REPORT

WASTE MANAGEMENT OF CANADA CORPORATION

WATFORD, ONTARIO

TWIN CREEKS ENVIRONMENTAL CENTRE: 2022 FOURTH QUARTER & ANNUAL MONITORING REPORT VOLUME 2B OF 5 – COMPLIANCE MONITORING APPENDICES H TO I

RWDI #2202861.01

March 1, 2023

SUBMITTED TO

Angela McLachlan
Environmental Compliance Manager
amclachl@wm.com

Waste Management of Canada Corporation
Twin Creeks Environmental Centre
5768 Nauvoo Road (Watford)
Warwick Township, County of Lambton
N0M 2S0

T: 519.849.5810
F: 519.849.5811

SUBMITTED BY

Brent J. Langille, B.Sc., P.Geo.
Senior Technical Director | Principal
Brent.Langille@rwdi.com | ext. 2618

Khalid Hussein, P.Eng.
Project Manager
Khalid Hussein@rwdi.com | ext. 2055

RWDI AIR Inc.
Consulting Engineers & Scientists
4510 Rhodes Drive | Suite 530
Windsor, Ontario
N8W 5K5

T: 519.974.7384
F: 519.823.1316

CANADA'S BEST MANAGED COMPANIES Platinum member

rwdi.com

This document is intended for the sole use of the party to whom it is addressed and may contain information that is privileged and/or confidential. If you have received this in error, please notify us immediately. Accessible document formats provided upon request. ® RWDI name and logo are registered trademarks in Canada and the United States of America.

APPENDIX H:

Groundwater Chemical Results

Table H-1
Groundwater - Field Chemical Results (Active Aquitard)
Twin Creeks Environmental Centre

Location	Temperature (^{0}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)
May 2022				
OW16-6	9.6	7.1	*1010*	14.2
OW17-4	16.0	7.1	*1410*	19.0
OW40D-4	11.5	7.0	*2310*	35.7
OW54A-4	9.8	7.2	*1020*	64.3
OW56-4	11.0	7.2	*980*	98.2
OW57-4	16.2	7.2	*1320*	1.34
OW58-6	10.4	7.0	*1030*	75.2
OW59-6	10.2	7.3	*1220*	18.7
OW60-4	12.2	7.2	*1150*	86.7
OW67-4	11.9	7.2	*1140*	48.3
OW68-5	9.4	7.1	*1010*	14.6
OW69-5	11.9	7.1	*1080*	64.3
OW70B-5	11.3	7.2	*1040*	22.1
OW71A-5	11.3	7.1	*1230*	67.3
OW72-6	11.8	7.2	*1130*	46.7
OW73-6	11.8	7.2	*980*	7.49
OW79-5	11.1	7.3	*1330*	46.7
OW80-3	11.0	7.4	*1320*	38.9
OW81-5	12.1	7.2	*1080*	86.3
November 2022				
OW16-6	11.6	7.1	2140	2.14
OW17-4	17.9	7.2	1750	8.40
OW54A-4	15	7.3	2440	12.9
OW56-4	13.5	7.5	2820	5.31
OW57-4	16.6	6.8	3660	2.82
OW58-6	16.1	6.9	3740	3.30
OW59-6	15.6	6.8	4880	2.20
OW67-4	16.8	7.5	1030	>1000
OW68-5	13	6.9	1340	4.40
OW69-5	16.2	6.5	5220	3.03
OW70B-5	13.7	7.0	2270	2.43
OW71A-5	16.1	7.2	1560	29.2
OW72-6	14.8	7.2	2990	1.63
OW73-6	14.7	6.9	4430	6.67

NOTES: 1) µS/cm denotes microsiemens per centimetre.
2) NTU denotes nephelometric turbidity unit.
3) Italics denotes non-representative data due to faulty instrument.

Table H-2
Groundwater - Field Chemical Results (Interstadial Silt & Sand)
Twin Creeks Environmental Centre

Location	Temperature (^{0}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)
May 2022				
OW16-7	8.9	7.1	*1150*	35.6
OW40A-7	10.0	7.6	*2600*	17.2
OW46-7	10.1	7.3	*1020*	36.4
OW47-6	9.6	7.1	*860*	43.7
OW54-10	15.3	7.3	*1480*	32.6
OW57-15	15.1	7.0	*1350*	15.3
OW60-8	11.9	7.8	*920*	14.5
OW67-11	16.1	7.2	*1280*	8.68
OW72-10	15.5	7.1	*1320*	14.9
OW73-9	15.2	7.1	*1140*	7.84
OW79-7	11.1	7.2	*1560*	12.3
OW80-6	11.6	7.0	*920*	35.8
OW81-7	11.9	7.1	*1070*	72.3
June 2022 - Verification Monitoring				
OW81-7	13.4	7.2	2207	10.2
November 2022				
OW16-7	12.2	7.0	1480	17.7
OW46-7	15.4	7.4	4710	5.08
OW47-6	13.0	7.5	4630	1.05
OW54-10	14.6	7.3	2650	35.6
OW57-15	15.2	7.3	3080	41.5
OW58-17	14.5	7.3	3820	7.69
OW67-11	14.2	7.3	1730	9.34
OW72-10	15.8	7.1	3010	25.3
OW73-9	15.0	7.3	4040	9.30

NOTES: 1) µs/cm denotes microsiemens per centimetre.
2) NTU denotes nephelometric turbidity unit
3) Italics denotes non-representative data due to faulty instrument.

Table H-3
Groundwater - Field Chemical Results (Interface Aquifer)
Twin Creeks Environmental Centre

Location	Temperature (^{0}C)	pH	Conductivity (µS/cm)	Turbidity (NTU)
May 2022				
OW19-29	9.5	7.3	*1250*	23.1
OW39A-26	12.4	7.6	*1070*	24.9
OW49-29	14.8	7.1	*1370*	5.44
OW79-26	10.5	8.2	*960*	4.62
OW80-27	13.2	8.0	*870*	34.3
OW81-27	12.1	7.1	*1010*	54.2
Cemetery Well	9.8	7.0	*1360*	51.1

NOTES: 1) µs/cm denotes microsiemens per centimetre.
2) NTU denotes nephelometric turbidity unit
3) Italics denotes non-representative data due to faulty instrument.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5
Date			23-Mar-84	4-Jul-84	24-Jul-84	18-Sep-84	26-Mar-85	11-Sep-85	30-Apr-86	8-Sep-86	30-Apr-87	27-May-88	3-Nov-88	7-Jun-89	1-Nov-89
Laboratory			Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean
Alkalinity (Total as CaCO3)	mg/L	30-500***		496					506		500	488	498	467	539
Dissolved Boron (B)	mg/L	5.0*													
Dissolved Calcium (Ca)	mg/L		145	115	84	80	114	118	113	123	128	102	145	105	140
Dissolved Chloride (Cl)	mg/L	250**	13	36	14	27	1	1	1	1	29	44	45	44	40
Dissolved Iron (Fe)	mg/L	0.30**	<0.04	<0.04	<0.04	<0.04	<0.03	<0.04	<0.02	0.47	<0.02	<0.02	0.05	<0.01	0.08
Dissolved Magnesium (Mg)	mg/L		121	120	113	132	106	111	110	116	115	107	126	110	130
Dissolved Organic Carbon	mg/L	5**	3.3	3.3	2.3	2.4	2.1	1.8	2.4	1.8	2.6	2	1.8	2.3	1.7
Dissolved Potassium (K)	mg/L		10	3.7	9.7	3.9	4.3	2.7	1.9	2.8	4.4	2.86	8.8	2.2	47
Dissolved Sodium (Na)	mg/L	200**	80	50	77	60	50	53	43	57	56	45.4	58	72	67
Dissolved Sulphate (SO4)	mg/L	500**	400	338	385	390	330	330	270	360	330	270	289	320	267
Nitrate (N)	mg/L	10.0*													
Nitrite (N)	mg/L	1.0*													
NO3+NO2	mg/L	10.0*	0.33	0.18	0.42	0.75	0.7	0.96	0.69	0.5	0.45	0.67	0.3	0.28	0.53
Total Ammonia-N	mg/L			0.01	0.23	0.02	0.02	0.07	0.01	0.01	0.01	0.02	0.03	0.01	0.01
Total Kjeldahl Nitrogen (TKN)	mg/L			0.45	0.3	0.2	0.26	0.49	0.22	3.2	0.4	1.68	0.4	0.3	0.12
Ion Percentage	%			5.3					9.1		7.7	3.9	14.1	6.1	17.3

