Annual 2022
Surface Soil Sampling Program

1160 Monaghan Road, Peterborough, ON

Mr. Dave Snopek
Final Report

December 21, 2022

ENGLOBE

Final Report

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Revision and publishing	Brian J. Schuyler

Revisions and publications log

REVISION No.	DATE	DESCRIPTION
0A	October 27, 2022	Draft Report for the Client
1A	December 21, 2022	Final Report for the Client

Distribution

PDF copy	Mr. Dave Snopek

Summary

Englobe Corp. (Englobe) was retained by BWXT Nuclear Energy Canada Inc. (BWXT) to complete the Annual 2022 Surface Soil Sampling Program for the BWXT Peterborough facility located at 1160 Monaghan Road in Peterborough, Ontario (herein referred to as the "Site").

The Canadian Nuclear Safety Commission (CNSC), who are the nuclear regulator in Canada, initiated an Independent Environmental Monitoring Program (IEMP) for the Site in 2014. This IEMP conducted by the CNSC has included the sampling of soil, water and air in the vicinity of the Site, at various parks throughout Peterborough, at a public school in close proximity to the Site, and at a background location removed from the Site.

Beginning in 2020, BWXT has retained a third-party consultant to conduct their annual surface soil sampling program. As part of this program, surface soil samples have been collected from locations previously established and sampled by CNSC as part of the IEMP and submitted for analysis of beryllium. In 2021, uranium was added to the annual surface soil sampling program.

The scope of work in 2022 remained the same as 2021, and included the following:

— Prepared a site-specific Health & Safety Plan (HASP);

— Collected eight (8) surface soil samples in parks around Peterborough (samples GP01-S01, GP02-S02, GP03-S03, GP04-S04, GP06-S06, GP07-S07, and GP08-S08) and at local Prince of Wales Public School (GP05-S05);

— Collected three (3) background surface soil samples (GP11-S11, GP12-S12, and GP13-S13) at a location (Emily-Omemee Community Centre Park) approximately 19 kilometres west of the BWXT facility;

— Collected two (2) blind duplicate quality control/quality assurance (QA/QC) samples (GP20-S20 and GP21-S21);

— Collected surface soil samples using the previous sampling methodology that was established during the 2020 surface soil sampling program; and,

— Prepared a report summarizing the analytical results of the 2022 sampling in comparison to the MECP Table 1: Full Depth Background Site Condition Standards. A comparison of historical results were also compiled.

Similar to annual surface soil sampling programs in 2020 and 2021, the results of the annual 2022 surface soil sampling program were compared to MECP most stringent Site Condition Standards, Table 1: Full Depth Background Sie Condition Standards set out in O. Reg. 153/04 (as amended).

The analytical results for beryllium and uranium for all soil samples collected and analyzed in the annual 2022 surface soil sampling program indicate concentrations well below the most stringent Site Condition Standards in MECP Table 1: Full Depth Background Site Condition Standards for Residential, Parkland, Institutional, Industrial, Commercial, and community Property Uses.

The 2022 concentrations for beryllium are comparable to those measured in 2020 and 2021. The 2022 uranium concentrations are comparable to those measured in 2021.

Based on the results of the annual 2022 surface soil sampling program, there is no evidence that beryllium or uranium used at the BWXT facility have impacted soils in the specified testing areas.

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Table of Contents

FIGURES

TABLES (IN TEXT)

APPENDICES

1 Introduction

Englobe Corp. (Englobe) was retained by BWXT Nuclear Energy Canada Inc. (BWXT) to complete the Annual 2022 Surface Soil Sampling Program for the BWXT Peterborough facility located at 1160 Monaghan Road in Peterborough, Ontario (herein referred to as the "Site").

1.1 Background

The Canadian Nuclear Safety Commission (CNSC), who are the nuclear regulator in Canada, initiated an Independent Environmental Monitoring Program (IEMP) for the Site in 2014. This IEMP conducted by the CNSC has included the sampling of soil, water and air in the vicinity of the Site, at various parks throughout Peterborough, at a public school in close proximity to the Site, and at a background location removed from the Site.

Beginning in 2020, BWXT retained a third-party consultant to conduct their annual surface soil sampling program. As part of this program, surface soil samples have been collected from locations previously established and sampled by CNSC as part of the IEMP and submitted for analysis of beryllium. In 2021, uranium was added to the annual surface soil sampling program.

To date, all results collected in the annual surface soil sampling program have been well below the Ministry of the Environment, Conservation and Parks (MECP) most stringent Site Condition Standards, Table 1: Full Depth Background Site Condition Standards), O. Reg. 153/04 (as amended).

2 Scope of Work

A requirement of BWXT's operating license, they are required to conduct monitoring to ensure the protection of the health and safety of the public and the natural environment. BWXT has developed their own comprehensive environmental protection program to monitor and control nuclear and hazardous substance release from their facility.

During BWXT's license renewal application, and review of the supporting documents, CNSC requested that beryllium and uranium analysis be completed for all future annual surface soil sampling programs.

