



September 13, 2024

Osgoode Properties
1284 Wellington Street
Ottawa, ON K1Y 3A9

E-mail: gcarran@osgoode.ca

Attention: Geoff Carran
Senior Director of Investments

Re: **Groundwater Quality Letter**
2025 and 2035 Othello Avenue, Ottawa, Ontario
Pinchin File: 335920

1.0 INTRODUCTION

Pinchin has produced the following letter detailing the groundwater quality results of one groundwater sample taken from the existing monitoring wells located at 2025 and 2035 Othello Avenue for the purpose of determining whether discharging groundwater into the storm and sanitary sewers is feasible without treatment.

2.0 BACKGROUND INVESTIGATIONS

Pinchin was requested by the Client to complete a Geotechnical Investigation at the Site in the spring of 2024. The proposal that Pinchin provided discussed completing a Geotechnical Investigation and a Hydrogeological Assessment concurrently.

The final Geotechnical Investigation report can be referenced as follows:

- *"FINAL Geotechnical Investigation Report – Proposed Residential Development", prepared by Pinchin Ltd., project number 335920, and dated May 28, 2024.*

Based on information provided by the Client, it is Pinchin's understanding that the Client wishes to develop the western portion of their current property with four (4) 3.5 storey, 10-unit townhouse blocks and three (3) 3.5-storey, 8-unit townhouse blocks. All townhouse blocks are to include a single basement level, new Site services and asphalt surfaced access roadways and parking areas.

Due to the proposed development, Pinchin had proposed a hydrogeological assessment be completed to determine the extent of dewatering of the excavation that would be required during construction.



3.0 FIELD INVESTIGATION

3.1 Geotechnical Field Investigation

Pinchin completed a drilling field investigation at the Site on March 7 and 8, 2024 by advancing a total of six sampled boreholes throughout the Site. The boreholes were advanced to sampled depths of approximately 8.2 to 11.7 meters below existing ground surface (mbgs). Monitoring wells were installed in Boreholes BH1, BH3 and BH4 to allow measurement of groundwater monitoring wells. The approximate spatial locations of the boreholes advanced at the Site are shown on Figure 1.

3.2 Hydrogeological Assessment

At the request of the Client the Hydrogeological Assessment component of the project was suspended. Prior to halting the hydrogeological assessment, groundwater samples were collected on April 24, 2024, from Monitoring Well BH1 to evaluate the water quality with reference to the City of Ottawa's Sanitary Sewer Use By-Law parameter criteria for storm sewer and sanitary discharge (By-law No. 2003-514). The results of the analytical laboratory testing are provided in Appendix I.

The groundwater samples were submitted to Paracel Laboratories Ltd. Paracel has been accredited by Canadian Association for Laboratory Accreditation Inc. (CALA). The samples collected were subcontracted out to Pacific Rim Laboratories Inc. to test for Dioxins and Furans and to ALS Environment (ALS) to test for NDMA, formaldehyde and the presence of nonylphenols and ethoxylates.

The analytical results were compared with the City of Ottawa's Table 1 (Limits for Sanitary and Combined Sewers Discharge) and Table 2 (Limits for Storm Sewer Discharge). There were two exceedances noted when comparing the lab results against only Table 2 parameters. Quantified concentrations of Manganese and Total Phosphorus exceeded the maximum allowable discharge amount in storm sewers. An exceedance of Total Suspended Solids was noted when comparing the lab results against Table 1 and 2 parameters. Pinchin notes that the quantities of Zinc detected approached the limit of Table 2 parameters but did not exceed the parameters. The table below summarizes the quantified concentrations that exceeded Table 1 and Table 2 Limits. The full comparison of all the lab results against the Table 1 and Table 2 discharge limits can be found in Appendix I.

Chemical Component	Table 1 (mg/L)	Table 2 (mg/L)	BH1 (mg/L)
TSS	350	15	980
Manganese	5	0.05	1.38
Total Phosphorus	10	0.4	0.97



Based on the quantified groundwater conditions confirmed via analytical testing, groundwater remediation and/or treatment would be required to facilitate the approved use of the City of Ottawa Sewers for construction and long-term operational dewatering discharges.

4.0 CONCLUSION

Pinchin notes that the contents of the letter above do not replace a complete hydrogeological assessment and should the City of Ottawa require one, additional investigative work, sampling and testing would be required. Should you have any questions or concerns regarding the contents of this letter, please contact the undersigned.

Yours truly,

Pinchin Ltd.

Prepared by:

Reviewed by:

Megan Keon, EIT.
Project Manager, Geotechnical Services

613.608.5350
mkeon@pinchin.com

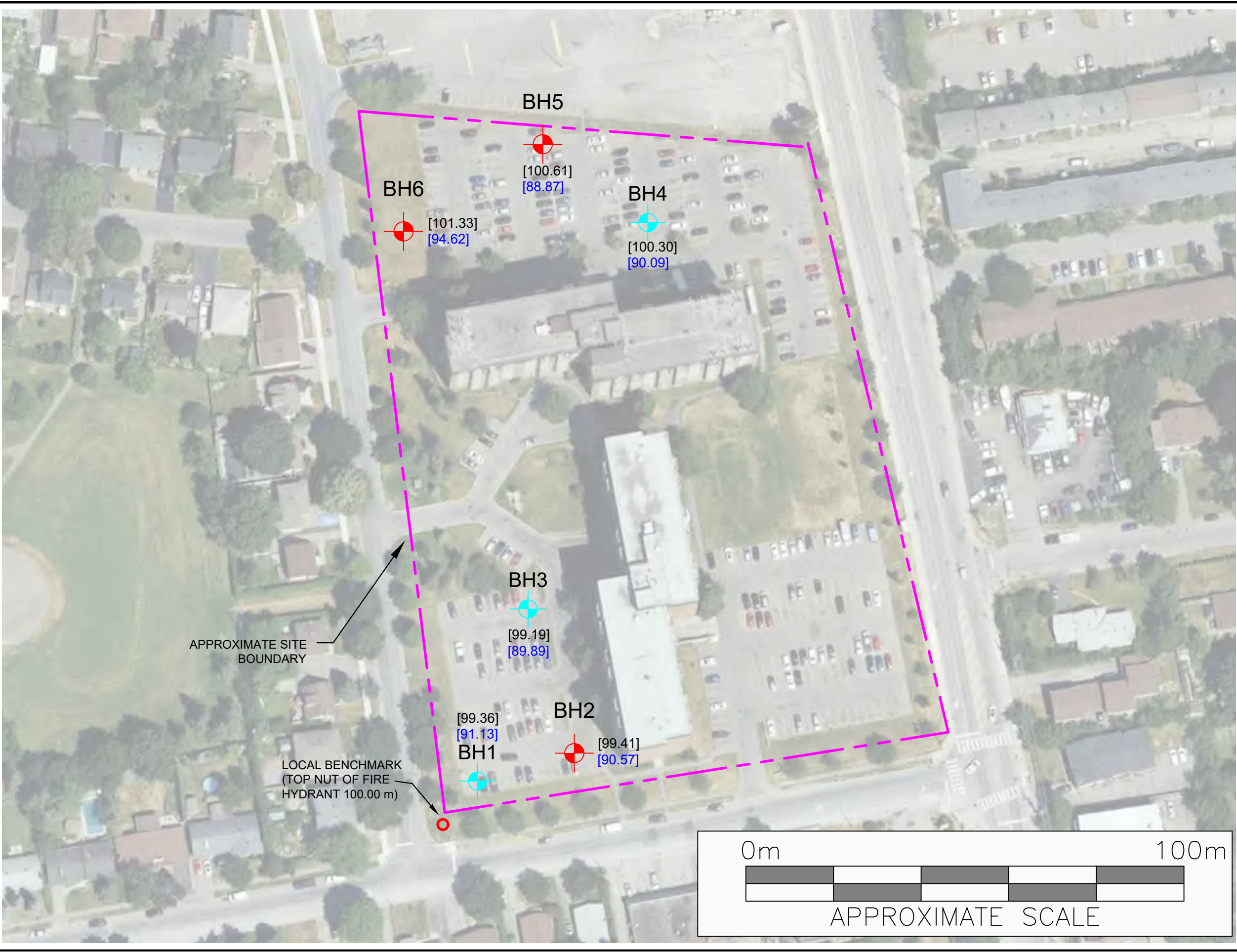
Tim McBride, B.Sc., P.Geo., QP_{ESA}
Director, Northern Ontario
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Encl.: Figure 1 – Borehole and Monitoring Well Locations
Appendix I – Groundwater Quality Lab Results

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Othello Ave Ottawa ON OSGOODE Sept 13 2024.docx

Template: Master Letter Template, October 1, 2019



LEGEND

- BOREHOLE LOCATION
- MONITORING WELL LOCATION
- [99.48] LOCAL GROUND SURFACE ELEVATION (m)
- [92.78] LOCAL TERMINATION ELEVATION (m)



PROJECT NAME
GEOTECHNICAL INVESTIGATION

CLIENT NAME
OSGOODE PROPERTIES

PROJECT LOCATION
2025 & 2035 OTHELLO AVENUE,
OTTAWA, ONTARIO

FIGURE NAME
BOREHOLE/MONITORING WELL
LOCATION PLAN

APPROXIMATE SCALE
AS SHOWN

PROJECT NO.
335920

DATE
SEPT 2024

FIGURE NO.
1



Reg 2003-514: City of Ottawa Table 1 and Table 2 Limits for Discharge

Project Address: 2025 and 2035 Othello Avenue, Ottawa, C

Project Number: 335920

Date: September 12, 2024

Table 1. Limits for Sanitary and Combined Sewers Discharge

EXCEEDS

Table 2. Limits for Storm Sewer Discharge

EXCEEDS

Table 1 & 2

EXCEEDS

Chemical Component	Table 1 (mg/L)	Table 2 (mg/L)	BH1 (mg/L)
GENERAL ORGANICS & HYDROCARBONS			
BOD	300	25	<2.0
Cyanide	2	0.02	<0.01
Fluoride	10		0.2
TKN	100		0.7
Oil & Grease - Animal and Vegetable	150		<0.5
Oil & Grease - Mineral and Synthetic	15		<0.5
Phenolics	1	0.008	<0.001
Phosphorus (total)	10	0.4	0.97
Sulphates	1500		118
Sulphides	2		<0.02
Suspended Solids (total)	350	15	980
pH	5.5-11	6-9	7.5
METALS			
Aluminum	50		10.3
Antimony	5		<0.001
Arsenic	1	0.02	<0.01
Bismuth	5		0.007
Boron	25		0.41
Cadmium	0.02	0.08	<0.001
Chromium	5		<0.05
Cobalt	5		0.01
Copper	3	0.04	0.017
Lead	5	0.12	0.011
Manganese	5	0.05	1.38
Mercury	0.001	0.0004	<0.0001
Molybdenum	5		0.012
Nickel	3	0.08	0.02
Selenium	5	0.02	<0.005
Silver	5	0.12	<0.001
Tin	5		<0.01
Titanium	5		1.1
Vanadium	5		0.03
Zinc	3	0.04	0.04