Parameter	Units	ODWQS	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5
Date			27-May-90	11-Dec-90	22-May-91	14-Nov-91	29-May-92	12-Nov-92	17-Jun-93	16-Dec-93	12-May-94	6-Jun-95	2-Nov-95	8-May-96	11-Dec-96
Laboratory			Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Zenon	Zenon	Zenon	Zenon
Alkalinity (Total as CaCO3)	mg/L	30-500***	484	466	508	506	462	480	444	451	453	570	510	470	510
Dissolved Boron (B)	mg/L	5.0*								0.22	0.08	0.16	0.19	0.2	
Dissolved Calcium (Ca)	mg/L		119	97	121	96	86.1	119	104	105	97.6	93	99	95	100
Dissolved Chloride (Cl)	mg/L	250**	43	43	25	31	27	52	42	34	34	37	31	32	31
Dissolved Iron (Fe)	mg/L	0.30**			0.03	<0.02	<0.02	<0.02	<0.02	0.08	0.02	<0.01	<0.01	<0.01	0.07
Dissolved Magnesium (Mg)	mg/L		142	101	111	103	100	128	114	111	108	100	110	100	110
Dissolved Organic Carbon	mg/L	5**	2	1.6	3.3	2.3	2.7	2.7	2						
Dissolved Potassium (K)	mg/L		2.8	2.71	2.74	3.38	2.28	3.03	2.91	4.84	2.79	2.3	3	2.5	3
Dissolved Sodium (Na)	mg/L	200**		56.1	63.4	57.8	54.2	58.2	52.3	62.4	53.3	47	54	54	59
Dissolved Sulphate (SO4)	mg/L	500**	270	310	380	340	350	320	370	340	230	300	330	330	330
Nitrate (N)	mg/L	10.0*													
Nitrite (N)	mg/L	1.0*													
NO3+NO2	mg/L	10.0*	0.4	0.28	0.26	0.33	0.25	0.01	0.02	0.33	0.13	0.12	0.091	0.16	0.19
Total Ammonia-N	mg/L		0.11		0.06	0.04	0.01	0.01	0.43	0.01	<0.01	0.05	<0.03	0.04	<0.03
Total Kjeldahl Nitrogen (TKN)	mg/L		0.33	0.3	0.33	3.03	0.21	0.15	0.43	0.3	0.21	0.56	0.18	0.51	0.27
Ion Percentage	%			1.4	3.3	0.9	2.0	9.1	2.5	5.7	10.5	4.9	1.3	0.0	2.1

Parameter	Units	ODWQS	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5
Date			14-May-97	4-Dec-97	13-May-98	29-Mar-00	5-Dec-00	8-May-01	28-Nov-01	23-May-02	14-May-03	12-Nov-03	25-May-04	26-Nov-04	13-May-05
Laboratory			Zenon	Zenon	Zenon	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	470	520	480	514	464	403	435	424	392	455	365	404	339
Dissolved Boron (B)	mg/L	5.0*							0.19	0.18	0.18	0.25	0.15	0.23	0.16
Dissolved Calcium (Ca)	mg/L		100	110	110	94	93	88	78	93	81	100	103	100	105
Dissolved Chloride (Cl)	mg/L	250**	30	23	24	16	22	23	19	24	19	18	33	28	38
Dissolved Iron (Fe)	mg/L	0.30**	<0.010	<0.01	0.015	0.97	1.67	0.14	<0.01	<0.01	0.17	0.42	<0.01	0.02	<0.01
Dissolved Magnesium (Mg)	mg/L		100	110	110	101	102	88	78	93	80	104	107	102	105
Dissolved Organic Carbon	mg/L	5**							2.1	2.2	2.0	1.6	2.7	3.0	2.9
Dissolved Potassium (K)	mg/L		3.3	4.2	3.4	4	4	2	3	2	3	6	2	4	2
Dissolved Sodium (Na)	mg/L	200**	54	64	56	57	54	45	46	48	45	56	55	54	50
Dissolved Sulphate (SO4)	mg/L	500**	310	330	310	282	298	251	206	265	232	261	354	321	404
Nitrate (N)	mg/L	10.0*		0.11	0.71	0.20	0.13	<0.1	<0.10	<0.10	<0.10	<0.10	0.13	<0.10	0.18
Nitrite (N)	mg/L	1.0*		<0.05	<0.05	<0.10	<0.1	<0.1							
NO3+NO2	mg/L	10.0*	0.4	0.11	0.71	0.20	0.13	<0.1							
Total Ammonia-N	mg/L		<0.03	0.04	<0.03	0.08	<0.2	0.05	0.05	0.02	0.03	0.20	0.16	<0.02	0.21
Total Kjeldahl Nitrogen (TKN)	mg/L		0.48	0.28	0.19	0.2	0.58	0.13	0.23	0.16	0.19	0.25	0.20	0.52	0.20
Ion Percentage	%		2.4	4.5	6.8	3.1	3.8	4.8	2.2	5.0	3.9	9.6	7.0	6.0	3.5

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6
Date			30-Nov-05	19-May-06	24-Nov-06	5-May-07	16-Nov-07	22-May-08	5-Nov-08	16-May-09	18-Nov-09	20-May-10	23-Nov-10	11-May-11	3-Nov-11
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	502	540	529	534	546	561	561	557	564	592	582	580	596
Conductivity	umho/cm							1600	1590	1550	1600	1820	1820	1850	1850
Dissolved Barium (Ba)	mg/L	1*						0.015	0.017	0.016	0.017	0.017	0.019	0.016	0.016
Dissolved Boron (B)	mg/L	5.0*	0.16	0.13	0.15	0.17	0.16	0.13	0.17	0.15	0.17	0.15	0.18	0.16	0.16
Dissolved Cadmium (Cd)	mg/L	0.005*						<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		118	116	121	128	125	130	120	130	130	130	130	130	130
Dissolved Chloride (Cl)	mg/L	250**	22	33	31	33	28	31	33	33	33	32	32	33	31
Dissolved Iron (Fe)	mg/L	0.30**	0.18	<0.03	0.72	<0.03	<0.03	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*						0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		90	97	101	101	101	110	100	110	120	110	120	110	110
Dissolved Organic Carbon	mg/L	5**	5.6	5.0	3.4	3.6	3.7	2.3	2.3	3.5	3.0	2.5	3.0	2.9	3
Dissolved Potassium (K)	mg/L		6	5	5	5	5	5.2	5.1	5	5.3	4.9	5.3	4.8	5.2
Dissolved Sodium (Na)	mg/L	200**	32	41	41	50	45	64	86	85	110	140	130	140	150
Dissolved Sulphate (SO4)	mg/L	500**	256	309	260	253	231	340	368	340	330	410	380	410	410
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	0.9	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
pH	(pH units)	6.5-8.5						8.0	8.0	8.0	7.7	8.1	7.8	8.0	7.6
Total Ammonia-N	mg/L		0.28	0.07	0.08	<0.02	0.04	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500						965	1000	975	1040	1170	1130	1070	1280
Total Kjeldahl Nitrogen (TKN)	mg/L		0.41	0.29	0.08	0.20	<0.10	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		2.7	1.3	4.6	6.9	7.2	4.0	1.1	6.4	11.4	6.6	9.6	7.0	1.7