The scope of work in 2022 remained the same as 2021, and included the following:

— Prepared a site-specific Health & Safety Plan (HASP);

— Collected eight (8) surface soil samples in parks around Peterborough (samples GP01-S01, GP02-S02, GP03-S03, GP04-S04, GP06-S06, GP07-S07, and GP08-S08) and at local Prince of Wales Public School (GP05-S05);

— Collected three (3) background surface soil samples (GP11-S11, GP12-S12, and GP13-S13) at a location (Emily-Omemee Community Centre Park) approximately 19 kilometres west of the BWXT facility;

— Collected two (2) blind duplicate quality control/quality assurance (QA/QC) samples (GP20-S20 and GP21-S21);

— Collected surface soil samples using the previous sampling methodology that was established during the 2020 surface soil sampling program; and,

— Prepared a report summarizing the analytical results of the 2022 sampling in comparison to the MECP Table 1: Full Depth Background Site Condition Standards. A comparison of historical results were also compiled.

3 Assessment Criteria

Similar to annual surface soil sampling programs in 2020 and 2021, the results of the annual 2022 surface soil sampling program were compared to MECP most stringent Site Condition Standards, Table 1: Full Depth Background Sie Condition Standards set out in O. Reg. 153/04 (as amended).

4 Sampling Methodology

The sampling methodology is based on the MECP "Guidelines on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", revised December 1996. There is typically a high degree of small-scale variability encountered in most soils. It is strongly recommended that soil sampling for analysis of potential contaminants, other than volatile organics should be conducted by combining a number of samples from the depth of interest into one sample that is representative of both the identifiable sampling site and the depth increment (MECP, 1996). This composite sampling method was established in the 2020 surface soil sampling program. This same composite sampling methodology was used by Englobe during the annual 2022 surface soil sampling program.

The sample locations and coordinates previously established are provided in Table 4-1. The sampling locations are provided in Figures 1, 1A, 1B, 1C, 1D, 1E, 1F, and 2.

Table 4-1 Summary of Sample Locations and UTM Coordinates

Sample ID	Location	UTM Coordinates (Zone 17T)
GP01-S01	R.A. Morrow Memorial Park	713991 m E, 4907322 m N
GP02-S02	Turner Park	712587 m E, 4907662 m N
GP03-S03	Kinsmen Park	712012 m E, 4908150 m N
GP04-S04	Del Crary Park	713940 m E, 4908177 m N
GP05-S05	Prince of Wales School	712521 m E, 4908271 m N
GP06-S06	Sherbrooke Park	712780 m E, 4908463 m N
GP07-S07	Victoria Park	713953 m E, 4909512 m N

GP08-S08	Bonnerworth Park	712305 m E, 4909533 m N
GP11-S11	Emily-Omemee Community Centre Park	694043 m E, 4909939 m N
GP12-S12	Emily-Omemee Community Centre Park	694082 m E, 4909962 m N
GP13-S13	Emily-Omemee Community Centre Park	694140 m E, 4909967 m N
GP20-S20	Turner Park	Duplicate of GP02-S02
GP21-S21	Emily-Omemee Community Centre Park	Duplicate of GP12-S12

Prior to sampling, access to the properties for sampling purposes was obtained by BWXT by contacting the City of Peterborough, City of Kawartha Lakes, and the Prince of Wales School.

All sample locations were in grass covered areas. The following sampling methodology was used for the annual 2022 surface soil sampling program.

— The sampling location was confirmed using a hand-held GPS receiver using previously established sampling location coordinates;

— The sampling location was cleared of debris, if present (i.e. grass roots, stones, other materials) to allow sample collection;

— Four (4) discrete samples of surface soil (0-5 cm in depth) were collected at the four (4) cardinal directions (i.e. north, south, west, east), within a 50 cm radius of each predetermined sample location using a stainless-steel trowel;

— These discrete samples were placed onto a clean steel sample tray contained within a large Ziploc® bag and was mixed with a stainless-steel spoon. Once thoroughly mixed, the composite sample was placed into a laboratory provided 250 mL clear glass sample container. Any excess soil was placed back into the sample divots and was topped with any of the grass that was removed;

— New nitrile gloves were worn by Englobe staff at each sampling location and used gloves were discarded after sample collection;

— Soil samples were placed into a cooler with ice after sample collection to initiate cooling for transport to the laboratory for analysis;

— The sample trowel, spoon and sample tray were cleaned between sampling locations by spraying with an Alconox® soap and water solution and then distilled water dispensed from spray bottles, then wiped clean with new paper towel. Once confirmed to contain no soil residue, these sampling tools were placed into a new Ziploc® bag for transport to the next sample location; and

— The spent Ziploc® bags were discarded along with any soiled paper towels and nitrile gloves into a garbage bag.

4.1 Analytical Method Reference EPA 200.2/6020 (mod)

The analytical method reference and laboratory used in the annual 2022 surface soil sampling program remained the same as the 2020 and 2021 programs.