Chemical Component	Table 1 (mg/L)	Table 2 (mg/L)	BH1 (mg/L)
VOLATILES & SEMIVOLATILES			
Benzene	0.01	0.002	<0.0005
Bromodichloromethane	0.35		<0.0005
Bromoform	0.63		<0.0005
Bromomethane	0.11		<0.0005
Carbon Tetrachloride	0.057		<0.0002
Chlorobenzene	0.057		<0.0005
Chloroethane	0.27		<0.0010
Chloroform	0.08		<0.0005
Chloromethane	0.19		<0.0030
Dibromochloromethane	0.057		<0.0005
1,2 Dibromoethane	0.028		<0.0002
1,2 Dichlorobenzene	0.088	0.0056	<0.0005
1,3 Dichlorobenzene	0.036		<0.0005
1,4 Dichlorobenzene	0.017	0.0068	<0.0005
1,1 Dichloroethane	0.2		<0.0005
1,2 Dichloroethane	0.21		<0.0005
1,1 Dichloroethylene	0.04		<0.0005
cis - 1,2, dichloroethylene	0.2	0.0056	<0.0005
trans - 1,2, dichloroethylene	0.2		<0.0005
1,2, dichloropropane	0.85		<0.0005
cis - 1,3 dichloropropylene	0.07		<0.0005
trans - 1,3 dichloropropylene	0.07	0.0056	<0.0005
Ethylbenzene	0.057	0.002	<0.0005
Methylene Chloride	0.211	0.0052	<0.005
Styrene	0.04		<0.0005
1,1,2,2 Tetrachloroethane	0.04	0.017	<0.0005
Tetrachloroethylene	0.05	0.0044	<0.0005
Toluene	0.08	0.002	<0.0005
1,1,1 - Trichloroethane	0.054		<0.0005
1,1,2 - Trichloroethane	0.8		<0.0005
Trichloroethylene	0.054	0.0076	<0.0005
Trichlorofluoromethane	0.02		<0.0005
1,3,5 Trimethylbenzene	0.003		<0.0005
Vinyl chloride	0.4		<0.0005
Xylene	0.32	0.0044	<0.0005
Bis -methane	0.036		<0.00118
Bis - phthalate	0.28		<0.00118
Benzylbutylphthalate	0.017		<0.00059
Diethylphthalate	0.2		<0.00118
Di-n-butylphthalate	0.057		0.00745
Di-n-octylphthalate	0.03		<0.00118
Fluorene	0.059		<0.00006
Indole	0.05		<0.00118

Chemical Component	Table 1 (mg/L)	Table 2 (mg/L)	BH1 (mg/L)
1-Methylnaphthalene	0.032		<0.00006
2-Methylnaphthalene	0.022		<0.00006
Napthalene	0.059	0.0064	<0.00006
Total PAHs	0.015	0.006	<0.0029
2,4, Dichlorophenol	0.044		<0.00118
DIOXINS & FURANS, FORMALDEHYDE, PESTICIDES AND PCBs			
Dioxins and Furans	0.00072		<0.0001
Formaldehyde	0.3		0.0023
Hexachlorobenzene	0.0001	0.00004	<0.00001
N-Nitrosodimethylamine	0.1		<0.0004
Nonylphenols	0.0025	0.001	<0.001
Nonylphenol ethoxylates	0.025	0.01	<0.002
PCBs		0.0004	<0.05

Certificate of Analysis

Pinchin Ltd. (Ottawa)

1 Hines Road, Suite 200

Kanata, ON K2K 3C7

Attn: Megan Keon

Client PO:

Project: 335920

Custody: 72725

Report Date: 2-May-2024

Order Date: 24-Apr-2024

Order #: 2417193

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2417193-01	BH1

Approved By:



Dale Robertson, BSc

Laboratory Director

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	24-Apr-24	24-Apr-24
CBOD	SM 5210B - DO Probe	24-Apr-24	29-Apr-24
Cyanide, total	MOE E3015 - Auto Colour	25-Apr-24	25-Apr-24
E. coli	MOE E3407	24-Apr-24	24-Apr-24
Hexachlorobenzene	EPA 8081B - GC-ECD	29-Apr-24	29-Apr-24
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	24-Apr-24	24-Apr-24
Metals, ICP-MS	EPA 200.8 - ICP-MS	26-Apr-24	26-Apr-24
Oil & Grease, mineral/synthetic	SM5520F - Gravimetric	27-Apr-24	29-Apr-24
Oil & Grease, total	SM5520B - Gravimetric, hexane soluble	27-Apr-24	29-Apr-24
Oil & Grease, Animal/Vegetable	SM5520 - Gravimetric	27-Apr-24	29-Apr-24
Ottawa - San/Comb: SVOCs with PAHs	EPA 625 - GC-MS, extraction	1-May-24	1-May-24
PCBs, total	EPA 608 - GC-ECD	29-Apr-24	29-Apr-24
pH	EPA 150.1 - pH probe @25 °C	26-Apr-24	26-Apr-24
Phenolics	EPA 420.2 - Auto Colour, 4AAP	25-Apr-24	25-Apr-24
Phosphorus, total, water	EPA 365.4 - Auto Colour, digestion	26-Apr-24	29-Apr-24
Total Kjeldahl Nitrogen	EPA 351.2 - Auto Colour, digestion	26-Apr-24	29-Apr-24
Total Suspended Solids	SM 2540D - Gravimetric	26-Apr-24	26-Apr-24
VOCs, Sewer Use	EPA 624 - P&T GC-MS	24-Apr-24	25-Apr-24

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Client ID:	BH1	-	-	-	-
Sample Date:	24-Apr-24 08:00	-	-	-	-
Sample ID:	2417193-01	-	-	-	-
Matrix:	Ground Water	-	-	-	-
MDL/Units					

Microbiological Parameters

E. coli	1 CFU/100mL	<10 [1] [2]	-	-	-	-
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General Inorganics

CBOD	2 mg/L	<2	-	-	-	-
Cyanide, total	0.01 mg/L	<0.01	-	-	-	-
pH	0.1 pH Units	7.5	-	-	-	-
Phenolics	0.001 mg/L	<0.001	-	-	-	-
Phosphorus, total	0.01 mg/L	0.97	-	-	-	-
Total Suspended Solids	2 mg/L	980	-	-	-	-
Total Kjeldahl Nitrogen	0.1 mg/L	0.7	-	-	-	-

Anions

Fluoride	0.1 mg/L	0.2	-	-	-	-
Sulphate	1 mg/L	118	-	-	-	-

Metals - Total

Aluminum	0.01 mg/L	10.3	-	-	-	-
Antimony	0.001 mg/L	<0.001	-	-	-	-
Arsenic	0.01 mg/L	<0.01	-	-	-	-
Bismuth	0.005 mg/L	0.007	-	-	-	-
Boron	0.05 mg/L	0.41	-	-	-	-
Cadmium	0.001 mg/L	<0.001	-	-	-	-
Chromium	0.05 mg/L	<0.05	-	-	-	-
Cobalt	0.001 mg/L	0.010	-	-	-	-
Copper	0.005 mg/L	0.017	-	-	-	-
Lead	0.001 mg/L	0.011	-	-	-	-
Mercury	0.0001 mg/L	<0.0001	-	-	-	-
Manganese	0.05 mg/L	1.38	-	-	-	-

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Client ID:	BH1	-	-	-	-
Sample Date:	24-Apr-24 08:00	-	-	-	-
Sample ID:	2417193-01	-	-	-	-
Matrix:	Ground Water	-	-	-	-
MDL/Units					

Metals - Total

Molybdenum	0.005 mg/L	0.012	-	-	-	-
Nickel	0.005 mg/L	0.020	-	-	-	-
Selenium	0.005 mg/L	<0.005	-	-	-	-
Silver	0.001 mg/L	<0.001	-	-	-	-
Tin	0.01 mg/L	<0.01	-	-	-	-
Titanium	0.01 mg/L	1.10	-	-	-	-
Vanadium	0.001 mg/L	0.030	-	-	-	-
Zinc	0.02 mg/L	0.04	-	-	-	-

Volatiles

Benzene	0.0005 mg/L	<0.0005	-	-	-	-
Bromodichloromethane	0.0005 mg/L	<0.0005	-	-	-	-
Bromoform	0.0005 mg/L	<0.0005	-	-	-	-
Bromomethane	0.0005 mg/L	<0.0005	-	-	-	-
Carbon Tetrachloride	0.0002 mg/L	<0.0002	-	-	-	-
Chlorobenzene	0.0005 mg/L	<0.0005	-	-	-	-
Chloroethane	0.0010 mg/L	<0.0010	-	-	-	-
Chloroform	0.0005 mg/L	<0.0005	-	-	-	-
Chloromethane	0.0030 mg/L	<0.0030	-	-	-	-
Dibromochloromethane	0.0005 mg/L	<0.0005	-	-	-	-
1,2-Dibromoethane	0.0002 mg/L	<0.0002	-	-	-	-
1,2-Dichlorobenzene	0.0005 mg/L	<0.0005	-	-	-	-
1,3-Dichlorobenzene	0.0005 mg/L	<0.0005	-	-	-	-
1,4-Dichlorobenzene	0.0005 mg/L	<0.0005	-	-	-	-
1,1-Dichloroethane	0.0005 mg/L	<0.0005	-	-	-	-
1,2-Dichloroethane	0.0005 mg/L	<0.0005	-	-	-	-