Parameter	Units	ODWQS	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6
Date			15-May-12	8-Nov-12	9-May-13	5-Nov-13	6-May-14	24-Nov-14	13-May-15	11-Nov-15	25-May-16	16-Nov-16	16-May-17	7-Nov-17	8-May-18
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as CaCO3)	mg/L	30-500***	680	650	630	630	670	670	690	670	660	660	660	660	660
Conductivity	umho/cm		2300	2200	2100	2100	2300	2300	2500	2300	2200	2200	2300	2100	2200
Dissolved Barium (Ba)	mg/L	1*	0.02	0.017	0.014	0.014	0.014	0.015	0.013	0.01	0.01	0.01	0.01	0.013	0.012
Dissolved Boron (B)	mg/L	5.0*	0.19	0.19	0.16	0.17	0.17	0.22	0.18	0.17	0.19	0.19	0.19	0.2	0.18
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		140	130	140	140	140	120	110	110	110	120	120	120	120
Dissolved Chloride (Cl)	mg/L	250**	36	35	36	35	42	41	77	63	47	47	48	47	44
Dissolved Iron (Fe)	mg/L	0.30**	<0.10	<0.10	<0.10	<0.10	<0.10	0.83	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		120	120	120	120	120	100	100	92	99	110	100	110	110
Dissolved Organic Carbon	mg/L	5**	4.1	3.1	2.8	3.3	5.6	3.7	3.7	3.7	3.1	3.4	3.7	3.3	3.3
Dissolved Potassium (K)	mg/L		5	5.2	4.9	5.1	4.9	5.7	6.7	5.1	7.0	5.5	6.2	5.5	5.3
Dissolved Sodium (Na)	mg/L	200**	250	230	190	200	280	180	330	310	300	280	260	250	240
Dissolved Sulphate (SO4)	mg/L	500**	590	510	530	510	560	530	500	510	510	460	530	480	440
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	0.11	<0.10	<0.10	0.14	<0.10	0.58	<0.10	0.71	0.24	0.28	0.12
pH	(pH units)	6.5-8.5	7.7	7.8	8.0	7.2	7.2	7.9	8.1	7.7	7.9	7.8	7.7	7.6	7.8
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	1510	1470	1420	1360	1530	1480	1600	1550	1480	1450	1490	1460	1320
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		1.4	3.5	0.9	2.7	5.1	7.9	3.1	6.7	8.3	11.6	5.2	8.3	9.6

Parameter	Units	ODWQS	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6
Date			14-Nov-18	14-May-19	7-Nov-19	7-May-20	4-Nov-20	19-May-21	2-Nov-21	4-May-22	2-Nov-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	620	630	630	630	630	610	610	630	650
Conductivity	umho/cm		2100	2100	2000	2000	2000	2000	1900	1900	2000
Dissolved Barium (Ba)	mg/L	1*	0.012	0.012	0.012	0.012	0.014	0.012	0.013	0.013	0.012
Dissolved Boron (B)	mg/L	5.0*	0.2	0.16	0.18	0.16	0.18	0.18	0.16	0.16	0.18
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	120	120	110	120	120	120	130	120
Dissolved Chloride (Cl)	mg/L	250**	46	49	48	46	45	48	45	48	45
Dissolved Iron (Fe)	mg/L	0.30**	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.2
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		110	100	100	98	110	110	100	110	100
Dissolved Organic Carbon	mg/L	5**	3.3	3.1	3.1	3.4	3.4	2.9	2.9	3.0	4.7
Dissolved Potassium (K)	mg/L		5	4.6	4.9	4.4	4.8	4.8	4.7	4.7	7.2
Dissolved Sodium (Na)	mg/L	200**	230	230	220	200	210	210	190	190	180
Dissolved Sulphate (SO4)	mg/L	500**	460	450	430	390	430	410	410	410	390
Nitrate (N)	mg/L	10.0*	0.64	<0.10	<0.10	<0.10	0.1	<0.10	<0.10	<0.10	0.15
pH	(pH units)	6.5-8.5	7.8	7.7	7.7	8.0	7.8	7.8	7.9	8.0	7.7
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.050	<0.15	0.32	6.64
Total Dissolved Solids	mg/L	500	1230	1370	1280	1250	1330	1080	1230	1130	1090
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	0.1	<0.7	0.8	7.1
Ion Percentage	%		10.1	7.3	7.5	6.4	8.5	10.2	6.8	8.6	5.4

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7
Date			20-Mar-84	4-Jul-84	27-Jul-84	18-Sep-84	26-Mar-85	11-Sep-85	9-Apr-86	8-Sep-86	30-Apr-87	27-May-88	3-Nov-88	7-Jun-89	1-Nov-89
Laboratory			Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean
Alkalinity (Total as CaCO3)	mg/L	30-500***		508					522		494	488	481	488	478
Dissolved Boron (B)	mg/L	5.0*													
Dissolved Calcium (Ca)	mg/L		110	109	84	71	114	114	123	121	123	111	136	105	120
Dissolved Chloride (Cl)	mg/L	250**	4	3	2	5	1	1	1	1	5	3	8	8	5
Dissolved Iron (Fe)	mg/L	0.30**	0.12	<0.04	<0.04	<0.04	<0.03	0.04	0.02	3.88	<0.02	0.85	0.02	<0.01	<0.02
Dissolved Magnesium (Mg)	mg/L		67	86	78	90	77	87	83	80	80	81	89	79	90
Dissolved Organic Carbon	mg/L	5**	4.8	2.4	2.2	0.5	1.7	1.7	1.7	2.3	2.5	1.3	2.7	2.1	1.9
Dissolved Potassium (K)	mg/L		8	4.8	7.7	3.9	6.6	3.1	3.3	5.1	5.1	4	58	3.7	4.7
Dissolved Sodium (Na)	mg/L	200**	50	63	65	46	65	51	49	57	54	50.6	61	83	82
Dissolved Sulphate (SO4)	mg/L	500**	230	283	241	232	244	240	200	250	222	220	266	250	258
Nitrate (N)	mg/L	10.0*													
Nitrite (N)	mg/L	1.0*													
NO3+NO2	mg/L	10.0*	0.09	0.02	0.02	0.04	0.06	0.04	0.03	3.11	0.16	0.1	0.09	0.13	0.03
Total Ammonia-N	mg/L			0.2	0.27	0.21	0.18	0.28	0.17	2.74	0.79	0.7	0.51	0.43	0.57
Total Kjeldahl Nitrogen (TKN)	mg/L			0.64	0.43	0.43	0.26	0.39	0.26	3.6	0.99	0.82	0.77	0.76	0.58
Ion Percentage	%			4.0					9.3		8.8	7.3		7.4	12.6

Parameter	Units	ODWQS	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7
Date			24-May-90	7-Dec-90	22-May-91	14-Nov-91	29-May-92	12-Nov-92	17-Jun-93	16-Dec-93	12-May-94	14-Dec-94	6-Jun-95	2-Nov-95	8-May-96
Laboratory			Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Zenon	Zenon	Zenon
Alkalinity (Total as CaCO3)	mg/L	30-500***	491	470	505	500	498	494	480	495	471	520	530	510	490
Dissolved Boron (B)	mg/L	5.0*								0.22	0.12	0.25	0.24	0.2	0.22
Dissolved Calcium (Ca)	mg/L		111	116	128	86.9	99.5	126	122	110	108	120	110	100	110
Dissolved Chloride (Cl)	mg/L	250**	6	3	2	2	1	1	3	4	2	3.2	3.3	3.1	3.1
Dissolved Iron (Fe)	mg/L	0.30**		0.03	0.03	<0.02	<0.02	0.02	<0.02	0.02	0.02	0.053	<0.01	<0.01	0.1
Dissolved Magnesium (Mg)	mg/L		85	79.2	77	74.1	71.9	69.5	88.9	81.8	80.9	80	78	74	78
Dissolved Organic Carbon	mg/L	5**	1.8	1.6	1.8	2.1	1.7	1.8	1.7						
Dissolved Potassium (K)	mg/L		3.7	4.53	3.07	3.87	3.68	4.1	3.98	4.56	3.98	4	3.7	3.4	3.4
Dissolved Sodium (Na)	mg/L	200**		62	61.6	<61.1	<58.7	53.3	50.1	57.6	52.8	66	64	59	50
Dissolved Sulphate (SO4)	mg/L	500**	210	210	250	280	280	240	3000	250	240	330	270	260	240
Nitrate (N)	mg/L	10.0*													
Nitrite (N)	mg/L	1.0*													
NO3+NO2	mg/L	10.0*	0.28	0.12	0.26	0.06	0.06	0.01	0.02	0.15	0.05	0.046	0.17	0.27	0.052
Total Ammonia-N	mg/L		0.26	0.42	0.39	0.49	0.4	0.37	0.46	0.38	0.25	0.28	0.24	0.03	0.34
Total Kjeldahl Nitrogen (TKN)	mg/L		0.37	0.43	0.43	0.66	0.49	0.39	0.55	0.54	0.49	0.44	0.43	<0.16	0.97
Ion Percentage	%			11.3	7.1			5.2	63.8	5.4	6.6	0.5	1.7	0.0	4.3