As included in the ALS Canada Ltd. (ALS) of Waterloo, Ontario work order WT2210705 quality control interpretive report included in Appendix B, the method reference used for metals in soil is EPA 200.2/6020B (mod).

The preparation of each sample included drying each sample, then sieved through a 2 mm sieve, digested with HNO_3 and HCL to liberate metals that may be environmentally available.

The analysis was completed by collision reaction cell (CRC) inductively coupled plasma-mass spectrometry (ICP-MS).

The analysis by ALS was completed in accordance with the MECP "Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.1 of the Environmental Protection Act", July 1, 2011.

4.2 QA/QC

ALS implemented internal laboratory protocols, including method blanks, duplicates, laboratory control sample, and surrogate recoveries, to assess the precision and accuracy of the analytical data.

The analysis by ALS was completed in accordance with the MECP "Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.1 of the Environmental Protection Act", July 1, 2011.

Two (2) blind duplicate samples (GP20-S20 and GP21-S21) were collected by Englobe to assess the potential variability in the samples and to assess the accuracy of the laboratory.

Three (3) background surface soil samples (GP11-S11, GP12-S12 and GP13-S13) were collected from a location approximately 19 kilometres west of BWXT and are anticipated to represent Ontario background levels or beryllium and uranium.

A copy of the laboratory report is included in Appendix B.

5 Evaluation of Results

5.1 Soil Quality

The analytical results for beryllium and uranium for all soil samples collected and analyzed in the annual 2022 surface soil sampling program are well below the most stringent Site Condition Standards in MECP Table 1: Full Depth Background Site Condition Standards for Residential, Parkland, Institutional, Industrial, Commercial, and community Property Uses.

5.2 QA/QC

A review of blind duplicate samples indicates a good correlation between the original sample and the duplicate sample.

A review of the laboratory QA/QC indicates that there were no issues identified that would have a material effect on the conclusions of this report.

6 Conclusion

The analytical results for beryllium and uranium for all soil samples collected and analyzed in the annual 2022 surface soil sampling program indicate concentrations well below the most stringent Site Condition Standards in MECP Table 1: Full Depth Background Site Condition Standards for Residential, Parkland, Institutional, Industrial, Commercial, and community Property Uses.

The 2022 concentrations for beryllium are comparable to those measured in 2020 and 2021. The 2022 uranium concentrations are comparable to those measured in 2021.

Based on the results of the annual 2022 surface soil sampling program, there is no evidence that beryllium or uranium used at the BWXT facility have impacted soils in the specified testing areas.

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The conclusions presented herein are based on information gathered from a limited historical review of readily available geological, historical, and regulatory information and a field surface soil sampling program at specific pre-established locations. Consequently, the presence and/or extent of any adverse environmental impact is an opinion that has been arrived at within the scope of this assessment.

The assessment should not be considered a comprehensive audit that covers and eliminates all present, past, and future risks. The information presented in this Report is based on data collected during the completion of the field sampling conducted. The overall subsurface conditions were extrapolated based on information collected at specific sampling locations. Professional judgement was exercised in gathering and analyzing data; however, no monitoring method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Consequently, the actual subsurface conditions between the sampling points may vary. In addition, analysis has been carried out only for the chemical and physical parameters identified, and it should not be inferred that other chemical species or physical conditions are not present.

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Any results from laboratory or other subcontractors reported herein have been carried out by others, and the Company cannot warrant their accuracy.

8 References

Canadian Nuclear Safety Commission, 2022:
Independent Environmental Monitoring Program, BWXT Nuclear Energy Canada Inc., Peterborough, modified 2022-03-14, https://nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/bwxt-peterborough.cfm.

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Nuclear Facility – BWXT Nuclear Energy Canada Inc. – Peterborough, modified 2022-06-17, https://nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/bwxt-peterborough.cfm.

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Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, O. Reg. 153/04 (as amended), April 15, 2011.

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Ministry of the Environment, Conservation and Parks, 1996:
Guidelines on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, December 1996.

SDK Environmental Consulting & Services, 2021:
Annual 2021 Soil Siltation Sampling Program, BWXT Nuclear Energy Canada Inc. Peterborough Facility, Project P1236, September 21, 2021.