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Client ID:	BH1	-	-	-	-
Sample Date:	24-Apr-24 08:00	-	-	-	-
Sample ID:	2417193-01	-	-	-	-
Matrix:	Ground Water	-	-	-	-
MDL/Units					

Volatiles

1,1-Dichloroethylene	0.0005 mg/L	<0.0005	-	-	-	-
cis-1,2-Dichloroethylene	0.0005 mg/L	<0.0005	-	-	-	-
trans-1,2-Dichloroethylene	0.0005 mg/L	<0.0005	-	-	-	-
1,2-Dichloropropane	0.0005 mg/L	<0.0005	-	-	-	-
cis-1,3-Dichloropropylene	0.0005 mg/L	<0.0005	-	-	-	-
trans-1,3-Dichloropropylene	0.0005 mg/L	<0.0005	-	-	-	-
Ethylbenzene	0.0005 mg/L	<0.0005	-	-	-	-
Methylene Chloride	0.0050 mg/L	<0.0050	-	-	-	-
Styrene	0.0005 mg/L	<0.0005	-	-	-	-
1,1,2,2-Tetrachloroethane	0.0005 mg/L	<0.0005	-	-	-	-
Tetrachloroethylene	0.0005 mg/L	<0.0005	-	-	-	-
Toluene	0.0005 mg/L	<0.0005	-	-	-	-
1,1,1-Trichloroethane	0.0005 mg/L	<0.0005	-	-	-	-
1,1,2-Trichloroethane	0.0005 mg/L	<0.0005	-	-	-	-
Trichloroethylene	0.0005 mg/L	<0.0005	-	-	-	-
Trichlorofluoromethane	0.0010 mg/L	<0.0010	-	-	-	-
1,3,5-Trimethylbenzene	0.0005 mg/L	<0.0005	-	-	-	-
Vinyl chloride	0.0005 mg/L	<0.0005	-	-	-	-
Xylenes, total	0.0005 mg/L	<0.0005	-	-	-	-
Dibromofluoromethane	Surrogate	129%	-	-	-	-
4-Bromofluorobenzene	Surrogate	106%	-	-	-	-
Toluene-d8	Surrogate	106%	-	-	-	-

Hydrocarbons

Oil & Grease, Animal/Vegetable	0.5 mg/L	<0.5	-	-	-	-
Oil & Grease, mineral/synthetic	0.5 mg/L	<0.5	-	-	-	-

Certificate of Analysis

Report Date: 02-May-2024

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Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Client ID:	BH1	-	-	-	-
Sample Date:	24-Apr-24 08:00	-	-	-	-
Sample ID:	2417193-01	-	-	-	-
Matrix:	Ground Water	-	-	-	-
MDL/Units					

Hydrocarbons

Oil & Grease, total	0.5 mg/L	<0.5	-	-	-	-
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Semi-Volatiles

1-Methylnaphthalene	0.00005 mg/L	<0.00006	-	-	-	-
2-Methylnaphthalene	0.00005 mg/L	<0.00006	-	-	-	-
7H-Dibenzo[c,g]carbazole	0.00050 mg/L	<0.00059	-	-	-	-
Anthracene	0.00001 mg/L	<0.00001	-	-	-	-
Benzo [a] anthracene	0.00001 mg/L	<0.00001	-	-	-	-
Benzo [a] pyrene	0.00001 mg/L	<0.00001	-	-	-	-
Benzo [e] pyrene	0.00005 mg/L	<0.00006	-	-	-	-
Benzo [b&j] fluoranthene	0.00005 mg/L	<0.00006	-	-	-	-
Benzo [g,h,i] perylene	0.00005 mg/L	<0.00006	-	-	-	-
Benzo [k] fluoranthene	0.00005 mg/L	<0.00006	-	-	-	-
Benzylbutylphthalate	0.00050 mg/L	<0.00059	-	-	-	-
Biphenyl	0.00005 mg/L	<0.00006	-	-	-	-
Bis(2-chloroethoxy)methane	0.00100 mg/L	<0.00118	-	-	-	-
Bis(2-ethylhexyl)phthalate	0.00100 mg/L	<0.00118	-	-	-	-
Chrysene	0.00005 mg/L	<0.00006	-	-	-	-
Dibenzo [a,h] anthracene	0.00005 mg/L	<0.00006	-	-	-	-
Dibenzo [a,i] pyrene	0.00050 mg/L	<0.00059	-	-	-	-
Dibenzo [a,j] acridine	0.00050 mg/L	<0.00059	-	-	-	-
Diethylphthalate	0.00100 mg/L	<0.00118	-	-	-	-
Di-n-butylphthalate	0.00100 mg/L	0.00745	-	-	-	-
Di-n-octylphthalate	0.00100 mg/L	<0.00118	-	-	-	-
Fluoranthene	0.00001 mg/L	<0.00001	-	-	-	-
Fluorene	0.00005 mg/L	<0.00006	-	-	-	-

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Client ID:	BH1	-	-	-	-
Sample Date:	24-Apr-24 08:00	-	-	-	-
Sample ID:	2417193-01	-	-	-	-
Matrix:	Ground Water	-	-	-	-
MDL/Units					

Semi-Volatiles

Indeno [1,2,3-cd] pyrene	0.00005 mg/L	<0.00006	-	-	-	-
Indole	0.00100 mg/L	<0.00118	-	-	-	-
Naphthalene	0.00005 mg/L	<0.00006	-	-	-	-
Phenanthrene	0.00005 mg/L	<0.00006	-	-	-	-
Perylene	0.00050 mg/L	<0.00059	-	-	-	-
Pyrene	0.00001 mg/L	<0.00001	-	-	-	-
2,4-Dichlorophenol	0.00100 mg/L	<0.00118	-	-	-	-
PAHs, Total	0.0025 mg/L	<0.0029	-	-	-	-
2-Fluorobiphenyl	Surrogate	73.1%	-	-	-	-
Nitrobenzene-d5	Surrogate	64.1%	-	-	-	-
Terphenyl-d14	Surrogate	91.0%	-	-	-	-
2,4,6-Tribromophenol	Surrogate	77.3%	-	-	-	-
2-Fluorophenol	Surrogate	38.2% [5]	-	-	-	-
Phenol-d6	Surrogate	50.5%	-	-	-	-

Pesticides, OC

Hexachlorobenzene	0.00001 mg/L	<0.00001	-	-	-	-
Decachlorobiphenyl	Surrogate	57.0%	-	-	-	-

PCBs

PCBs, total	0.05 ug/L	<0.05	-	-	-	-
Decachlorobiphenyl	Surrogate	75.2%	-	-	-	-

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions								
Fluoride	ND	0.1	mg/L					
Sulphate	ND	1	mg/L					
General Inorganics								
CBOD	ND	2	mg/L					
Cyanide, total	ND	0.01	mg/L					
Phenolics	ND	0.001	mg/L					
Phosphorus, total	ND	0.01	mg/L					
Total Suspended Solids	ND	2	mg/L					
Total Kjeldahl Nitrogen	ND	0.1	mg/L					
Hydrocarbons								
Oil & Grease, mineral/synthetic	ND	0.5	mg/L					
Oil & Grease, total	ND	0.5	mg/L					
Metals - Total								
Aluminum	ND	0.01	mg/L					
Antimony	ND	0.001	mg/L					
Arsenic	ND	0.01	mg/L					
Bismuth	ND	0.005	mg/L					
Boron	ND	0.05	mg/L					
Cadmium	ND	0.001	mg/L					
Chromium	ND	0.05	mg/L					
Cobalt	ND	0.001	mg/L					
Copper	ND	0.005	mg/L					
Lead	ND	0.001	mg/L					
Mercury	ND	0.0001	mg/L					
Manganese	ND	0.05	mg/L					
Molybdenum	ND	0.005	mg/L					
Nickel	ND	0.005	mg/L					
Selenium	ND	0.005	mg/L					
Silver	ND	0.001	mg/L					
Tin	ND	0.01	mg/L					
Titanium	ND	0.01	mg/L					
Vanadium	ND	0.001	mg/L					

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Zinc	ND	0.02	mg/L					
Microbiological Parameters								
E. coli	ND	1	CFU/100mL					
PCBs								
PCBs, total	ND	0.05	ug/L					
Surrogate: Decachlorobiphenyl	0.399		%	79.9	60-140			
Pesticides, OC								
Hexachlorobenzene	ND	0.00001	mg/L					
Surrogate: Decachlorobiphenyl	1.00032		%	64.0	50-140			
Semi-Volatiles								
1-Methylnaphthalene	ND	0.00005	mg/L					
2-Methylnaphthalene	ND	0.00005	mg/L					
7H-Dibenzo[c,g]carbazole	ND	0.00050	mg/L					
Anthracene	ND	0.00001	mg/L					
Benzo [a] anthracene	ND	0.00001	mg/L					
Benzo [a] pyrene	ND	0.00001	mg/L					
Benzo [b&j] fluoranthene	ND	0.00005	mg/L					
Benzo [e] pyrene	ND	0.00005	mg/L					
Benzo [g,h,i] perylene	ND	0.00005	mg/L					
Benzo [k] fluoranthene	ND	0.00005	mg/L					
Benzylbutylphthalate	ND	0.00050	mg/L					
Biphenyl	ND	0.00005	mg/L					
Bis(2-chloroethoxy)methane	ND	0.00100	mg/L					
Bis(2-ethylhexyl)phthalate	ND	0.00100	mg/L					
Chrysene	ND	0.00005	mg/L					
Dibenzo [a,h] anthracene	ND	0.00005	mg/L					
Dibenzo [a,i] pyrene	ND	0.00050	mg/L					
Dibenzo [a,j] acridine	ND	0.00050	mg/L					
Diethylphthalate	ND	0.00100	mg/L					
Di-n-butylphthalate	ND	0.00100	mg/L					
Di-n-octylphthalate	ND	0.00100	mg/L					
Fluoranthene	ND	0.00001	mg/L					
Fluorene	ND	0.00005	mg/L					