Parameter	Units	ODWQS	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7
Date			11-Dec-96	14-May-97	4-Dec-97	11-Mar-98	13-May-98	22-Dec-99	29-Mar-00	5-Dec-00	8-May-01	28-Nov-01	22-May-02	6-Nov-02	14-May-03
Laboratory			Zenon	Zenon	Zenon	Maxxam	Zenon	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	510	470	510	505	500	503	514	487	503	509	498	502	477
Dissolved Boron (B)	mg/L	5.0*										0.20	0.28	0.21	0.23
Dissolved Calcium (Ca)	mg/L		100	110	120	106	120	113	118	99	121	105	117	114	99
Dissolved Chloride (Cl)	mg/L	250**	3.9	3	2.8	2.8	2.9	3	3	3	4	4	3	4	4
Dissolved Iron (Fe)	mg/L	0.30**	0.13	0.067	0.77	2.32	0.59	3.09	0.05	2.3	0.01	0.61	1.28	0.04	0.67
Dissolved Magnesium (Mg)	mg/L		75	79	83	80.9	83	80	87	69	82	82	87	78	77
Dissolved Organic Carbon	mg/L	5**										2.2	1.8	2.1	1.6
Dissolved Potassium (K)	mg/L		3.5	3.9	4.4	4	3.9	3	4	4	4	4	4	5	4
Dissolved Sodium (Na)	mg/L	200**	48	48	52	44	51		48	43	55	44	44	56	60
Dissolved Sulphate (SO4)	mg/L	500**	240	240	230	223	230	218	206	221	234	210	218	222	241
Nitrate (N)	mg/L	10.0*			<0.05	0.1	<0.05	<0.10	<0.10	<0.1	0.25	<0.10	<0.10	0.03	<0.10
Nitrite (N)	mg/L	1.0*			<0.05	<0.1	<0.05	<0.10	<0.10	<0.1	<0.1				
NO3+NO2	mg/L	10.0*	<0.5	0.067	<0.5	0.1	<0.5	<0.10	<0.10	<0.1	0.25				
Total Ammonia-N	mg/L		0.37	0.28	0.35		0.24	0.29	0.26	0.24	0.04	0.24	0.38	0.03	0.10
Total Kjeldahl Nitrogen (TKN)	mg/L		0.79	0.48	0.38		0.25	0.37	0.26	0.37	0.07	0.43	0.49	0.22	0.20
Ion Percentage	%		0.0	5.6	7.4	4.1	7.8	1.7	9.2	0.2	7.7	4.9	8.5	6.7	4.3

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7
Date			12-Nov-03	26-May-04	26-Nov-04	13-May-05	30-Nov-05	18-May-06	24-Nov-06	4-May-07	16-Nov-07	22-May-08	5-Nov-08	16-May-09	18-Nov-09
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	485	473	447	472	492	490	486	439	437	479	496	452	460
Conductivity	umho/cm											1240	1290	1220	1260
Dissolved Barium (Ba)	mg/L	1*										0.014	0.016	0.014	0.016
Dissolved Boron (B)	mg/L	5.0*	0.24	0.25	0.26	0.30	0.26	0.25	0.26	0.27	0.28	0.27	0.26	0.27	0.28
Dissolved Cadmium (Cd)	mg/L	0.005*										<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		109	103	94	114	98	103	111	90	92	100	110	100	110
Dissolved Chloride (Cl)	mg/L	250**	4	4	4	4	4	4	4	4	4	4	4	4	4
Dissolved Iron (Fe)	mg/L	0.30**	1.08	0.46	1.13	1.52	0.74	0.47	1.13	0.66	0.56	0.5	1.2	0.2	2.1
Dissolved Lead (Pb)	mg/L	0.01*										<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		87	83	85	81	72	76	81	80	78	82	77	88	82
Dissolved Organic Carbon	mg/L	5**	1.5	1.7	1.8	2.2	2.0	2.2	1.4	2.6	2.5	1.7	1.6	2.7	2.5
Dissolved Potassium (K)	mg/L		5	5	4	4	4	4	4	4	4	4.1	4	4	4.1
Dissolved Sodium (Na)	mg/L	200**	63	70	64	68	56	61	63	66	61	64	62	70	69
Dissolved Sulphate (SO4)	mg/L	500**	231	248	235	245	235	239	256	238	247	241	275	270	280
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	0.10	0.10	0.11	0.20	0.23	0.32	<0.1	<0.1	0.20	0.40
pH	(pH units)	6.5-8.5										8.20	7.90	8.00	7.80
Total Ammonia-N	mg/L		0.17	0.14	0.05	0.13	0.17	0.15	0.07	0.10	0.06	<0.15	<0.15	<0.15	0.2
Total Dissolved Solids	mg/L	500										764	820	785	844
Total Kjeldahl Nitrogen (TKN)	mg/L		0.25	0.18	0.17	0.15	0.19	0.25	0.21	0.15	<0.10	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		9.6	7.9	8.7	9.1	1.5	4.2	6.2	7.1	5.5	6.4	2.7	8.2	6.8

Parameter	Units	ODWQS	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7
Date			20-May-10	24-Nov-10	12-May-11	3-Nov-11	15-May-12	8-Nov-12	9-May-13	5-Nov-13	6-May-14	24-Nov-14	13-May-15	11-Nov-15	25-May-16
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	453	475	477	489	460	470	480	630	490	490	440	500	490
Conductivity	umho/cm		1240	1300	1300	1300	1300	1300	1300	1300	1300	1300	1200	1300	1300
Dissolved Barium (Ba)	mg/L	1*	0.015	0.016	0.015	0.018	0.013	0.013	0.016	0.014	0.013	0.017	0.013	0.021	0.017
Dissolved Boron (B)	mg/L	5.0*	0.27	0.27	0.26	0.25	0.27	0.26	0.25	0.27	0.25	0.28	0.25	0.28	0.28
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		110	100	110	120	110	95	120	110	110	110	100	110	110
Dissolved Chloride (Cl)	mg/L	250**	4	4	4	5	4	4	4	4	4	5	4	5.3	4.9
Dissolved Iron (Fe)	mg/L	0.30**	0.9	3.7	2.3	2.5	1.6	0.70	3.2	<0.10	1.1	3.1	1.4	1.2	2.0
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		84	74	83	84	82	84	83	88	86	79	82	86	84
Dissolved Organic Carbon	mg/L	5**	2.1	2.3	2.3	2.5	2.7	2.2	2.5	2.1	2.5	2.7	2	2.4	2.3
Dissolved Potassium (K)	mg/L		4.3	3.8	4.2	4.7	4.3	4.2	4.0	4.2	3.9	3.9	4.2	4.5	4.0
Dissolved Sodium (Na)	mg/L	200**	69	62	67	73	67	68	65	68	65	56	62	67	71
Dissolved Sulphate (SO4)	mg/L	500**	270	270	250	250	270	260	270	260	260	250	260	250	270
Nitrate (N)	mg/L	10.0*	0.4	0.6	0.2	0.8	1.2	0.52	0.21	0.29	<0.10	0.2	0.33	<0.10	0.29
pH	(pH units)	6.5-8.5	8.2	7.78	8.14	7.75	7.93	7.87	8.07	7.39	6.97	8.08	8.18	7.73	7.93
Total Ammonia-N	mg/L		<0.15	0.20	<0.15	0.41	<0.15	0.16	0.16	<0.15	<0.15	0.25	<0.15	1.67	0.19
Total Dissolved Solids	mg/L	500	810	796	756	788	802	804	864	792	790	804	782	850	860
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	1.8	<0.7
Ion Percentage	%		8.6	1.7	1.4	3.4	0.9	1.0	1.1	7.7	0.3	4.5	7.0	7.4	6.5