Figures

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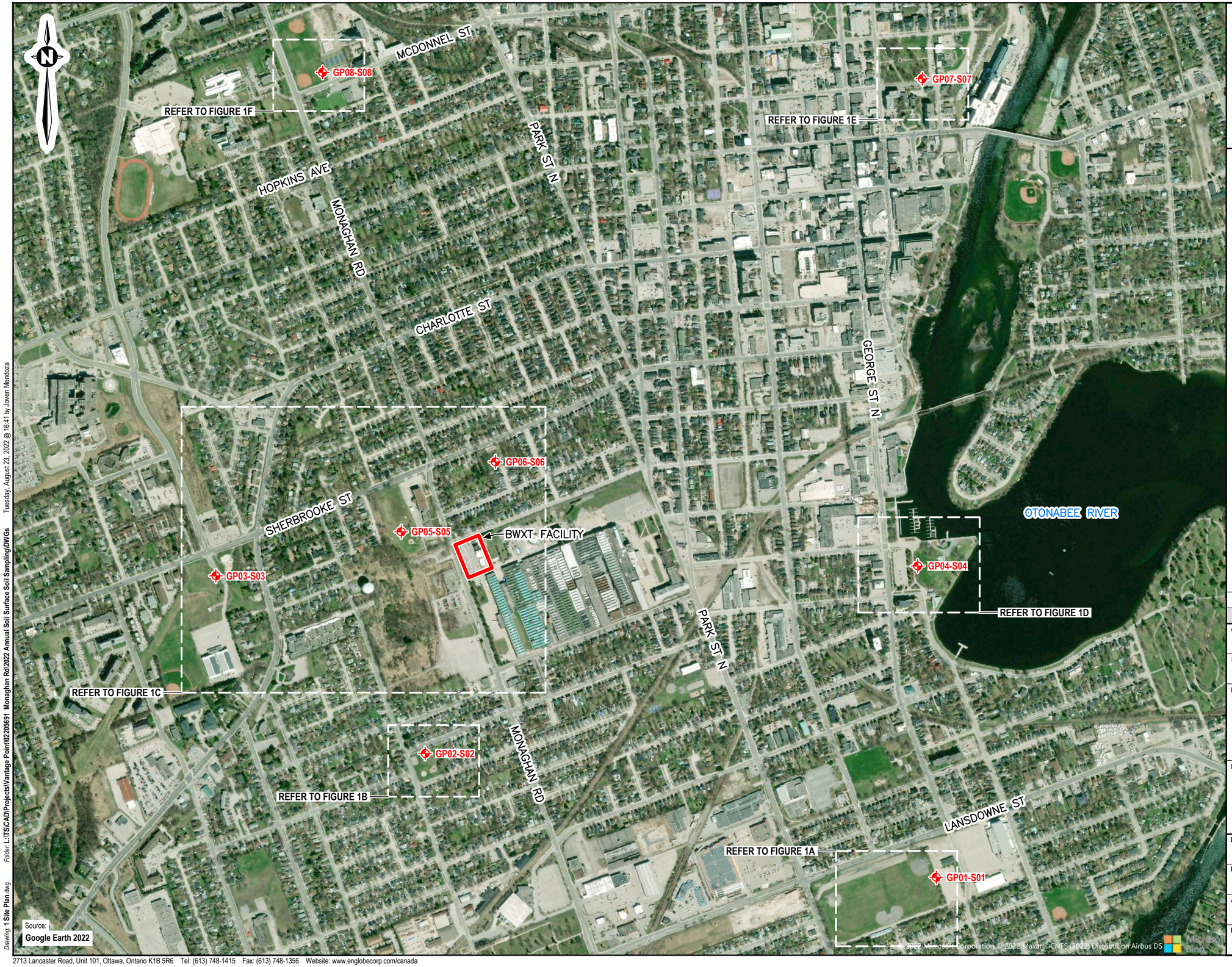

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Note

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- BWXT Facility Location

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Scale accurate when printed at 100% using paper size ANSI full bleed B (11.0 x 17.0 Inches)

Revision	Date	Issue	Approval
A	2022/08/23	Preliminary	

Client
BWXT Nuclear Energy Canada Inc.

Site
1160 Monaghan Road, Peterborough, ON

Report Title
Annual Surface Soil Sampling Program

Drawing Title
Peterborough Sampling Locations

Designed By: BS	Scale: As shown
Drawn By: JM	Date: December 2022
Approved By: BG	Project No.: 02205691.000
Figure No.: 1	

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Google Earth 2022

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Client
BWXT Nuclear Energy Canada Inc.

Site
1160 Monaghan Road, Peterborough, ON

Report Title
Annual Surface Soil Sampling Program

Drawing Title
R. A. Morrow Memorial Park Sampling Location

Designed By	Scale
BS	As shown
Drawn By	**Date**
JM	December 2022
Approved By	**Project No.**
BG	02205691.000