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Indeno [1,2,3-cd] pyrene	ND	0.00005	mg/L					
Indole	ND	0.00100	mg/L					
Naphthalene	ND	0.00005	mg/L					
Phenanthrene	ND	0.00005	mg/L					
Perylene	ND	0.00050	mg/L					
Pyrene	ND	0.00001	mg/L					
2,4-Dichlorophenol	ND	0.00100	mg/L					
Surrogate: 2-Fluorobiphenyl	0.0107		%	53.7	50-140			
Surrogate: Nitrobenzene-d5	0.00779		%	38.9	50-140			S-GC
Surrogate: Terphenyl-d14	0.0145		%	72.4	50-140			
Surrogate: 2,4,6-Tribromophenol	0.0202		%	50.5	50-140			
Surrogate: 2-Fluorophenol	0.0202		%	50.5	50-140			
Surrogate: Phenol-d6	0.0240		%	60.0	50-140			
Volatiles								
Benzene	ND	0.0005	mg/L					
Bromodichloromethane	ND	0.0005	mg/L					
Bromoform	ND	0.0005	mg/L					
Bromomethane	ND	0.0005	mg/L					
Carbon Tetrachloride	ND	0.0002	mg/L					
Chlorobenzene	ND	0.0005	mg/L					
Chloroethane	ND	0.0010	mg/L					
Chloroform	ND	0.0005	mg/L					
Chloromethane	ND	0.0030	mg/L					
Dibromochloromethane	ND	0.0005	mg/L					
1,2-Dibromoethane	ND	0.0002	mg/L					
1,2-Dichlorobenzene	ND	0.0005	mg/L					
1,3-Dichlorobenzene	ND	0.0005	mg/L					
1,4-Dichlorobenzene	ND	0.0005	mg/L					
1,1-Dichloroethane	ND	0.0005	mg/L					
1,2-Dichloroethane	ND	0.0005	mg/L					
1,1-Dichloroethylene	ND	0.0005	mg/L					
cis-1,2-Dichloroethylene	ND	0.0005	mg/L					

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
trans-1,2-Dichloroethylene	ND	0.0005	mg/L					
1,2-Dichloropropane	ND	0.0005	mg/L					
cis-1,3-Dichloropropylene	ND	0.0005	mg/L					
trans-1,3-Dichloropropylene	ND	0.0005	mg/L					
Ethylbenzene	ND	0.0005	mg/L					
Methylene Chloride	ND	0.0050	mg/L					
Styrene	ND	0.0005	mg/L					
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L					
Tetrachloroethylene	ND	0.0005	mg/L					
Toluene	ND	0.0005	mg/L					
1,1,1-Trichloroethane	ND	0.0005	mg/L					
1,1,2-Trichloroethane	ND	0.0005	mg/L					
Trichloroethylene	ND	0.0005	mg/L					
Trichlorofluoromethane	ND	0.0010	mg/L					
1,3,5-Trimethylbenzene	ND	0.0005	mg/L					
Vinyl chloride	ND	0.0005	mg/L					
Xylenes, total	ND	0.0005	mg/L					
Surrogate: 4-Bromofluorobenzene	0.0841		%	105	50-140			
Surrogate: Dibromofluoromethane	0.100		%	125	50-140			
Surrogate: Toluene-d8	0.0827		%	103	50-140			

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Fluoride	0.24	0.1	mg/L	0.24			1.2	20	
Sulphate	117	1	mg/L	118			0.9	10	
General Inorganics									
CBOD	400	2	mg/L	412			3.0	20	
Cyanide, total	0.042	0.01	mg/L	0.042			1.3	20	
pH	7.9	0.1	pH Units	7.9			0.1	3.3	
Phenolics	ND	0.001	mg/L	ND			NC	10	
Phosphorus, total	ND	0.01	mg/L	0.011			NC	15	
Total Suspended Solids	ND	2	mg/L	ND			NC	10	
Total Kjeldahl Nitrogen	0.24	0.1	mg/L	0.27			13.2	16	
Metals - Total									
Aluminum	0.08	0.01	mg/L	0.06			NC	20	
Antimony	ND	0.001	mg/L	ND			NC	20	
Arsenic	ND	0.01	mg/L	ND			NC	20	
Bismuth	ND	0.005	mg/L	ND			NC	20	
Boron	ND	0.05	mg/L	ND			NC	20	
Cadmium	ND	0.001	mg/L	ND			NC	20	
Chromium	ND	0.05	mg/L	ND			NC	20	
Cobalt	0.002	0.001	mg/L	0.002			11.2	20	
Copper	ND	0.005	mg/L	ND			NC	20	
Lead	ND	0.001	mg/L	ND			NC	20	
Mercury	ND	0.0001	mg/L	ND			NC	20	
Manganese	ND	0.05	mg/L	ND			NC	20	
Molybdenum	ND	0.005	mg/L	ND			NC	20	
Nickel	ND	0.005	mg/L	ND			NC	20	
Selenium	ND	0.005	mg/L	ND			NC	20	
Silver	ND	0.001	mg/L	ND			NC	20	
Tin	ND	0.01	mg/L	ND			NC	20	
Titanium	ND	0.01	mg/L	ND			NC	20	
Vanadium	ND	0.001	mg/L	ND			NC	20	

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Zinc	ND	0.02	mg/L	ND			NC	20	
Microbiological Parameters									
E. coli	ND	10	CFU/100mL	ND			NC	30	BAC06, BAC12
Volatiles									
Benzene	ND	0.0005	mg/L	ND			NC	30	
Bromodichloromethane	0.0050	0.0005	mg/L	0.0066			27.0	30	
Bromoform	ND	0.0005	mg/L	ND			NC	30	
Bromomethane	ND	0.0005	mg/L	ND			NC	30	
Carbon Tetrachloride	ND	0.0002	mg/L	ND			NC	30	
Chlorobenzene	ND	0.0005	mg/L	ND			NC	30	
Chloroethane	ND	0.0010	mg/L	ND			NC	30	
Chloroform	0.0081	0.0005	mg/L	0.0114			33.9	30	QR-07
Chloromethane	ND	0.0030	mg/L	ND			NC	30	
Dibromochloromethane	0.0022	0.0005	mg/L	0.0028			22.1	30	
1,2-Dibromoethane	ND	0.0002	mg/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.0005	mg/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.0005	mg/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.0005	mg/L	ND			NC	30	
1,1-Dichloroethane	ND	0.0005	mg/L	ND			NC	30	
1,2-Dichloroethane	ND	0.0005	mg/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.0005	mg/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.0005	mg/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.0005	mg/L	ND			NC	30	
1,2-Dichloropropane	ND	0.0005	mg/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.0005	mg/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.0005	mg/L	ND			NC	30	
Ethylbenzene	ND	0.0005	mg/L	ND			NC	30	
Methylene Chloride	ND	0.0050	mg/L	ND			NC	30	
Styrene	ND	0.0005	mg/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L	ND			NC	30	
Tetrachloroethylene	ND	0.0005	mg/L	ND			NC	30	

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Toluene	ND	0.0005	mg/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.0005	mg/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.0005	mg/L	ND			NC	30	
Trichloroethylene	ND	0.0005	mg/L	ND			NC	30	
Trichlorofluoromethane	ND	0.0010	mg/L	ND			NC	30	
1,3,5-Trimethylbenzene	ND	0.0005	mg/L	ND			NC	30	
Vinyl chloride	ND	0.0005	mg/L	ND			NC	30	
m,p-Xylenes	ND	0.0005	mg/L	ND			NC	30	
o-Xylene	ND	0.0005	mg/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	0.0860		%		108	50-140			
Surrogate: Dibromofluoromethane	0.108		%		135	50-140			
Surrogate: Toluene-d8	0.0834		%		104	50-140			

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Fluoride	1.24	0.1	mg/L	0.24	101	70-130			
Sulphate	126	1	mg/L	118	83.0	74-126			
General Inorganics									
CBOD	170	2	mg/L	ND	85.1	62-129			
Cyanide, total	0.089	0.01	mg/L	0.042	94.5	64-136			
Phenolics	0.027	0.001	mg/L	ND	107	67-133			
Phosphorus, total	1.03	0.01	mg/L	0.011	102	80-120			
Total Suspended Solids	24.0	2	mg/L	ND	112	75-125			
Total Kjeldahl Nitrogen	1.18	0.1	mg/L	0.27	90.5	81-126			
Hydrocarbons									
Oil & Grease, mineral/synthetic	8.30	0.5	mg/L	ND	83.0	65-110			
Oil & Grease, total	19.6	0.5	mg/L	ND	98.2	85-110			
Metals - Total									
Aluminum	57.0	0.01	mg/L	5.78	103	80-120			
Arsenic	46.8	0.01	mg/L	0.040	93.4	80-120			
Boron	49.4	0.05	mg/L	1.29	96.2	80-120			
Cadmium	50.0	0.001	mg/L	ND	100	80-120			
Chromium	50.0	0.05	mg/L	ND	99.9	80-120			
Cobalt	50.3	0.001	mg/L	0.156	100	80-120			
Copper	48.7	0.005	mg/L	0.086	97.3	80-120			
Lead	49.2	0.001	mg/L	ND	98.4	80-120			
Mercury	0.0026	0.0001	mg/L	ND	87.8	70-130			
Manganese	51.0	0.05	mg/L	0.398	101	80-120			
Molybdenum	47.9	0.005	mg/L	0.154	95.5	80-120			
Nickel	49.9	0.005	mg/L	0.065	99.7	80-120			
Selenium	42.8	0.005	mg/L	0.066	85.5	80-120			
Silver	51.4	0.001	mg/L	0.002	103	80-120			
Tin	48.9	0.01	mg/L	0.097	97.6	80-120			
Titanium	50.3	0.01	mg/L	0.226	100	80-120			
Vanadium	50.8	0.001	mg/L	0.034	101	80-120			

