15, 2011, "Soil, Groundwater and Sediment Standards for use Under Part XV.1 of the *Environmental Protection Act*". This standard is applicable as the Property is privately serviced for potable water by an onsite well, as are the surrounding properties. The April 15, 2011 standards became effective July 1, 2011 and are the Standards to be used in evaluating the quality of the fill at this time. There is no change in the 2011 standards for hydrocarbons in Table 2 locations from the 2009 standard originally applied in the November 2010 samples.

### **Soil Chemical Testing**

The soil samples collected by Geo-Logic Inc. were subjected to hydrocarbon vapour screening using a Thermo GasTector gas detector using methane elimination. Samples at the three (3) locations had no noticeable odour and low levels of hydrocarbon vapours were detected. The three (3) representative samples were submitted for chemical analysis.

The samples collected by Geo-Logic were submitted for analytical testing to SGS laboratories located in Lakefield, Ontario. The laboratory is accredited with the Canadian Association for Laboratory Accreditation (CALA) for the parameters tested for in this investigation. Sampling and analysis were completed for petroleum hydrocarbons (PHCs) fractions F1 to F4. The samples are identified with the sample number collected on March 29, 2012 followed by the sample identification of the sample collected from the similar GPS location as reported in the November 1, 2011 letter.

The samples were delivered to SGS Laboratories, in Lakefield under chain of custody. The analytical method for PHC analysis includes a silica gel washing procedure to reduce the effects of organics on PHC analysis. The results of the chemical analyses are summarized below in Table A, and the Certificates of Analysis are attached.

Table A: Summary of Soil Sample Results

PARAMETER	SAMPLE IDENTIFICATION			Provincial Table 2 Standards (2011)*
	GS-1 (GS07) March 29, 2012 Northeast area	GS-5 (GS06) March 29, 2012 North Central area	GS-6 (GS09) March 29, 2012 Northwest area	
PHC F1 (C6 – C10)	13	<10	<10	55
PHC F2 (>C10 – C16)	<b>103</b>	<b>99</b>	<b>135</b>	98
PHC F3 (>C16 – C34)	<b>762</b>	<b>751</b>	<b>1130</b>	300
PHC F4 (>C34 – C50)	231	227	422	2800

NOTES: All units in (µg/g), "<" indicates less than laboratory reporting limit, **Bolded** values exceed Standard.

\*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act, April 15, 2011*

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition (Residential Land Use).

All of the samples exceeded the Provincial Table 2 residential Standards for Petroleum Hydrocarbons (>C10 – C16) and the Provincial Table 2 Residential Standards for Petroleum Hydrocarbons (>C16 – C34). In June and October 2011, sampling the concentrations also did not meet the Provincial Table 3 Standards for Industrial Commercial landuse but the current samples from March 2012 are below the table values for Table 2 industrial commercial landuse.

### Summary and Conclusions

Based on the limited soil testing conducted as part of this sampling event, the soil remaining in the locations where fill was previously removed was found to have Petroleum Hydrocarbon concentrations which exceeded the Provincial Standards for F2 (>C10 – C16) and F3 (>C16 – C34) fractions for placement on a residential Table 2 site. The concentrations found in the samples met the industrial commercial Table 2 site standards of 230 ppm for F2 and 1700 for F3.

This site requires fill with chemical concentrations that meet at least the residential Table 2 standards and as such more soil will have to be removed from the sampling locations on site. The soil being removed from these localized sampling areas will not have to be transported off site as waste since it can be taken off site to areas where filling is permitted and the site has been characterized as a table 2 or 3 industrial commercial site that is not a licensed gravel or quarry source.

The soil testing completed as part of this sampling event did not delineate the extent of the environmentally unsuitable fill materials since no samples were evaluated that met the residential standard. Delineation and characterization of the fill soils will require an extensive excavation, sampling and chemical analysis program.

We trust that this letter report meets with your immediate requirements. Should you have any questions, please contact our office.

Yours Truly,  
Geo-Logic Inc.  
Geotechnical Engineers  
And Hydrogeologists



A handwritten signature in black ink, appearing to read "A. Fawcett", written over a white background.

Andy Fawcett, P.Eng.  
Senior Engineer

AF/bs  
Attachments:  
Chemical Certificate's of Analysis (2)  
Claudiovilla1971@hotmail.com  
C Gord Hamilton : [gordh@idirect.com](mailto:gordh@idirect.com)  
C:Laura Calvelli Email: [icalvelli@cityofpickering.com](mailto:icalvelli@cityofpickering.com)



**SGS Canada Inc.**

P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

Thursday, April 12, 2012

**Geo-Logic Inc.**

Attn : Bruce Selman

347 Pido Rd., Unit #29  
Peterborough, ON  
K9J 6Z8,

Phone: 705-749-3317  
Fax:

**Date Rec. :** 30 March 2012  
**LR Report:** CA14932-MAR12  
**Reference:** G023256E1

**Copy:** #1

# CERTIFICATE OF ANALYSIS

## Final Report

Sample ID	Sample Date & Time	Moisture Content %	CCME F1 (C6-C10) mg/kg	CCME F2 (C10-C16) mg/kg	CCME F3 (C16-C34) mg/kg	CCME F4 (C34-C50) mg/kg	Chromatogram returned to baseline at nC50 Yes / No	CCME F4G-sg (GHH) mg/kg
3: Analysis Approval Date		09-Apr-12	05-Apr-12	09-Apr-12	09-Apr-12	09-Apr-12	09-Apr-12	12-Apr-12
4: Analysis Approval Time		15:34	12:11	15:36	15:36	15:36	15:36	08:43
5: Table 2 Agriculture or other		---	(65)55	(150) 98	(1300) 300	(5600) 2800	---	---
6: Table 2 Residential/ Parkland		---	(65)55	(150) 98	(1300) 300	(5600) 2800	---	---
7: Table 2 Industrial/Commercial/Community		---	(65)55	(250) 230	(2500) 1700	(6600) 3300	---	---
8: MDL		---	10	10	50	50	---	---
9: QC - Blank		---	< 10	< 10	< 50	< 50	---	< 200
10: QC - DUP % Recovery		---	99%	ND	ND	ND	---	---
11: QC - STD % Recovery		---	96%	133%	133%	133%	---	100%
12: GS-1 (GS07)	29-Mar-12	16.0	13	103	762	231	NO	831
13: GS-5 (GS06)	29-Mar-12	17.5	< 10	99	751	227	NO	849
14: GS-6 (GS09)	29-Mar-12	16.8	< 10	135	1130	422	NO	1740

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS Laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of each other: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

Hydrocarbon results are expressed on a dry weight basis.

Quality control data are available upon request.

**Dianne Griffin**  
Project Specialist