Figure No.
1A

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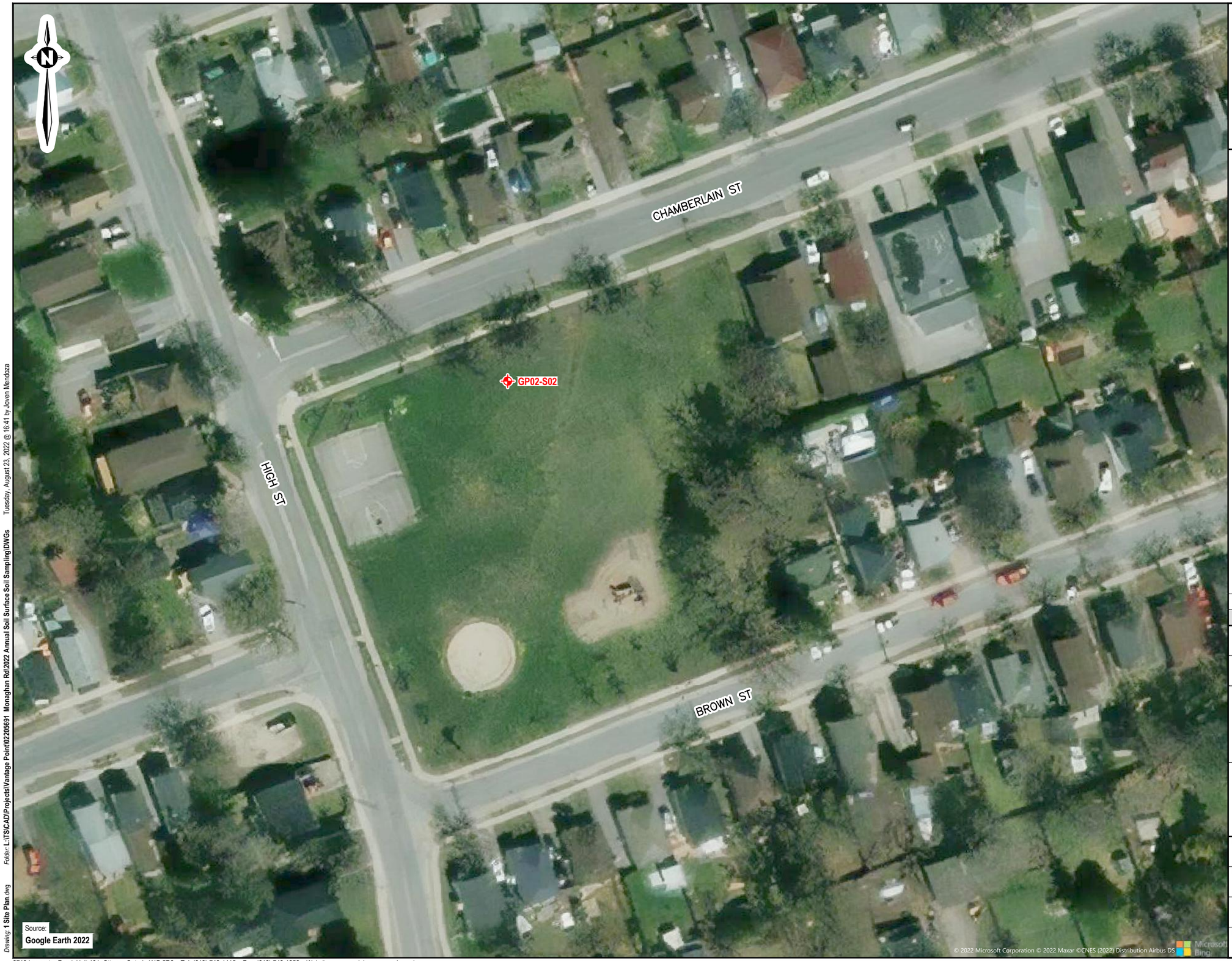

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Revision	Date	Issue	Approval
A	2022/08/23	Preliminary	

Client: **BWXT Nuclear Energy Canada Inc.**

Site: **1160 Monaghan Road, Peterborough, ON**

Report Title: **Annual Surface Soil Sampling Program**

Drawing Title: **Turner Park Sampling Location**

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Drawn By: JM	Date: December 2022
Approved By: BG	Project No.: 02205691.000
Figure No.: **1B**	

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A	2022/08/23	Preliminary	

Client: **BWXT Nuclear Energy Canada Inc.**

Site: **1160 Monaghan Road, Peterborough, ON**

Report Title: **Annual Surface Soil Sampling Program**

Drawing Title: **Kinsmen Park / Prince of Wales School Sherbrooke Park Sampling Location**

Designed By	Scale
BS	As shown
Drawn By	**Date**
JM	December 2022
Approved By	**Project No.**
BG	02205691.000

Figure No. **1C**

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Surface Soil Sample Location

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A	2022/08/23	Preliminary	

Client
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Site
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Report Title
Annual Surface Soil Sampling Program

Drawing Title
Del Crary Park Sampling Location

Designed By	Scale
BS	As shown
Drawn By	**Date**
JM	December 2022
Approved By	**Project No.**
BG	02205691.000

Figure No.
1D

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Surface Soil Sample Location

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Scale accurate when printed at 100% using paper size ANSI full bleed B (11.0 x 17.0 Inches)

Revision	Date	Issue	Approval
A	2022/08/23	Preliminary	

Client
BWXT Nuclear Energy Canada Inc.

Site
1160 Monaghan Road, Peterborough, ON

Report Title
Annual Surface Soil Sampling Program

Drawing Title
Victoria Park Sampling Location

Designed By: BS	Scale: As shown
Drawn By: JM	Date: December 2022
Approved By: BG	Project No.: 02205691.000
Figure No.: 1E	

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Note

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Legend

Surface Soil Sample Location

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0 5 cm

Scale accurate when printed at 100% using paper size ANSI full bleed B (11.0 x 17.0 Inches)

Revision	Date	Issue	Approval
A	2022/08/23	Preliminary	

Client
BWXT Nuclear Energy Canada Inc.