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Zinc	46.5	0.02	mg/L	0.118	92.8	80-120			
PCBs									
PCBs, total	1.17	0.05	ug/L	ND	117	65-135			
Surrogate: Decachlorobiphenyl	0.455		%		91.0	60-140			
Pesticides, OC									
Hexachlorobenzene	0.00060	0.00001	mg/L	ND	121	50-140			
Surrogate: Decachlorobiphenyl	0.000362		%		72.4	50-140			
Semi-Volatiles									
1-Methylnaphthalene	0.0122	0.00005	mg/L	ND	122	50-140			
2-Methylnaphthalene	0.0128	0.00005	mg/L	ND	128	50-140			
7H-Dibenzo[c,g]carbazole	0.00520	0.00050	mg/L	ND	52.0	50-140			
Anthracene	0.00553	0.00001	mg/L	ND	55.3	50-140			
Benzo [a] anthracene	0.00663	0.00001	mg/L	ND	66.3	50-140			
Benzo [a] pyrene	0.00618	0.00001	mg/L	ND	61.8	50-140			
Benzo [b&j] fluoranthene	0.0100	0.00005	mg/L	ND	100	50-140			
Benzo [e] pyrene	0.00786	0.00005	mg/L	ND	78.6	50-140			
Benzo [g,h,i] perylene	0.00666	0.00005	mg/L	ND	66.6	50-140			
Benzo [k] fluoranthene	0.00800	0.00005	mg/L	ND	80.0	50-140			
Benzylbutylphthalate	0.00589	0.00050	mg/L	ND	58.9	50-140			
Biphenyl	0.00612	0.00005	mg/L	ND	61.2	50-140			
Bis(2-chloroethoxy)methane	0.00525	0.00100	mg/L	ND	52.5	50-140			
Bis(2-ethylhexyl)phthalate	0.00575	0.00100	mg/L	ND	57.5	50-140			
Chrysene	0.00714	0.00005	mg/L	ND	71.4	50-140			
Dibenzo [a,h] anthracene	0.00729	0.00005	mg/L	ND	72.9	50-140			
Dibenzo [a,i] pyrene	0.00520	0.00050	mg/L	ND	52.0	50-140			
Dibenzo [a,j] acridine	0.00520	0.00050	mg/L	ND	52.0	50-140			
Diethylphthalate	0.00601	0.00100	mg/L	ND	60.1	50-140			
Di-n-butylphthalate	0.00632	0.00100	mg/L	ND	63.2	50-140			
Di-n-octylphthalate	0.00589	0.00100	mg/L	ND	58.9	50-140			
Fluoranthene	0.00679	0.00001	mg/L	ND	67.9	50-140			
Fluorene	0.00671	0.00005	mg/L	ND	67.1	50-140			

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Indeno [1,2,3-cd] pyrene	0.00701	0.00005	mg/L	ND	70.1	50-140			
Indole	0.00545	0.00100	mg/L	ND	54.5	50-140			
Naphthalene	0.00596	0.00005	mg/L	ND	59.6	50-140			
Phenanthrene	0.00721	0.00005	mg/L	ND	72.1	50-140			
Perylene	0.00766	0.00050	mg/L	ND	76.6	50-140			
Pyrene	0.00708	0.00001	mg/L	ND	70.8	50-140			
2,4-Dichlorophenol	0.00567	0.00100	mg/L	ND	56.7	50-140			
Surrogate: 2-Fluorobiphenyl	0.0130		%		65.0	50-140			
Surrogate: Nitrobenzene-d5	0.0108		%		53.8	50-140			
Surrogate: Terphenyl-d14	0.0156		%		78.1	50-140			
Surrogate: 2,4,6-Tribromophenol	0.0271		%		67.9	50-140			
Surrogate: 2-Fluorophenol	0.00371		%		9.28	50-140			S-GC
Surrogate: Phenol-d6	0.00587		%		14.7	50-140			S-GC
Volatiles									
Benzene	0.0442	0.0005	mg/L	ND	111	60-130			
Bromodichloromethane	0.0464	0.0005	mg/L	ND	116	60-130			
Bromoform	0.0447	0.0005	mg/L	ND	112	60-130			
Bromomethane	0.0425	0.0005	mg/L	ND	106	50-140			
Carbon Tetrachloride	0.0403	0.0002	mg/L	ND	101	60-130			
Chlorobenzene	0.0419	0.0005	mg/L	ND	105	60-130			
Chloroethane	0.0446	0.0010	mg/L	ND	111	50-140			
Chloroform	0.0428	0.0005	mg/L	ND	107	60-130			
Chloromethane	0.0391	0.0030	mg/L	ND	97.8	50-140			
Dibromochloromethane	0.0384	0.0005	mg/L	ND	96.1	60-130			
1,2-Dibromoethane	0.0468	0.0002	mg/L	ND	117	60-130			
1,2-Dichlorobenzene	0.0414	0.0005	mg/L	ND	104	60-130			
1,3-Dichlorobenzene	0.0415	0.0005	mg/L	ND	104	60-130			
1,4-Dichlorobenzene	0.0397	0.0005	mg/L	ND	99.2	60-130			
1,1-Dichloroethane	0.0411	0.0005	mg/L	ND	103	60-130			
1,2-Dichloroethane	0.0428	0.0005	mg/L	ND	107	60-130			
1,1-Dichloroethylene	0.0431	0.0005	mg/L	ND	108	60-130			

Certificate of Analysis

Report Date: 02-May-2024

Client: Pinchin Ltd. (Ottawa)

Order Date: 24-Apr-2024

Client PO:

Project Description: 335920

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
cis-1,2-Dichloroethylene	0.0405	0.0005	mg/L	ND	101	60-130			
trans-1,2-Dichloroethylene	0.0425	0.0005	mg/L	ND	106	60-130			
1,2-Dichloropropane	0.0470	0.0005	mg/L	ND	118	60-130			
cis-1,3-Dichloropropylene	0.0340	0.0005	mg/L	ND	85.0	60-130			
trans-1,3-Dichloropropylene	0.0409	0.0005	mg/L	ND	102	60-130			
Ethylbenzene	0.0405	0.0005	mg/L	ND	101	60-130			
Methylene Chloride	0.0461	0.0050	mg/L	ND	115	60-130			
Styrene	0.0438	0.0005	mg/L	ND	109	60-130			
1,1,2,2-Tetrachloroethane	0.0491	0.0005	mg/L	ND	123	60-130			
Tetrachloroethylene	0.0414	0.0005	mg/L	ND	104	60-130			
Toluene	0.0434	0.0005	mg/L	ND	108	60-130			
1,1,1-Trichloroethane	0.0464	0.0005	mg/L	ND	116	60-130			
1,1,2-Trichloroethane	0.0485	0.0005	mg/L	ND	121	60-130			
Trichloroethylene	0.0449	0.0005	mg/L	ND	112	60-130			
Trichlorofluoromethane	0.0402	0.0010	mg/L	ND	100	60-130			
1,3,5-Trimethylbenzene	0.0427	0.0005	mg/L	ND	107	60-130			
Vinyl chloride	0.0349	0.0005	mg/L	ND	87.3	50-140			
m,p-Xylenes	0.0808	0.0005	mg/L	ND	101	60-130			
o-Xylene	0.0411	0.0005	mg/L	ND	103	60-130			
Surrogate: 4-Bromofluorobenzene	0.0862		%		108	50-140			
Surrogate: Dibromofluoromethane	0.0783		%		97.9	50-140			
Surrogate: Toluene-d8	0.0812		%		102	50-140			

Certificate of Analysis

Client: Pinchin Ltd. (Ottawa)

Client PO:

Report Date: 02-May-2024

Order Date: 24-Apr-2024

Project Description: 335920

Qualifier Notes:**Sample Qualifiers :**

- 1: Increased detection limit was a consequence of dilution/reduced analysis volume due to high background bacteria levels.
Applies to Samples: BH1
- 2: Confluent background colonies on filter: may interfere with target reactions and the analysts' ability to count E. coli & Total Coliform. The target colonies may be under-represented.
Applies to Samples: BH1
- 5: Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
Applies to Samples: BH1

QC Qualifiers:

- | | |
|-------|---|
| BAC06 | Increased detection limit was a consequence of dilution/reduced analysis volume due to high background bacteria levels. |
| BAC12 | Confluent background colonies on filter: may interfere with target reactions and the analysts' ability to count E. coli & Total Coliform. The target colonies may be under-represented. |
| QR-07 | Duplicate result exceeds RPD limits due to non-homogeneity between multiple sample vials. Remainder of QA/QC is acceptable. |
| S-GC | Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate. |

Sample Data Revisions:

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Parcel ID: 2417193



Parcel Order Number
(Lab Use Only)

2417193

Chain Of Custody

(Lab Use Only)

No 72725

Client Name: <u>Pinchin Ltd.</u>	Project Ref: <u>335920</u>	Page <u>1</u> of <u>1</u>
Contact Name: <u>Megan Keon</u>	Quote #:	Turnaround Time ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Address: <u>1 Hines Rd. Kanata, ON</u>	PO #:	
Telephone: <u>613-542-3333 613-608-5350</u>	E-mail: <u>mkeon@pinchin.com</u>	
Date Required: _____		

☐ REG 153/04 ☐ REG 406/19	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)																	
☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table _____ For RSC: ☐ Yes ☐ No	☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: _____ ☐ Other: _____	Required Analysis																	
Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date Time		Table 1	Table 2	NDMA	Dioxins & Furans	Nonyl phenols & Ethoxyates	Formaldehyde							
1	<u>BH1</u>	<u>GW</u>		<u>20</u>	<u>April 24/24</u>	<u>8:00am</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>							
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments: <u>For Residential/Commercial purposes → require full analysis for Schedule A</u> <u>Table 1 - Limits for Sanitary Sewers Discharge & Table 2 - limits for Storm Discharge.</u>				Method of Delivery: <u>Walk-in.</u>	
Relinquished By (Sign): <u>Megan Keon</u>	Received at Depot:	Received at Lab: <u>RD 8:00</u>	Verified By: <u>SS</u>		
Relinquished By (Print): <u>Megan Keon</u>	Date/Time:	Date/Time: <u>April 24/24</u>	Date/Time: <u>24 Apr 24 0927</u>		
Date/Time: <u>Apr. 24/24 @ 8:50am</u>	Temperature: _____ °C	Temperature: <u>7.6</u> °C	pH Verified: <u>✓</u> By: <u>SS</u>		

Subcontracted Analysis

Pinchin Ltd. (Ottawa)

1 Hines Road, Suite 200
Kanata, ON K2K 3C7
Attn: Megan Keon

Paracel Report No. **2417193**

Client Project(s): **335920**

Client PO:

Reference: **2024 Standing Offer - ENV**

CoC Number: **72725**

Order Date: 24-Apr-24

Report Date: 14-May-24

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
2417193-01	BH1	Dioxins and Furans

SAMPLE RECEIPT FORM / CHEMICAL ANALYSIS FORM

FILE #: PR241263

CLIENT: Paracel Laboratories
300-2319 St. Laurent Blvd.
Ottawa, ON
K1G 4J8

Phone: (613) 731-9577
Fax: (613) 731-9064
Email: dbloom@paracellabs.com
Email: drobertson@paracellabs.com
Email: mfoto@paracellabs.com

RECEIVED BY: T. Nguyen
CONDITION: Okay, 8.9°C

DATE/TIME: April 25, 2024 (10:30 a.m.)