Parameter	Units	ODWQS	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7
Date			16-Nov-16	16-May-17	7-Nov-17	8-May-18	14-Nov-18	14-May-19	5-Nov-19	7-May-20	4-Nov-20	19-May-21	2-Nov-21	4-May-22	2-Nov-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	500	490	490		490	470	490	450	470	470	490	440	480
Conductivity	umho/cm		1300	1300	1300	1400	1300	1300	1300	1200	1300	1300	1300	1200	1300
Dissolved Barium (Ba)	mg/L	1*	0.016	0.013	0.014	0.014	0.016	0.015	0.016	0.023	0.021	0.02	0.017	0.017	0.016
Dissolved Boron (B)	mg/L	5.0*	0.29	0.26	0.26	0.29	0.26	0.26	0.24	0.23	0.26	0.28	0.27	0.25	0.27
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		120	100	110	110	110	110	99	100	120	110	120	100	110
Dissolved Chloride (Cl)	mg/L	250**	4.8	4.8	5.3	4.2	5.4	5.8	5.3	8.8	6.2	7.1	5.3	7.4	6.6
Dissolved Iron (Fe)	mg/L	0.30**	2.8	1.3	1.5	2	1.5	1.8	0.8	1	2.8	1.9	0.9	0.7	0.8
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		85	76	78	87	78	82	76	70	82	81	85	78	80
Dissolved Organic Carbon	mg/L	5**	2.2	2.4	2.4	2.1	2.7	2.2	2.4	3.4	2.5	2.3	1.9	2.3	2.4
Dissolved Potassium (K)	mg/L		4.2	3.9	4.1	4.2	4	3.8	3.9	3.4	3.9	4	3.8	3.6	3.9
Dissolved Sodium (Na)	mg/L	200**	68	61	62	71	62	64	60	53	63	64	61	61	60
Dissolved Sulphate (SO4)	mg/L	500**	280	300	260	210	280	290	250	220	260	270	270	250	260
Nitrate (N)	mg/L	10.0*	0.11	0.29	0.41	0.3	0.41	0.24	<0.10	0.25	0.11	0.12	<0.10	0.57	0.29
pH	(pH units)	6.5-8.5	7.8	7.8	7.8	8.0	7.9	7.8	7.8	8.0	7.7	7.8	8.0	8.0	7.9
Total Ammonia-N	mg/L		0.23	<0.15	<0.15	<0.15	<0.15	0.18	0.34	<0.15	0.23	0.134	0.19	<0.15	0.26
Total Dissolved Solids	mg/L	500	850	806	845	810	790	810	805	770	860	640	785	730	730
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.2	<0.7	<0.7	<0.7
Ion Percentage	%		6.6	1.1	4.3		2.8	4.5	2.3	4.1	8.3	5.7	6.9	6.1	5.0

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4
Date			22-Mar-84	8-Sep-86	30-Apr-87	14-Dec-94	6-Jun-95	11-Dec-96	14-May-97	4-Dec-97	13-May-98	8-Feb-99	9-Jun-99	22-Dec-99	29-Mar-00
Laboratory			Enviroclean	Enviroclean	Enviroclean	Enviroclean	Zenon	Zenon	Zenon	Zenon	Zenon	Maxxam	Maxxam	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***			502	510	180	460	460	510	460	397	422	366	440
Dissolved Boron (B)	mg/L	5.0*				0.5	0.37					0.504	0.404		
Dissolved Calcium (Ca)	mg/L		470	480	430	430	55	380	400	440	420	448	482	423	476
Dissolved Chloride (Cl)	mg/L	250**	12	1	6	6.3	0.99	6.3	7.4	6.5	7	4.4	5.3	6	6
Dissolved Iron (Fe)	mg/L	0.30**	<0.04	0.38	0.05	0.03	0.019	0.12	0.052	0.31	0.012	0.38	0.084	0.02	0.48
Dissolved Magnesium (Mg)	mg/L		835	792	765	770	15	680	700	780	740	725	767	768	789
Dissolved Organic Carbon	mg/L	5**	16.9	3.1	3.1							2.5	2.2		
Dissolved Potassium (K)	mg/L		25	6.8	6.6	6.4	1.4	6.1	6.2	7.8	6.6	7	5	5	6
Dissolved Sodium (Na)	mg/L	200**	260	212	202	210	5.1	200	200	230	220	213	238		227
Dissolved Sulphate (SO4)	mg/L	500**	4490	4250	4030	4900	77	4000	4100	4100	4200	3920	3990	3950	5000
Nitrate (N)	mg/L	10.0*								<0.05	<0.05	0.2	<0.1	<0.10	<0.10
Nitrite (N)	mg/L	1.0*								<0.05	<0.05	<0.1	<0.1	<0.10	<0.10
NO3+NO2	mg/L	10.0*	0.4	0.02	<0.01	0.12	0.26	0.085	<0.0500	<0.05	<0.05			<0.10	<0.10
Total Ammonia-N	mg/L			0.01	0.09	0.09	0.1	0.03	<0.03	0.03	<0.03	<0.05	<0.05	0.03	<0.02
Total Kjeldahl Nitrogen (TKN)	mg/L			0.3	0.51	2	3.9	2	0.74	0.76	0.73	2.7	0.2	0.12	0.22
Ion Percentage	%				0.1	8.5	3.3	4.6	4.2	0.8	2.4	1.3	3.5		6.5

Parameter	Units	ODWQS	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4
Date			22-Jun-00	5-Dec-00	8-May-01	28-Nov-01	23-May-02	6-Nov-02	15-May-03	13-Nov-03	25-May-04	26-Nov-04	13-May-05	29-Nov-05	19-May-06
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	406	428	458	421	373	357	339	326	392	377	377	351	383
Dissolved Boron (B)	mg/L	5.0*	0.33			0.39	0.47	0.31	0.27	0.39	0.35	0.34	0.43	0.33	0.31
Dissolved Calcium (Ca)	mg/L		391	449	425	404	328	259	167	162	172	229	260	135	150
Dissolved Chloride (Cl)	mg/L	250**	5	7	8	7	16	28	41	35	32	28	31	37	34
Dissolved Iron (Fe)	mg/L	0.30**	<0.01	0.01	0.02	0.17	0.81	0.02	0.02	0.02	<0.01	0.10	0.10	0.03	<0.03
Dissolved Magnesium (Mg)	mg/L		656	709	710	729	467	331	176	175	161	257	264	114	159
Dissolved Organic Carbon	mg/L	5**	3.9			3.3	3.2	2.7	3.1	3.1	3.4	3.6	3.1	4.1	4.3
Dissolved Potassium (K)	mg/L		4	5	6	4	3	6	3	5	3	3	4	2	2
Dissolved Sodium (Na)	mg/L	200**	192	190	208	178	139	134	82	84	82	119	102	95	99
Dissolved Sulphate (SO4)	mg/L	500**	3700	3840	3990	3630	2460	1760	791	820	792	1550	1680	659	998
Nitrate (N)	mg/L	10.0*	0.40	<0.1	<0.1	<0.10	0.13	1.08	0.81	0.50	<0.10	<0.10	<0.10	0.48	0.16
Nitrite (N)	mg/L	1.0*	<0.10	<0.1	<0.1										
NO3+NO2	mg/L	10.0*	0.40	<0.1	<0.1										
Total Ammonia-N	mg/L		0.25	<0.2	<0.02	0.05	0.04	<0.02	<0.02	0.05	0.25	0.03	0.19	0.03	<0.02
Total Kjeldahl Nitrogen (TKN)	mg/L		0.27	0.18	0.07	0.18	0.05	0.31	0.40	0.28	0.26	0.22	0.36	0.18	0.27
Ion Percentage	%		1.6	0.7	1.5	2.7	2.2	2.9	6.5	5.6	3.3	2.1	3.7	0.6	6.0