Site
1160 Monaghan Road, Peterborough, ON

Report Title
Annual Surface Soil Sampling Program

Drawing Title
Bonnerworth Park Sampling Location

Designed By: BS	Scale: As shown
Drawn By: JM	Date: December 2022
Approved By: BG	Project No.: 02205691.000
Figure No.: 1F	

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Surface Soil Sample Location

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Scale accurate when printed at 100% using paper size ANSI full bleed B (11.0 x 17.0 Inches)

Revision	Date	Issue	Approval
A	2022/08/23	Preliminary	

Client
BWXT Nuclear Energy Canada Inc.

Site
1160 Monaghan Road, Peterborough, ON

Report Title
Annual Surface Soil Sampling Program

Drawing Title
Emily-Omemee Community Centre Park
Background Sampling Locations

Designed By: BS	Scale: As shown
Drawn By: JM	Date: December 2022
Approved By: BG	Project No.: 02205691.000
Figure No.: 2	

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Appendix A
Surface Soil Analytical Results

Table 1: 2022 Surface Soil Sampling Results - Beryllium

Table 2: 2022 Surface Soil Sampling Results - Uranium

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Table 1
2022 Surface Soil Sampling Results - Beryllium
BWXT - Peterborough, Ontario

Sample ID	Sample Location	Property Use	MECP Table 1 SCS (µg/g)	2020	2021	2022
GP01-S01	R.A. Morrow Memorial Park	Parkland	2.5	<0.50	<0.50	<0.50
GP02-S02	Turner Park	Parkland	2.5	<0.50	<0.50	<0.50
GP03-S03	Kinsmen Park	Parkland	2.5	<0.50	<0.50	<0.50
GP04-S04	Del Crary Park	Parkland	2.5	<0.50	<0.50	<0.50
GP05-S05	Prince of Wales School	Institutional	2.5	0.50	<0.50	<0.50
GP06-S06	Park on Adeline St. off Patterson St.	Parkland	2.5	0.52	0.55	0.53
GP07-S07	Victoria Park	Parkland	2.5	<0.50	<0.50	<0.50
GP08-S08	Bonnerworth Park	Parkland	2.5	<0.50	<0.50	<0.50
GP11-S11	Emily-Omemee Park	Parkland	2.5	<0.50	<0.50	<0.50
GP12-S12	Emily-Omemee Park	Parkland	2.5	<0.50	<0.50	<0.50
GP13-S13	Emily-Omemee Park	Parkland	2.5	<0.50	<0.50	<0.50
GP20-S20	Duplicate of GP02-S02	Parkland	2.5	<0.50	<0.50	<0.50
GP21-S21	Duplicate of GP12-S12	Parkland	2.5	<0.50	<0.50	<0.50

Notes

All results expressed as µg/g.

NV	No Criteria/RDL Value
NA	Not Applicable
'<'	Value is less than the Reported Detection Limit (RDL)
MECP	Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MECP 2011), Table 1: Full Depth Background Site Condition Standards for Residential, Parkland, Institutional, Industrial, Commercial, Community Property Use.
Yellow Highlight	Exceeds Table 1 Site Condition Standards

Table 2
2022 Surface Soil Sampling Results - Uranium
BWXT - Peterborough, Ontario

Sample ID	Sample Location	Property Use	MECP Table 1 SCS (µg/g)	2021	2022
GP01-S01	R.A. Morrow Memorial Park	Parkland	2.5	<1.0	<1.0
GP02-S02	Turner Park	Parkland	2.5	<1.0	<1.0
GP03-S03	Kinsmen Park	Parkland	2.5	<1.0	<1.0
GP04-S04	Del Crary Park	Parkland	2.5	<1.0	<1.0
GP05-S05	Prince of Wales School	Institutional	2.5	<1.0	<1.0
GP06-S06	Park on Adeline St. off Patterson St.	Parkland	2.5	<1.0	<1.0
GP07-S07	Victoria Park	Parkland	2.5	<1.0	<1.0
GP08-S08	Bonnerworth Park	Parkland	2.5	1.0	<1.0
GP11-S11	Emily-Omemee Park	Parkland	2.5	<1.0	<1.0
GP12-S12	Emily-Omemee Park	Parkland	2.5	<1.0	<1.0
GP13-S13	Emily-Omemee Park	Parkland	2.5	<1.0	<1.0
GP20-S20	Duplicate of GP02-S02	Parkland	2.5	<1.0	<1.0
GP21-S21	Duplicate of GP12-S12	Parkland	2.5	<1.0	<1.0

Notes

All results expressed as µg/g.