# of Containers	Sample Type	Sample (Client Codes)	Lab Codes	Test Requested
		Project: 2417193		
1	Water	BH1	PR241263	PCDD/F

STORAGE: Stored at 4 °C.

ANALYTES: HRGC/HRMS analysis for polychlorinated dibenzo(p)dioxins and dibenzofurans (PCDD/F).

SPECIAL INSTRUCTIONS: None.

METHODOLOGY

Reference Method: PCDD/F: SOP LAB01; EPA Method 1613B

Data summarized in Data Report attached.

Report sent to: Donna Bloom

Date: May 13, 2024

Comments: Results relate only to samples as received.

David Hope, P.Chem., CEO

DATA REPORT

Client: Paracel Laboratories
 Client ID: BH1
 PRL ID: PR241263

Contact: Donna Bloom
 Date Analysed: 3-May-24
 Date Analysed: 11-May-24

DIOXINS			Surrogate Recoveries
Congeners	Conc. pg/L	DL pg/L	%
2,3,7,8-TCDD	ND	1	34
Total TCDD	ND	1	
1,2,3,7,8-PeCDD	ND	2	44
Total PeCDD	ND	2	
1,2,3,4,7,8-HxCDD	ND	2	56
1,2,3,6,7,8-HxCDD	ND	2	54
1,2,3,7,8,9-HxCDD	ND	2	-
Total HxCDD	ND	2	
1,2,3,4,6,7,8-HpCDD	ND	3	74
Total HpCDD	ND	3	
OCDD	ND	4	74
Total Dioxin TEQ			

I-TEQs	
(ND=0) pg/L	(ND=DL) pg/L
ND	1
ND	1
ND	0.2
ND	0.2
ND	0.2
ND	0.03
ND	0.004
0.00	2.63

WHO-TEQs (2005)	
(ND=0) pg/L	(ND=DL) pg/L
ND	1
ND	2
ND	0.2
ND	0.2
ND	0.2
ND	0.03
ND	0.0012
0.00	3.63

FURANS			Surrogate Recoveries
Congeners	pg/L	DL pg/L	%
2,3,7,8-TCDF	ND	1	30
Total TCDF	ND	1	
1,2,3,7,8-PeCDF	ND	2	42
2,3,4,7,8-PeCDF	ND	2	46
Total PeCDF	ND	2	
1,2,3,4,7,8-HxCDF	ND	2	56
1,2,3,6,7,8-HxCDF	ND	2	56
1,2,3,7,8,9-HxCDF	ND	2	56
2,3,4,6,7,8-HxCDF	ND	2	56
Total HxCDF	ND	2	
1,2,3,4,6,7,8-HpCDF	ND	3	72
1,2,3,4,7,8,9-HpCDF	ND	3	58
Total HpCDF	ND	3	
OCDF	ND	4	-
Total Furan TEQ			

I-TEQs	
(ND=0) pg/L	(ND=DL) pg/L
ND	0.1
ND	0.1
ND	1
ND	0.2
ND	0.2
ND	0.2
ND	0.2
ND	0.03
ND	0.03
ND	0.004
0.00	2.06

WHO-TEQs (2005)	
(ND=0) pg/L	(ND=DL) pg/L
ND	0.1
ND	0.06
ND	0.6
ND	0.2
ND	0.2
ND	0.2
ND	0.2
ND	0.03
ND	0.03
ND	0.0012
0.00	1.62

Total PCDD/PCDF Toxic Equivalent

0.00	4.70
------	------

0.00	5.25
------	------

ND - none detected

QC REPORT - BLANK

Client: Paracel Laboratories
 Client ID: BLANK
 PRL ID: DF240283B

Contact: Donna Bloom
 Date Extracted: 3-May-24
 Date Analysed: 11-May-24

DIOXINS			Surrogate Recoveries
Congeners	Conc. pg/L	DL pg/L	%
2,3,7,8-TCDD	ND	1	72
Total TCDD	ND	1	
1,2,3,7,8-PeCDD	ND	2	86
Total PeCDD	ND	2	
1,2,3,4,7,8-HxCDD	ND	2	96
1,2,3,6,7,8-HxCDD	ND	2	86
1,2,3,7,8,9-HxCDD	ND	2	-
Total HxCDD	ND	2	
1,2,3,4,6,7,8-HpCDD	ND	3	108
Total HpCDD	ND	3	
OCDD	ND	4	116
Total Dioxin TEQ			

I-TEQs	
(ND=0) pg/L	(ND=DL) pg/L
ND	1
ND	1
ND	0.2
ND	0.2
ND	0.2
ND	0.03
ND	0.004
0.00	2.63

WHO-TEQs (2005)	
(ND=0) pg/L	(ND=DL) pg/L
ND	1
ND	2
ND	0.2
ND	0.2
ND	0.2
ND	0.03
ND	0.0012
0.00	3.63

FURANS			Surrogate Recoveries
Congeners	pg/L	DL pg/L	%
2,3,7,8-TCDF	ND	1	68
Total TCDF	ND	1	
1,2,3,7,8-PeCDF	ND	2	92
2,3,4,7,8-PeCDF	ND	2	110
Total PeCDF	ND	2	
1,2,3,4,7,8-HxCDF	ND	2	94
1,2,3,6,7,8-HxCDF	ND	2	92
1,2,3,7,8,9-HxCDF	ND	2	94
2,3,4,6,7,8-HxCDF	ND	2	100
Total HxCDF	ND	2	
1,2,3,4,6,7,8-HpCDF	ND	3	114
1,2,3,4,7,8,9-HpCDF	ND	3	92
Total HpCDF	ND	3	
OCDF	ND	4	-
Total Furan TEQ			

I-TEQs	
(ND=0) pg/L	(ND=DL) pg/L
ND	0.1
ND	0.1
ND	1
ND	0.2
ND	0.2
ND	0.2
ND	0.2
ND	0.03
ND	0.03
ND	0.004
0.00	2.06

WHO-TEQs (2005)	
(ND=0) pg/L	(ND=DL) pg/L
ND	0.1
ND	0.06
ND	0.6
ND	0.2
ND	0.2
ND	0.2
ND	0.2
ND	0.03
ND	0.03
ND	0.0012
0.00	1.62

Total PCDD/PCDF Toxic Equivalent

0.00 4.70

0.00 5.25

ND - none detected

QC REPORT - SPIKE

Client: Paracel Laboratories
 Client ID: SPIKE
 PRL ID: DF240284S

Contact: Donna Bloom
 Date Extracted: 3-May-24
 Date Analysed: 11-May-24

DIOXINS			Acceptable Recovery		Pass/Fail
Congeners	LOF pg/L	Recovery %	Min %	Max %	
2,3,7,8-TCDD	200	99	70	130	Pass
1,2,3,7,8-PeCDD	200	112	70	130	Pass
1,2,3,4,7,8-HxCDD	400	89	70	130	Pass
1,2,3,6,7,8-HxCDD	400	92	70	130	Pass
1,2,3,7,8,9-HxCDD	400	99	70	130	Pass
1,2,3,4,6,7,8-HpCDD	400	88	70	130	Pass
OCDD	1000	100	70	130	Pass

Surrogate Recoveries %
60
72
86
80
-
104
106

FURANS			Acceptable Recovery		Pass/Fail
Congeners	LOF pg/L	Recovery %	Min %	Max %	
2,3,7,8-TCDF	200	96	70	130	Pass
1,2,3,7,8-PeCDF	200	101	70	130	Pass
2,3,4,7,8-PeCDF	200	96	70	130	Pass
1,2,3,4,7,8-HxCDF	400	97	70	130	Pass
1,2,3,6,7,8-HxCDF	400	104	70	130	Pass
1,2,3,7,8,9-HxCDF	400	95	70	130	Pass
2,3,4,6,7,8-HxCDF	400	88	70	130	Pass
1,2,3,4,6,7,8-HpCDF	400	92	70	130	Pass
1,2,3,4,7,8,9-HpCDF	400	96	70	130	Pass
OCDF	1000	88	70	130	Pass

Surrogate Recoveries %
58
74
84
80
80
88
90
110
92
-

LOF - Level of Fortification

Acronyms used in reporting dioxins and furans:

TCDD = Tetrachlorodibenzo-*p*-dioxin
 PeCDD = Pentachlorodibenzo-*p*-dioxin
 HxCDD = Hexachlorodibenzo-*p*-dioxin
 HpCDD = Heptachlorodibenzo-*p*-dioxin
 OCDD = Octachlorodibenzo-*p*-dioxin

TCDF = Tetrachlorodibenzofuran
 PeCDF = Pentachlorodibenzofuran
 HxCDF = Hexachlorodibenzofuran
 HpCDF = Heptachlorodibenzofuran
 OCDF = Octachlorodibenzofuran

Acceptable recoveries for surrogates**EPA 1613**

	Min (%)	Max (%)
¹³ C ₁₂ -2,3,7,8-TCDD	25	164
¹³ C ₁₂ -1,2,3,7,8-PeCDD	25	181
¹³ C ₁₂ -1,2,3,4,7,8-HxCDD	32	141
¹³ C ₁₂ -1,2,3,6,7,8-HxCDD	28	130
¹³ C ₁₂ -1,2,3,4,6,7,8-HpCDD	23	140
¹³ C ₁₂ -OCDD	17	157
¹³ C ₁₂ -2,3,7,8-TCDF	24	169
¹³ C ₁₂ -1,2,3,7,8-PeCDF	24	185
¹³ C ₁₂ -2,3,4,7,8-PeCDF	21	178
¹³ C ₁₂ -1,2,3,4,7,8-HxCDF	26	152
¹³ C ₁₂ -1,2,3,6,7,8-HxCDF	26	123
¹³ C ₁₂ -1,2,3,7,8,9-HxCDF	29	147
¹³ C ₁₂ -2,3,4,6,7,8-HxCDF	28	136
¹³ C ₁₂ -1,2,3,4,6,7,8-HpCDF	28	143
¹³ C ₁₂ -1,2,3,4,7,8,9-HpCDF	26	138