Parameter	Units	ODWQS	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4
Date			24-Nov-06	4-May-07	16-Nov-07	22-May-08	5-Nov-08	16-May-09	19-Nov-09	20-May-10	23-Nov-10	10-May-11	3-Nov-11	10-May-12	5-Nov-12
Laboratory			Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	470	512	489	542	471	498	483	513	301	347	443	430	260
Conductivity	umho/cm					1680	2080	1900	2140	1750	1140	1020	1170	1100	890
Dissolved Barium (Ba)	mg/L	1*				0.01	0.013	0.012	0.011	0.010	0.012	0.013	0.018	0.016	0.014
Dissolved Boron (B)	mg/L	5.0*	0.37	0.48	0.37	0.35	0.41	0.41	0.41	0.33	0.32	0.24	0.37	0.28	0.27
Dissolved Cadmium (Cd)	mg/L	0.005*				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		166	176	196	130	210	230	250	220	130	110	120	130	110
Dissolved Chloride (Cl)	mg/L	250**	33	31	31	27	29	28	28	24	18	16	16	14	9
Dissolved Iron (Fe)	mg/L	0.30**	0.03	<0.03	0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10
Dissolved Lead (Pb)	mg/L	0.01*				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		146	144	187	96	240	260	300	240	120	82	85	100	81
Dissolved Organic Carbon	mg/L	5**	4.5	4.9	5.0	3.5	3.2	4.9	3.6	3.3	3.4	3.3	4.3	3.3	3.4
Dissolved Potassium (K)	mg/L		3	2	2	1.7	3.5	3.3	3.3	2.7	2.3	1.9	2.3	2.2	2.2
Dissolved Sodium (Na)	mg/L	200**	133	131	125	120	130	130	120	110	90	74	65	70	62
Dissolved Sulphate (SO4)	mg/L	500**	779	684	964	402	751	580	770	450	290	190	200	180	200
Nitrate (N)	mg/L	10.0*	0.21	<0.10	<0.10	<0.1	0.1	<0.1	0.1	<0.1	0.5	<0.1	<0.1	<0.10	0.44
pH	(pH units)	6.5-8.5				8.0	8.0	8.0	7.9	8.1	8.0	8.2	7.9	7.9	7.7
Total Ammonia-N	mg/L		<0.02	<0.02	0.02	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500				997	1350	1140	1550	1140	722	618	746	668	594
Total Kjeldahl Nitrogen (TKN)	mg/L		0.32	0.21	0.35	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		2.5	5.8	2.7	4.6	19.6	29.6	26.4	31.9	28.0	16.1	8.4	17.4	22.2

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4
Date			13-May-13	5-Nov-13	6-May-14	24-Nov-14	13-May-15	11-Nov-15	27-May-16	16-Nov-16	19-May-17	8-Nov-17	10-May-18	13-Nov-18	14-May-19
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	360	420	420	430	440	340	320	410	190	430	450	400	400
Conductivity	umho/cm		1400	1500	1500	2100	1800	1700	1100	1500	2500	1300	1800	1000	1700
Dissolved Barium (Ba)	mg/L	1*	0.015	0.019	0.019	0.02	0.017	0.02	0.016	0.019	0.007	0.018	0.014	0.016	0.016
Dissolved Boron (B)	mg/L	5.0*	0.21	0.29	0.24	0.33	0.28	0.30	0.20	0.29	0.27	0.31	0.29	0.23	0.25
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	130	160	150	160	190	130	150	180	150	190	100	190
Dissolved Chloride (Cl)	mg/L	250**	15	13	14	17	15	58	71	45	28	34	34	25	29
Dissolved Iron (Fe)	mg/L	0.30**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.40	<0.1	0.3	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		120	110	140	140	150	180	100	120	91	130	180	64	180
Dissolved Organic Carbon	mg/L	5**	2.8	4.6	3.5	3.9	4	3.7	2.8	3.4	1.1	3.6	3.3	4.9	3.3
Dissolved Potassium (K)	mg/L		2.5	2.3	1.9	2	2.3	2.5	2.5	2.8	7.1	2.5	3	1.7	2.3
Dissolved Sodium (Na)	mg/L	200**	71	75	77	79	81	89	74	75	250	79	92	69	90
Dissolved Sulphate (SO4)	mg/L	500**	400	390	390	750	550	510	180	350	1200	310	460	200	530
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	0.36	<0.10	0.11	<0.10	0.16	<0.10	<0.10	0.13
pH	(pH units)	6.5-8.5	7.8	7.4	7.1	8.0	8.1	7.8	7.9	7.9	8.1	7.9	7.9	8.0	8.0
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.47	0.43	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	798	1010	968	2120	2130	1050	742	1000	2000	935	1310	625	1320
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		14.3	10.4	19.8	1.5	11.3	22.6	24.5	15.3	2.9	20.2	22.7	8.0	21.2

Parameter	Units	ODWQS	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4
Date			5-Nov-19	8-May-20	3-Nov-20	20-May-21	3-Nov-21	3-May-22	2-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	400	400	420	420	450	470	430
Conductivity	umho/cm		2300	2500	2400	2000	2000	1600	2100
Dissolved Barium (Ba)	mg/L	1*	0.015	0.013	0.013	0.021	0.017	0.014	0.012
Dissolved Boron (B)	mg/L	5.0*	0.34	0.35	0.36	0.23	0.26	0.24	0.33
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		280	280	310	190	250	230	310
Dissolved Chloride (Cl)	mg/L	250**	30	31	33	35	32	32	28
Dissolved Iron (Fe)	mg/L	0.30**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		290	270	310	160	230	220	310
Dissolved Organic Carbon	mg/L	5**	3.8	3.4	3.5	3.2	3.1	3.1	7.8
Dissolved Potassium (K)	mg/L		3.8	3.1	3.8	1.6	2.3	2.0	3.6
Dissolved Sodium (Na)	mg/L	200**	120	110	120	79	98	93	120
Dissolved Sulphate (SO4)	mg/L	500**	880	1100	970	720	730	450	780
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	0.29	0.16	0.14
pH	(pH units)	6.5-8.5	7.7	7.9	7.9	8.0	8.1	8.1	7.8
Total Ammonia-N	mg/L		0.39	<0.15	<0.15	<0.050	<0.15	<0.15	0.31
Total Dissolved Solids	mg/L	500	2190	1870	2350	1360	1230	1140	1800
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.2	<0.7	<0.7	<0.7
Ion Percentage	%		25.2	14.8	24.5	6.6	20.7	30.6	31.5

Parameter	Units	ODWQS	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29
Date			7-Feb-99	3-Jun-99	2-Dec-99	19-Jun-00	13-Jun-02	22-May-08	14-May-09	20-May-10	10-May-11	9-May-12	9-May-13	6-May-14	12-May-15
Laboratory			Maxxam	Maxxam	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	183	177	185	188	187	193	191	188	192	190	190	190	190
Conductivity	umho/cm		2490	2470	2300	2390		2460	2460	2470	2470	2500	2500	2500	1900
Dissolved Barium (Ba)	mg/L	1*	0.035	0.011				0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.008
Dissolved Boron (B)	mg/L	5.0*	2.1	1.93	1.94	2.02	2.27	2.1	2.1	2.2	1.8	2.1	1.9	2	2.1
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.003	<0.003		<0.005		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		182	196	202	209	185	190	190	180	190	190	180	200	190
Dissolved Chloride (Cl)	mg/L	250**	24.5	25.9	30	28	34	28	29	28	28	26	27	28	27
Dissolved Iron (Fe)	mg/L	0.30**	0.808	0.966	0.96	0.73	0.51	0.1	<0.1	0.5	0.3	0.19	0.16	0.74	<0.10
Dissolved Lead (Pb)	mg/L	0.01*	<0.025	<0.002	<0.002	<0.001		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		92	96.2	104	102	97	92	94	97	100	100	92	99	100
Dissolved Organic Carbon	mg/L	5**	0.7	0.7	1.2	1.8	0.6	1	2.4	1.2	0.8	0.9	1.3	1.5	1.9
Dissolved Potassium (K)	mg/L		8	7	8	8	7	7.1	7.1	7.3	7.3	7.4	6.8	7	7.5
Dissolved Sodium (Na)	mg/L	200**	245	263	274	268	251	250	250	260	280	280	250	260	280
Dissolved Sulphate (SO4)	mg/L	500**	1280	1270	1230	1210	1277	1180	1200	1200	1100	1100	1100	1100	1000
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.10	<0.10	0.14	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.6	7.7	7.7	7.0		8.0	7.7	8.0	7.9	7.8	8.0	7.1	7.8
Total Ammonia-N	mg/L		0.47	0.5	0.54	0.62	0.5	0.52	0.54	0.48	0.48	0.79	0.51	0.5	0.48
Total Dissolved Solids	mg/L	500	2010	2090	1980	2080		1500	1550	1500	1490	2010	2050	1940	2070
Total Kjeldahl Nitrogen (TKN)	mg/L		0.9	0.5	0.55	0.67	0.68	<10	<4	1.4	0.7	<0.7	<0.7	<0.7	0.9
Ion Percentage	%		5.4	1.8	1.6	2.2	4.4	1.2	1.6	1.2	3.9	4.1	0.3	3.2	8.0