NV	No Criteria/RDL Value
NA	Not Applicable
'<'	Value is less than the RDL
MECP	Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MECP 2011), Table 1: Full Depth Background Site Condition Standards for Residential, Parkland, Institutional, Industrial, Commercial, Community Property Use.
Yellow Highlight	Exceeds Table 1 Site Condition Standards

Appendix B
Laboratory Certificate of Analysis

ENGLOBE

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2210705**	Page	: 1 of 15
Amendment	: **3**		
Client	: **Englobe Corp.**	Laboratory	: Waterloo - Environmental
Contact	: Brian Schuyler	Account Manager	: Emily Smith
Address	: 3397 America Drive Unit #14/15 Mississauga ON Canada L4V 1T8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 1 877 300 4800	Telephone	: +1 519 886 6910
Project	: 02205691.000	Date Samples Received	: 15-Aug-2022 12:45
PO	: ----	Date Analysis Commenced	: 17-Aug-2022
C-O-C number	: 20-1003998	Issue Date	: 14-Sep-2022 10:55
Sampler	: BS		
Site	: ----		
Quote number	: 2022 Price List (Mississauga, Ottawa, Sudbury)		
No. of samples received	: 13		
No. of samples analysed	: 13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Supervisor - Inorganic	Metals, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
mg/kg	milligrams per kilogram

>: greater than.
<: less than.
Red shading is applied where the result is greater than the Guideline Upper Limit or the result is lower than the Guideline Lower Limit.
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP01-S01						
			Sampling date/time	11-Aug-2022 11:40						
Analyte	Method	LOR	Unit	WT2210705-001	ON153/04 T1-RPIICC					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP02-S02						
			Sampling date/time	11-Aug-2022 10:30						
Analyte	*Method*	*LOR*	*Unit*	WT2210705-002	**ON153/04 T1-RPIICC**					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP03-S03						
			Sampling date/time	11-Aug-2022 11:00						
Analyte	Method	LOR	Unit	WT2210705-003	ON153/04 T1-RPIICC					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP04-S04						
			Sampling date/time	11-Aug-2022 12:05						
Analyte	Method	LOR	Unit	WT2210705-004	ON153/04 T1-RPIICC					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP05-S05						
			Sampling date/time	11-Aug-2022 09:30						
Analyte	Method	LOR	Unit	WT2210705-005	ON153/04 T1-RPIICC					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP06-S06						
			Sampling date/time	11-Aug-2022 09:54						
Analyte	Method	LOR	Unit	WT2210705-006	ON153/04 T1-RPIICC					
Metals										
beryllium	E440	0.10	mg/kg	0.53	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP07-S07						
			Sampling date/time	11-Aug-2022 12:35						
Analyte	Method	LOR	Unit	WT2210705-007	ON153/04 T1-RPIICC					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP08-S08						
			Sampling date/time	11-Aug-2022 13:30						
Analyte	*Method*	*LOR*	*Unit*	WT2210705-008	**ON153/04 T1-RPIICC**					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP11-S11						
			Sampling date/time	11-Aug-2022 14:35						
Analyte	Method	LOR	Unit	WT2210705-009	ON153/04 T1-RPIICC					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP12-S12						
			Sampling date/time	11-Aug-2022 14:15						
Analyte	*Method*	*LOR*	*Unit*	WT2210705-010	**ON153/04 T1-RPIICC**					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP13-S13						
			Sampling date/time	11-Aug-2022 14:00						
Analyte	*Method*	*LOR*	*Unit*	WT2210705-011	**ON153/04 T1-RPIICC**					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP20-S20						
			Sampling date/time	11-Aug-2022 10:35						
Analyte	Method	LOR	Unit	WT2210705-012	ON153/04 T1-RPIICC					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Analytical Results

Sub-Matrix: Soil (Matrix: Soil/Solid)			Client sample ID	GP21-S21						
			Sampling date/time	11-Aug-2022 14:20						
Analyte	Method	LOR	Unit	WT2210705-013	ON153/04 T1-RPIICC					
Metals										
beryllium	E440	0.10	mg/kg	<0.50	2.5 mg/kg					
uranium	E440	0.050	mg/kg	<1.00	2.5 mg/kg					

Please refer to the General Comments section for an explanation of any qualifiers detected.