Page 6 of 6

PROJECT: _____

[illegible]

Sampler's Signature	Relinquished by: Sandra Demanins	Company	Date April 24, 2024	Time 2:10pm	Received by: TN
Comments:	Method of Shipment	Waybill No.:	Rec'd for PRL:		Date 25 APR 24
	Shipment Condition	Temp.: 8.9°C	Cooler Opened By: TN		Time 10:30AM

Subcontracted Analysis

Pinchin Ltd. (Ottawa)1 Hines Road, Suite 200
Kanata, ON K2K 3C7

Attn: Megan Keon

Paracel Report No. **2417193**Client Project(s): **335920**

Client PO:

Reference: **2024 Standing Offer - ENV**CoC Number: **72725**

Order Date: 24-Apr-24

Report Date: 2-May-24

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
2417193-01	BH1	Formaldehyde Sewer Use: NDMA Ottawa - San/Comb: Nonylphenols + Ethoxolates Sulphide w/distillation

CERTIFICATE OF ANALYSIS

Work Order	: WT2409887	Page	: 1 of 3
Client	: Paracel Laboratories Ltd	Laboratory	: ALS Environmental - Waterloo
Contact	: Mark Foto	Account Manager	: Costas Farassoglou
Address	: 2319 St. Laurent Blvd. Unit 300 Ottawa ON Canada K1G 4J8	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 613 731 9577	Telephone	: 613 225 8279
Project	: 2417193	Date Samples Received	: 24-Apr-2024 15:00
PO	: ----	Date Analysis Commenced	: 26-Apr-2024
C-O-C number	: ----	Issue Date	: 30-Apr-2024 23:18
Sampler	: CLIENT		
Site	: ----		
Quote number	: Standing Offer 2024		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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
David Tremblett	VOC Section Supervisor	Air Quality, Waterloo, Ontario
Sanja Risticvic	Department Manager - LCMS	LCMS, 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.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	Description
µg/L	micrograms per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLI	Detection Limit Raised: Dilution required to address Internal Standard response problems caused by matrix interference.



Analytical Results

Sub-Matrix: Water					Client sample ID	BH1	----	----	----	----
(Matrix: Water)										
					Client sampling date / time	24-Apr-2024 08:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2409887-001	-----	-----	-----	-----	
					Result	----	----	----	----	
Aldehydes										
Formaldehyde	50-00-0	E693A/WT	2.0	µg/L	2.3	----	----	----	----	
Nonylphenols										
Bisphenol A	80-05-7	E749A/WT	0.20	µg/L	<0.20	----	----	----	----	
Nonylphenol [NP]	84852-15-3	E749A/WT	1.0	µg/L	<1.0	----	----	----	----	
Nonylphenol diethoxylates [NP2EO]	n/a	E749B/WT	0.10	µg/L	<0.10	----	----	----	----	
Nonylphenol ethoxylates, mono+di	n/a	E749B/WT	2.0	µg/L	<2.0	----	----	----	----	
Nonylphenol monoethoxylates [NP1EO]	n/a	E749B/WT	2.0	µg/L	<2.0	----	----	----	----	
Octylphenol diethoxylates [OP2EO]	n/a	E749B/WT	0.10	µg/L	<0.50 ^{DLI}	----	----	----	----	
Octylphenol ethoxylates, mono+di	n/a	E749B/WT	2.0	µg/L	<2.1	----	----	----	----	
Octylphenol monoethoxylates [OP1EO]	n/a	E749B/WT	2.0	µg/L	<2.0	----	----	----	----	

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: WT2409887	Page	: 1 of 5
Client	: Paracel Laboratories Ltd	Laboratory	: ALS Environmental - Waterloo
Contact	: Mark Foto	Account Manager	: Costas Farassoglou
Address	: 2319 St. Laurent Blvd. Unit 300 Ottawa ON Canada K1G 4J8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 613 731 9577	Telephone	: 613 225 8279
Project	: 2417193	Date Samples Received	: 24-Apr-2024 15:00
PO	: ----	Issue Date	: 30-Apr-2024 23:18
C-O-C number	: ----		
Sampler	: CLIENT		
Site	: ----		
Quote number	: Standing Offer 2024		
No. of samples received	: 1		
No. of samples analysed	: 1		

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 Matrix Spike 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: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Aldehydes : Aldehydes by GC-ECD										
Glass vial (ammonium chloride+copper sulfate) BH1	E693A	24-Apr-2024	----	----	----		26-Apr-2024	7 days	2 days	✓
Nonylphenols : Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode										
Amber glass/Teflon lined cap - LCMS BH1	E749B	24-Apr-2024	26-Apr-2024	7 days	2 days	✓	26-Apr-2024	7 days	0 days	✓
Nonylphenols : Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode										
Amber glass/Teflon lined cap - LCMS BH1	E749A	24-Apr-2024	26-Apr-2024	7 days	2 days	✓	26-Apr-2024	7 days	0 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: **Water** 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)							
Aldehydes by GC-ECD	E693A	1417821	1	6	16.6	5.0	✔
Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode	E749B	1417842	1	12	8.3	5.0	✔
Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode	E749A	1417841	1	12	8.3	5.0	✔
Laboratory Control Samples (LCS)							
Aldehydes by GC-ECD	E693A	1417821	1	6	16.6	5.0	✔
Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode	E749B	1417842	1	12	8.3	5.0	✔
Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode	E749A	1417841	1	12	8.3	5.0	✔
Method Blanks (MB)							
Aldehydes by GC-ECD	E693A	1417821	1	6	16.6	5.0	✔
Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode	E749B	1417842	1	12	8.3	5.0	✔
Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode	E749A	1417841	1	12	8.3	5.0	✔
Matrix Spikes (MS)							
Aldehydes by GC-ECD	E693A	1417821	1	6	16.6	5.0	✔
Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode	E749B	1417842	1	12	8.3	5.0	✔
Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode	E749A	1417841	1	12	8.3	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
Aldehydes by GC-ECD	E693A ALS Environmental - Waterloo	Water	EPA METHOD 556.1	This is a gas chromatography method optimized for the determination of aldehydes in water and solid samples. Aldehydes are derivatized with o-(2,3,4,5,6-pentafluorobenzyl) hydroxylamine (PFBHA) to obtain their corresponding pentafluorobenzyl oximes. The oxime derivatives are then extracted from the water with hexane containing pentachloronitrobenzene as internal standard. The hexane extracts are analyzed by gas chromatography with electron capture detection (GC-ECD).
Nonylphenol, Octylphenol and BPA in Water by LC-MS-MS Negative Mode	E749A ALS Environmental - Waterloo	Water	J. Chrom A849 (1999) p.467-482	An aliquot of 5.0 ± 0.10 mL of filtered sample is spiked with Nonylphenol-D4, Nonylphenol Diethoxylate 13C6, and Bisphenol A 13C12 internal standards and analyzed by LC-MS/MS.
Nonylphenol Ethoxylates in Water by LC-MS-MS Positive Mode	E749B ALS Environmental - Waterloo	Water	J. Chrom A849 (1999) p.467-482	Water samples are filtered and analyzed on LCMS/MS by direct injection.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation of Nonylphenol and Nonylphenol Ethoxylates	EP749 ALS Environmental - Waterloo	Water	J. Chrom A849 (1999) p.467-482	An aliquot of 5.0 ± 0.10 mL of filtered sample is spiked with Nonylphenol-D4, Nonylphenol Diethoxylate 13C6, and Bisphenol A 13C12 internal standards and analyzed by LC-MS/MS.

QUALITY CONTROL REPORT

Work Order	: WT2409887	Page	: 1 of 4
Client	: Paracel Laboratories Ltd	Laboratory	: ALS Environmental - Waterloo
Contact	: Mark Foto	Account Manager	: Costas Farassoglou
Address	: 2319 St. Laurent Blvd. Unit 300 Ottawa ON Canada K1G 4J8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 613 731 9577	Telephone	: 613 225 8279
Project	: 2417193	Date Samples Received	: 24-Apr-2024 15:00
PO	: ----	Date Analysis Commenced	: 26-Apr-2024
C-O-C number	: ----	Issue Date	: 30-Apr-2024 23:18
Sampler	: CLIENT		
Site	: ----		
Quote number	: Standing Offer 2024		
No. of samples received	: 1		
No. of samples analysed	: 1		

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
- Matrix Spike (MS) 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
David Tremblett	VOC Section Supervisor	Waterloo Air Quality, Waterloo, Ontario
Sanja Risticcevic	Department Manager - LCMS	Waterloo LCMS, 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: Water					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
Aldehydes (QC Lot: 1417821)											
WT2409690-001	Anonymous	Formaldehyde	50-00-0	E693A	2.0	µg/L	41.8	38.3	8.61%	30%	----
Nonylphenols (QC Lot: 1417841)											
WT2409811-001	Anonymous	Bisphenol A	80-05-7	E749A	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Nonylphenol [NP]	84852-15-3	E749A	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
Nonylphenols (QC Lot: 1417842)											
WT2409811-001	Anonymous	Nonylphenol diethoxylates [NP2EO]	n/a	E749B	0.10	µg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Nonylphenol monoethoxylates [NP1EO]	n/a	E749B	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Octylphenol diethoxylates [OP2EO]	n/a	E749B	0.10	µg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Octylphenol monoethoxylates [OP1EO]	n/a	E749B	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----



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: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Aldehydes (QCLot: 1417821)						
Formaldehyde	50-00-0	E693A	2	µg/L	<2.0	----
Nonylphenols (QCLot: 1417841)						
Bisphenol A	80-05-7	E749A	0.2	µg/L	<0.20	----
Nonylphenol [NP]	84852-15-3	E749A	1	µg/L	<1.0	----
Nonylphenols (QCLot: 1417842)						
Nonylphenol diethoxylates [NP2EO]	n/a	E749B	0.1	µg/L	<0.10	----
Nonylphenol monoethoxylates [NP1EO]	n/a	E749B	2	µg/L	<2.0	----
Octylphenol diethoxylates [OP2EO]	n/a	E749B	0.1	µg/L	<0.10	----
Octylphenol monoethoxylates [OP1EO]	n/a	E749B	2	µg/L	<2.0	----