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29
Date			26-May-16	19-May-17	10-May-18	14-May-19	8-May-20	20-May-21	4-May-22
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	200	190	210	190	190	190	190
Conductivity	umho/cm		2400	2500	2600	2400	2600	2500	2500
Dissolved Barium (Ba)	mg/L	1*	0.007	0.007	0.006	0.007	0.007	0.007	0.006
Dissolved Boron (B)	mg/L	5.0*	2.2	2.1	2.2	2	2	2.2	2.3
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		190	180	200	190	180	190	200
Dissolved Chloride (Cl)	mg/L	250**	27	28	27	29	28	28	29
Dissolved Iron (Fe)	mg/L	0.30**	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		100	91	97	95	94	96	93
Dissolved Organic Carbon	mg/L	5**	1.3	1.1	1.5	1.2	1.2	1.3	1.6
Dissolved Potassium (K)	mg/L		7.4	7.1	7.6	7	6.8	7.5	7.1
Dissolved Sodium (Na)	mg/L	200**	270	250	270	260	260	260	270
Dissolved Sulphate (SO4)	mg/L	500**	1100	1200	1100	1100	1100	1200	1100
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.0	8.1	8.0	7.9	7.9	8.0	8.0
Total Ammonia-N	mg/L		0.5	0.43	0.5	0.53	0.47	0.484	0.45
Total Dissolved Solids	mg/L	500	1940	2000	1870	2070	2000	1810	1810
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	0.6	<0.7
Ion Percentage	%		4.3	2.9	4.5	3.1	2.1	0.5	4.4

Parameter	Units	ODWQS	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26
Date			4-Feb-99	3-Jun-99	30-Nov-99	21-Jun-00	22-May-08	20-May-09	20-May-10	12-May-11	16-May-12	8-May-13	5-May-14	14-May-15	27-May-16
Laboratory			Maxxam	Maxxam	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	282	283	323	319	308	281	310	280	300	290	300	290	300
Conductivity	umho/cm		940	921	863	935	943	949	935	879	770	850	780	740	730
Dissolved Barium (Ba)	mg/L	1*	0.07	0.044	0.07	0.05	0.066	0.082	0.051	0.075	0.073	0.076	0.087	0.1	0.15
Dissolved Boron (B)	mg/L	5.0*	2.02	1.61	1.9	1.87	2.0	1.9	1.8	1.7	1.7	1.7	1.9	1.9	1.9
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.003	<0.003	<0.005	<0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		26.9	24.5	21	27	26	23	26	16	15	17	19	16	19
Dissolved Chloride (Cl)	mg/L	250**	48.2	48.6	44	42	50	45	64	43	40	58	42	40	42
Dissolved Iron (Fe)	mg/L	0.30**	0.083	0.032	1.26	0.05	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Lead (Pb)	mg/L	0.01*	<0.025	<0.002	<0.002	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		20.7	18.7	20	19	20	17	21	12	11	12	12	11	13
Dissolved Organic Carbon	mg/L	5**	0.6	0.5	1.3	0.7	0.9	2.4	1.5	2.0	1.6	1.6	2.5	1.9	1.6
Dissolved Potassium (K)	mg/L		5	2	3	3	2.7	2.7	2.6	2.5	2.5	2.5	2.4	2.3	2.5
Dissolved Sodium (Na)	mg/L	200**	151	144	165	146	150	160	160	150	150	140	150	130	150
Dissolved Sulphate (SO4)	mg/L	500**	121	102	123	169	146	130	100	110	37	44	39	26	18
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.7	8.7	8.7	8.2	8.5	7.9	8.6	7.9	8.2	8.0	7.2	8.0	8.2
Total Ammonia-N	mg/L		0.2	0.23	0.27	0.19	0.34	0.39	0.25	0.38	0.18	0.36	0.27	0.38	0.51
Total Dissolved Solids	mg/L	500	575	635	520	636	611	580	610	512	408	476	420	400	406
Total Kjeldahl Nitrogen (TKN)	mg/L		0.7	0.3	0.33	0.22	<10	5	0.9	4	<0.7	<0.7	<0.7	1.1	<0.7
Ion Percentage	%		7.0	5.7	4.7	3.0	0.4	5.6	5.9	5.0	1.9	2.8	3.0	0.8	14.6

Parameter	Units	ODWQS	OW39A-26	OW39A-26	OW39A-26	OW39A-26	OW39A-26	OW39A-26
Date			17-May-17	8-May-18	15-May-19	6-May-20	21-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	190	300	300	300	300	280
Conductivity	umho/cm		530	880	890	960	940	950
Dissolved Barium (Ba)	mg/L	1*	0.07	0.066	0.054	0.055	0.054	0.081
Dissolved Boron (B)	mg/L	5.0*	0.75	0.35	1.7	1.5	1.8	1.8
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		24	33	30	29	32	21
Dissolved Chloride (Cl)	mg/L	250**	17	35	58	49	57	42
Dissolved Iron (Fe)	mg/L	0.30**	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		12	9.3	18	19	22	14
Dissolved Organic Carbon	mg/L	5**	7.6	2.8	4.7	3.7	2.8	11
Dissolved Potassium (K)	mg/L		3.1	5.8	3.2	3.2	3.1	3.1
Dissolved Sodium (Na)	mg/L	200**	64	50	150	150	150	140
Dissolved Sulphate (SO4)	mg/L	500**	53	130	93	120	120	130
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.1	8.4	8.7	8.5	8.5	8.1
Total Ammonia-N	mg/L		0.29	0.23	0.39	0.18	0.278	0.22
Total Dissolved Solids	mg/L	500	328	535	585	500	475	495
Total Kjeldahl Nitrogen (TKN)	mg/L		0.8	<0.7	<0.7	<0.7	0.5	<0.7
Ion Percentage	%		4.0	28.7	6.3	4.7	5.4	0.5

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWS	OW40-6	OW40-6	OW40-6	OW40-6	OW40-6	OW40-6	OW40-6	OW40-6	OW40-6	OW40-6
Date			31-Oct-89	25-May-90	11-Dec-90	22-May-91	13-Nov-91	29-May-92	17-Jun-93	9-Feb-99	3-Jun-99	21-Jun-00
Laboratory			Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Maxxam	Maxxam	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	521	528	496	507	506	502	451	498	479	501
Conductivity	mS/cm		1571	1430	1590	1510	1520	1320	1520	1630	1520	1420
Dissolved Barium (Ba)	mg/L	1*								0.023	0.023	0.02
Dissolved Boron (B)	mg/L	5.0*								0.459	0.348	0.34
Dissolved Cadmium (Cd)	mg/L	0.005*								<0.003	<0.003	<0.005
Dissolved Calcium (Ca)	mg/L		150	127	89	93.5	144	120	129	126	123	105
Dissolved Chloride (Cl)	mg/L	250**	3	2	2	2	2	1	3	3.8	3.2	2
Dissolved Iron (Fe)	mg/L	0.3**	0.65			0.03	<0.02	<0.02	<0.02	0.762	0.137	0.05
Dissolved Lead (Pb)	mg/L	0.01*								0.026	<0.002	<0.001
Dissolved Magnesium (Mg)	mg/L		150	148	127	136	136	128	142	112	134	105
Dissolved Organic Carbon	mg/L	5**	3.6	1.4	2.3	3.8	2.6	1.8	1.4	1.2	1.1	2.8
Dissolved Potassium (K)	mg/L		6.7	4.2	4.4	3.05	4.01	3.78	4.04	5	4	4
Dissolved Sodium (Na)	mg/L	200**	74		67	65.2		58.4	58.4	62	59.6	47
Dissolved Sulphate (SO4)	mg/L	500**	422	400	420	460	510	460	440	486	416	387
Nitrate (N)	mg/L	10.0*								0.2	0.4	<0.10
pH	pH units	6.5-8.5	7.6	7.2	7.9	7.2	7.4	7.2	7	7.1	7.2	7.4
Total Ammonia-N	mg/L		0.15	0.08	0.02	0.09	0.05	0.12	0.14	0.08	0.07	0.65
Total Dissolved Solids	mg/L	500								1170	1220	1028
Total Kjeldahl Nitrogen (TKN)	mg/L		0.43	0.42	0.08	0.37	0.24	0.14	0.23	0.1	<0.1	1.30
Ion Percentage	%		14.5	4.8	3.0	2.4	1.1	3.8	11.2	0.0	9.1	0.7