No Breaches Found

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2210705**	Page	: 1 of 6
Amendment	: 3		
Client	: **Englobe Corp.**	Laboratory	: Waterloo - Environmental
Contact	: Brian Schuyler	Account Manager	: Emily Smith
Address	: 3397 America Drive Unit #14/15 Mississauga ON Canada L4V 1T8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 1 877 300 4800	Telephone	: +1 519 886 6910
Project	: 02205691.000	Date Samples Received	: 15-Aug-2022 12:45
PO	: ----	Issue Date	: 14-Sep-2022 10:55
C-O-C number	: 20-1003998		
Sampler	: BS		
Site	: ----		
Quote number	: 2022 Price List (Mississauga, Ottawa, Sudbury)		
No. of samples received	: 13		
No. of samples analysed	: 13		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP01-S01	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP02-S02	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP03-S03	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP04-S04	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP05-S05	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP06-S06	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP07-S07	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP08-S08	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP11-S11	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP12-S12	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP13-S13	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP20-S20	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
GP21-S21	E440	11-Aug-2022	17-Aug-2022	----	----		18-Aug-2022	180 days	7 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Metals in Soil/Solid by CRC ICPMS	E440	605437	1	14	7.1	5.0	✓
Laboratory Control Samples (LCS)							
Metals in Soil/Solid by CRC ICPMS	E440	605437	2	14	14.2	10.0	✓
Method Blanks (MB)							
Metals in Soil/Solid by CRC ICPMS	E440	605437	1	14	7.1	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals in Soil/Solid by CRC ICPMS	E440 Waterloo - Environmental	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury	EP440 Waterloo - Environmental	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **WT2210705**	Page	: 1 of 3
Amendment	: **3**		
Client	: Englobe Corp.	Laboratory	: Waterloo - Environmental
Contact	: Brian Schuyler	Account Manager	: Emily Smith
Address	: 3397 America Drive Unit #14/15 Mississauga ON Canada L4V 1T8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 1 877 300 4800	Telephone	: +1 519 886 6910
Project	: 02205691.000	Date Samples Received	: 15-Aug-2022 12:45
PO	: ----	Date Analysis Commenced	: 17-Aug-2022
C-O-C number	: 20-1003998	Issue Date	: 14-Sep-2022 10:55
Sampler	: BS		
Site	: ----		
Quote number	: 2022 Price List (Mississauga, Ottawa, Sudbury)		
No. of samples received	: 13		
No. of samples analysed	: 13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Metals (QC Lot: 605437)											
WT2210577-001	Anonymous	beryllium	7440-41-7	E440	0.10	mg/kg	0.34 µg/g	0.34	0.006	Diff <2x LOR	----
		uranium	7440-61-1	E440	0.050	mg/kg	0.665 µg/g	0.676	1.68%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 605437)						
beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 605437)									
beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	100	80.0	120	----
uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	92.1	80.0	120	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 605437)									
	RM	beryllium	7440-41-7	E440	0.349 mg/kg	111	70.0	130	----
	RM	uranium	7440-61-1	E440	0.52 mg/kg	94.8	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1003998

Page

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division Waterloo
Work Order Reference
WT2210705

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Englobe Corp.
Contact:	Brian Schuyler
Phone:	905.717.6720
	Company address below will appear on the final report
Street:	3397 American Drive, Unit 4&5
City/Province:	Mississauga, ON
Postal Code:	
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☒ YES ☐ NO ☐ N/A
☒ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: brian.schuyler@englobecorp.com
Email 2:
Email 3:

Invoice Recipients

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: brian.schuyler@englobecorp.com
Email 2:

Turnaround Time (TAT) Requested

☒ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-standard TAT.

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please

Project Information

ALS Account # / Quote #: Q88294
Job #: 0220569.000
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#
Major/Minor Code: | Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (ALS use only): WT2210705

ALS Contact: Emily Smith | Sampler: B. Schuyler

Analysis Re...

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below: Beryllium	Uranium	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	GP01-S01	Aug. 11/22	11:40	Soil	1	X	X			
	GP02-S02		10:30		1	X	X			
	GP03-S03		11:00		1	X	X			
	GP04-S04		12:05		1	X	X			
	GP05-S05		9:30		1	X	X			
	GP06-S06		9:54		1	X	X			
	GP07-S07		12:35		1	X	X			
	GP08-S08		1:30		1	X	X			
	GP11-S11		2:35		1	X	X			
	GP12-S12		2:15		1	X	X			
	GP13-S13		2:00		1	X	X			
	GP20-S20		10:35		1	X	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

MECP Table 1 Res/Park/Med/Ind/Com/Comm Property Use
* Contact Brian Schuyler before disposing samples

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
2.2				0.9			

SHIPMENT RELEASE (client use)

Released by: | Date: Aug 15/22 | Time: 12:46

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: | Date: Aug 15/22 | Time: 12:45

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: | Date: Aug 16 22 | Time: 17:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1004001

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	Enbridge Corp.
Contact:	Brian Schuyler
Phone:	905-717-6420
	Company address below will appear on the final report
Street:	3397 American Drive Suite 144K
City/Province:	Mississauga, ON
Postal Code:	

Invoice To		
	Same as Report To	☐ YES ☐ NO
	Copy of Invoice with Report	☐ YES ☐ NO
Company:		
Contact:		

Project Information	
ALS Account # / Quote #:	Q 88294
Job #:	0220 5691.000
PO / AFE:	
LSD:	

Reports / Recipients	
Select Report Format:	☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☒ YES ☐ NO ☐ N/A
☒ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	brian.schuyler@enbridgecorp.com
Email 2	
Email 3	

Invoice Recipients	
Select Invoice Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	brian.schuyler@enbridgecorp.com
Email 2	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only): WT2210705

ALS Contact: Emily Smith

Sampler: B. Schuyler

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For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Beryllium	Uranium	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	GP21-S21	Aug 11/22	2:20	SOIL	1	X	X			

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Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

MECP Table 1 Res/Park/Inst/Ind/Com/Commun Property Use

*contact Brian Schuyler before disposing samples

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