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: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Aldehydes (QCLot: 1417821)									
Formaldehyde	50-00-0	E693A	2	µg/L	25.8 µg/L	81.1	70.0	130	----
Nonylphenols (QCLot: 1417841)									
Bisphenol A	80-05-7	E749A	0.2	µg/L	2 µg/L	99.8	75.0	125	----
Nonylphenol [NP]	84852-15-3	E749A	1	µg/L	10 µg/L	92.8	75.0	125	----
Nonylphenols (QCLot: 1417842)									
Nonylphenol diethoxylates [NP2EO]	n/a	E749B	0.1	µg/L	1 µg/L	99.2	75.0	125	----
Nonylphenol monoethoxylates [NP1EO]	n/a	E749B	2	µg/L	20 µg/L	95.6	75.0	125	----
Octylphenol diethoxylates [OP2EO]	n/a	E749B	0.1	µg/L	1 µg/L	77.8	75.0	125	----
Octylphenol monoethoxylates [OP1EO]	n/a	E749B	2	µg/L	20 µg/L	87.7	75.0	125	----



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Aldehydes (QCLot: 1417821)										
WT2409690-001	Anonymous	Formaldehyde	50-00-0	E693A	ND µg/L	----	ND	50.0	150	----
Nonylphenols (QCLot: 1417841)										
WT2409811-001	Anonymous	Bisphenol A	80-05-7	E749A	2.08 µg/L	2 µg/L	104	60.0	140	----
		Nonylphenol [NP]	84852-15-3	E749A	9.3 µg/L	10 µg/L	92.6	60.0	140	----
Nonylphenols (QCLot: 1417842)										
WT2409811-001	Anonymous	Nonylphenol diethoxylates [NP2EO]	n/a	E749B	1.02 µg/L	1 µg/L	102	60.0	140	----
		Nonylphenol monoethoxylates [NP1EO]	n/a	E749B	15.5 µg/L	20 µg/L	77.4	60.0	140	----
		Octylphenol diethoxylates [OP2EO]	n/a	E749B	0.83 µg/L	1 µg/L	82.6	60.0	140	----
		Octylphenol monoethoxylates [OP1EO]	n/a	E749B	13.6 µg/L	20 µg/L	68.1	60.0	140	----

**SGS Canada Inc.**

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

Paracel Laboratories

Attn : Dale Robertson

300-2319 St.Laurent Blvd.
Ottawa, ON
K1G 4K6, Canada

Phone: 613-731-9577
Fax:613-731-9064

30-April-2024

Date Rec. : 25 April 2024
LR Report: CA15952-APR24
Reference: Project#: 2417193

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Sample Date & Time	Temperature Upon Receipt °C	N-Nitrosodimethylamine mg/L
1: Analysis Start Date		---	26-Apr-24
2: Analysis Start Time		---	11:10
3: Analysis Completed Date		---	29-Apr-24
4: Analysis Completed Time		---	17:28
5: RL		---	0.0004
6: BH1	24-Apr-24 08:00	10.0	< 0.0004

RL - SGS Reporting Limit

Method Descriptions

Parameter	Description	SGS Method Code
N-Nitrosodimethylamine	SVOC wtr - basic	ME-CA-[ENV]GC-LAK-AN-005

Kimberley Didsbury
Project Specialist,
Environment, Health & Safety



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.

Lakefield - Ontario - KOL 2H0

Phone: 705-652-2000 FAX: 705-652-6365

LR Report :

CA15952-APR24

Quality Control Report

Organic Analysis													
Parameter	Reporting Limit	Unit	Method Blank	Duplicate				LCS / Spike Blank			Matrix Spike / Reference Material		
				Result 1	Result 2	RPD	Acceptance Criteria	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
							%		Low	High		Low	High
NDMA - QCBatchID: GCM0447-APR24													
N-Nitrosodimethylamine	0.0004	mg/L	< 0.0004			NSS	30	35	20	130	NSS	20	130



TESTMARK Laboratories Ltd.

Committed to Quality and Service

CERTIFICATE OF ANALYSIS

Client: Dale Robertson
Company: Paracel Laboratories Ltd. - Ottawa
Address: 300-2319 St. Laurent Blvd.
Ottawa, ON, K1G 4J8
Phone/Fax: (613) 731-9577 / (613) 731-9064
Email: drobertson@paracellabs.com

Work Order Number: 533069
PO #:
Regulation: Sewer Use By-Law - Ottawa (Table 1) Sanitary
Project #: 2417193
DWS #:
Sampled By:

Date Order Received: 5/1/2024
Arrival Temperature: 18 C

Analysis Started: 5/2/2024
Analysis Completed: 5/2/2024

WORK ORDER SUMMARY

ANALYSES WERE PERFORMED ON THE FOLLOWING SAMPLES. THE RESULTS RELATE ONLY TO THE ITEMS TESTED.

Sample Description	Lab ID	Matrix	Type	Comments	Date Collected	Time Collected
BH1	2000266	Ground Water	None		4/24/2024	8:00 AM

METHODS AND INSTRUMENTATION

THE FOLLOWING METHODS WERE USED FOR YOUR SAMPLE(S):

Method	Lab	Description	Reference
Sulphide Water (A11)	Garson	Determination of Sulphide in Water	Modified from SM 4500S2 D

This report has been approved by:

Brad Halvorson, B.Sc.
Laboratory Director



TESTMARK Laboratories Ltd.
Committed to Quality and Service

CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd. - Ottawa

Work Order Number: 533069

WORK ORDER RESULTS

Sample Description	BH1			
Sample Date	4/24/2024 8:00 AM			
Lab ID	2000266			
General Chemistry	Result	MDL	Units	Criteria: Sewer Use By-Law - Ottawa (Table 1) Sanitary
Sulphide	<0.02	0.02	mg/L	2

LEGEND

Dates: Dates are formatted as mm/dd/year throughout this report.

MDL: Method detection limit or minimum reporting limit.

Organic Soil Analysis: Data reported for organic analysis in soils samples are corrected for moisture content.

Quality Control: All associated Quality Control data is available on request.

Field Data: Reports containing Field Parameters represent data that has been collected and provided by the client. Testmark is not responsible for the validity of this data which may be used in subsequent calculations.

Sample Condition Deviations: A noted sample condition deviation may affect the validity of the result. Results apply to the sample(s) as received.

Reproduction of Report: Report shall not be reproduced, except in full, without the approval of Testmark Laboratories Ltd.

ICPMS Dustfall Insoluble: The ICPMS Dustfall Insoluble Portion method analyzes only the particulate matter from the Dustfall Sampler which is retained on the analysis filter during the Dustfall method.

Regulation Comparisons: Disclaimer: Please note that regulation criteria are provided for comparative purposes, however the onus on ensuring the validity of this comparison rests with the client.

Subcontract Order

SENDING LABORATORY:

Paracel Laboratories Ltd.
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
Phone: 613-731-9577
Fax: 613-731-9064

RECEIVING LABORATORY:

ALS Laboratory Group (Ottawa)
7-190 Colonnade Rd
Ottawa, ON K2E7J5
Phone: (613) 225-8279
Fax: (613) 225-2801

INVOICE TO:

Paracel Laboratories Ltd.
300-2319 St. Laurent Blvd.
Ottawa, ON K1G 4J8
Phone: 613-731-9577
Fax: 613-731-9064

Date Requested: **24-Apr-24**
Project Number: **2417193**
Submitted By: **Sarah Scullion**

Required Regulation	SU- SANI (Ottawa)
Turnaround Time	Standard

Sample ID	Matrix	Analyses Requested:	Sampled	Comments
BH1	Water	Formaldehyde Ottawa - San/Comb: Nonylphenols + Ethoxolates	24-Apr-24 08:00	

Environmental Division
Waterloo
Work Order Reference
WT2409887



Telephone : +1 519 886 6910

L 332

Please email all results to mfoto@paracellabs.com, dbloom@paracellabs.com, drobertson@paracellabs.com

Released By: [Signature] Date / Time: Apr 24 2024 11:35

Temperature prior to Shipping: 6.2°C

Received By: [Signature] Date: 24/4/24
14.8°C 15:00

→ ICE PACK
AP 25 APR 24 8:45 9.1°C

OTTAWA • CALGARY • MISSISSAUGA • KINGSTON • LONDON • NIAGARA • WINDSOR

1-800-749-1947 • www.paracellabs.com

Page 1 of 3



Client Name: <u>Pinchin Ltd.</u>	Project Ref: <u>335920</u>	Page <u>1</u> of <u>1</u>
Contact Name: <u>Megan Keon</u>	Quote #:	Turnaround Time ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Address: <u>1 Hines Rd. Kanata, ON</u>	PO #:	
Telephone: <u>613-542-3613-608-5350</u>	E-mail: <u>mkeon@pinchin.com</u>	
Date Required: _____		

☐ REG 153/04 ☐ REG 406/19 ☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ REG 558 ☐ PWQO ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ CCME ☐ MISA ☐ Table 3 ☐ Agri/Other ☐ SU - Sani ☐ SU - Storm ☐ Table _____ Mun: _____ For RSC: ☐ Yes ☐ No ☐ Other: _____		Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)	Required Analysis																
Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken		Table 1	Table 2	NDMA	Dioxins & Furans	Nonyl phenols & Ethoxylates	Formaldehyde							
1	BH1	GW		20	April 24/24	8:00am	X	X	X	X	X	X							
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments: For Residential/Commercial purposes → require full analysis for Schedule A Table 1 - Limits for Sanitary Sewers Discharge & Table 2 - limits for storm Discharge.			Method of Delivery: <u>Walk-in.</u>	
Relinquished By (Sign): <u>Megan Keon</u>	Received at Depot:	Received at Lab: <u>8:00</u>	Verified By: <u>SS</u>	
Relinquished By (Print): <u>Megan Keon</u>	Date/Time:	Date/Time: <u>April 24/24</u>	Date/Time: <u>24 Apr 24 0927</u>	
Date/Time: <u>Apr. 24/24 @ 8:50am</u>	Temperature: _____ °C	Temperature: <u>7.6</u> °C	pH Verified: <u>✓</u>	By: <u>SS</u>