Parameter	Units	ODWS	OW40B-4	OW40B-4	OW40B-4	OW40B-4	OW40B-4	OW40B-4r	OW40B-4r	OW40B-4r	OW40D-4	OW40D-4	OW40D-4	OW40D-4	OW40D-4
Date			19-May-09	20-May-10	12-May-11	15-May-12	12-Jun-12	3-Dec-12	8-May-13	6-May-14	14-May-15	27-May-16	17-May-17	8-May-18	15-May-19
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as CaCO3)	mg/L	30-500***	412	454	460	310	360	400	370	380	420	450	450	400	370
Conductivity	mS/cm		1940	1890	1690	770	1100	4500	4300	4000	4600	4700	4700	2800	2100
Dissolved Barium (Ba)	mg/L	1*	0.015	0.011	0.020	0.02	0.029	0.031	0.023	0.017	0.012	0.011	0.008	0.012	0.012
Dissolved Boron (B)	mg/L	5.0*	0.25	0.28	0.24	0.11	0.16	0.55	0.48	0.4	0.67	0.68	0.68	0.6	0.39
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	0.0004	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		170	170	140	94	99	560	530	490	440	440	420	290	260
Dissolved Chloride (Cl)	mg/L	250**	6	6	5	4	4	6	6	6	11	11	11	8.3	7.8
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	0.10	<0.10	<0.10	0.1	<0.1	0.7	0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0015	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		150	150	130	49	78	450	440	400	470	440	460	290	250
Dissolved Organic Carbon	mg/L	5**	12	5.5	3.7	6.0	5.1	3.8	3.7	3.4	2.8	2.6	2.4	2.9	3.6
Dissolved Potassium (K)	mg/L		6.4	4.7	4.5	5.6	4.2	8.6	6.2	6	6.7	6.5	6	5.2	4.4
Dissolved Sodium (Na)	mg/L	200**	77	97	69	80	71	140	130	120	200	230	210	160	150
Dissolved Sulphate (SO4)	mg/L	500**	730	700	490	86	220	3000	2700	2500	2900	2900	2900	1300	880
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	0.4	3.4	2.0	<0.10	0.14	<0.10	<0.10	<0.10	<0.10	<0.10	0.2
pH	pH units	6.5-8.5	7.7	8.1	8.2	7.9	7.8	7.7	7.5	7.8	7.7	7.7	7.6	7.8	7.7
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	1220	1190	1030	514	890	4760	4500	4030	4760	4750	4610	2360	1950
Total Kjeldahl Nitrogen (TKN)	mg/L		<4	1.6	<0.7	0.8	0.9	<0.7	0.7	<0.7	<0.7	<0.7	1.4	<0.7	<0.7
Ion Percentage	%		4.7	6.3	2.9	21.9	10.3	0.0	3.1	1.9	0.2	0.2	0.4	14.3	23.9

Parameter	Units	ODWS	OW40D-4	OW40D-4	OW40D-4
Date			7-May-20	20-May-21	5-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	440	350	390
Conductivity	mS/cm		3900	2000	2000
Dissolved Barium (Ba)	mg/L	1*	0.011	0.009	0.012
Dissolved Boron (B)	mg/L	5.0*	0.56	0.4	0.33
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		330	280	210
Dissolved Chloride (Cl)	mg/L	250**	10	4.6	6.2
Dissolved Iron (Fe)	mg/L	0.3**	1.1	0.3	0.5
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		310	250	180
Dissolved Organic Carbon	mg/L	5**	2.9	3.1	3.9
Dissolved Potassium (K)	mg/L		5.4	4.9	4.2
Dissolved Sodium (Na)	mg/L	200**	170	140	120
Dissolved Sulphate (SO4)	mg/L	500**	2100	850	770
Nitrate (N)	mg/L	10.0*	<0.10	0.34	<0.10
pH	pH units	6.5-8.5	7.8	7.8	8.0
Total Ammonia-N	mg/L		<0.15	<0.050	<0.15
Total Dissolved Solids	mg/L	500	3400	1740	1830
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.3	<0.7
Ion Percentage	%		2.0	26.6	15.0

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7
Date			**19-May-09**	**20-May-10**	**12-May-11**	**15-May-12**	**9-May-13**	**5-May-14**	**14-May-15**	**27-May-16**	**17-May-17**	**8-May-18**	**15-May-19**	**7-May-20**	**20-May-21**
Laboratory			**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	423	393	352	370	360	360	360	350	330		330	340	330
Conductivity	umho/cm		2510	2650	2650	2700	2900	2900	2800	2800	2900	3000	2900	2900	2900
Dissolved Barium (Ba)	mg/L	1*	0.018	0.015	0.012	0.01	0.010	0.010	0.008	0.009	0.007	0.008	0.007	0.007	0.007
Dissolved Boron (B)	mg/L	5.0*	0.53	0.56	0.57	0.56	0.49	0.55	0.63	0.63	0.59	0.66	0.69	0.57	0.59
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		260	260	250	240	270	290	260	270	250	280	260	270	270
Dissolved Chloride (Cl)	mg/L	250**	5	6	6	8	7	8	8	8.2	7.7	7.1	7.2	7.2	6.7
Dissolved Iron (Fe)	mg/L	0.30**	<0.1	<0.1	1.1	2.4	0.80	0.45	1.20	3.10	1.50	2.7	1.2	1.4	0.9
Dissolved Lead (Pb)	mg/L	0.01*	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		230	230	220	210	240	250	220	240	230	270	260	240	250
Dissolved Organic Carbon	mg/L	5**	5.2	2.0	2.2	3.1	2.4	5.5	2.7	1.8	2.2	1.8	2.1	2.1	1.6
Dissolved Potassium (K)	mg/L		7.1	5.8	5.8	5.5	5.6	5.6	5.6	5.7	5.4	5.7	6.0	5.4	5.6
Dissolved Sodium (Na)	mg/L	200**	120	110	110	110	110	130	110	130	120	130	130	120	130
Dissolved Sulphate (SO4)	mg/L	500**	1200	1300	1300	1300	1500	1400	1400	1400	1500	1500	1500	1400	1600
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	0.1	0.14	0.14	<0.1	<0.10	<0.10	<0.10	0.1	0.16	0.16	0.2
pH	(pH units)	6.5-8.5	7.3	8.0	8.1	7.8	8.0	7.2	7.8	7.9	8.2	7.9	7.9	8.0	7.9
Total Ammonia-N	mg/L		0.23	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.050
Total Dissolved Solids	mg/L	500	1670	1700	1480	2250	2750	2530	2540	2550	2530	2470	2660	2530	2580
Total Kjeldahl Nitrogen (TKN)	mg/L		<4	2	<0.7	<0.7	<0.7	0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.2
Ion Percentage	%		7.4	4.2	1.3	1.2	1.1	5.1	1.3	5.0	0.5	13.8	4.0	4.7	0.8

Parameter	Units	ODWQS	OW40A-7
Date			**5-May-22**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	370
Conductivity	umho/cm		3000
Dissolved Barium (Ba)	mg/L	1*	0.007
Dissolved Boron (B)	mg/L	5.0*	0.61
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		280
Dissolved Chloride (Cl)	mg/L	250**	7.2
Dissolved Iron (Fe)	mg/L	0.30**	1.0
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		250
Dissolved Organic Carbon	mg/L	5**	2.2
Dissolved Potassium (K)	mg/L		5.9
Dissolved Sodium (Na)	mg/L	200**	120
Dissolved Sulphate (SO4)	mg/L	500**	1500
Nitrate (N)	mg/L	10.0*	0.4
pH	(pH units)	6.5-8.5	8.1
Total Ammonia-N	mg/L		<0.15
Total Dissolved Solids	mg/L	500	2510
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7
Ion Percentage	%		2.8

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7
Date			11-Dec-90	22-May-91	14-Nov-91	29-May-92	12-Nov-92	17-Jun-93	16-Dec-93	12-May-94	14-Dec-94	6-Jun-95	3-Nov-95	11-Dec-96	14-May-97
Laboratory			Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Zenon	Zenon	Zenon	Zenon
Alkalinity (Total as CaCO3)	mg/L	30-500***	376	331	362	356	364	336	35	366	360	360	380	380	380
Dissolved Boron (B)	mg/L	5.0*							1.05	0.76	1	0.93	0.96		
Dissolved Calcium (Ca)	mg/L		371	287	458	317	470	392	310	405	430	410	410	370	420
Dissolved Chloride (Cl)	mg/L	250**	14	11	11	6	14	7	13	11	14	13	14	15	14
Dissolved Iron (Fe)	mg/L	0.3**	0.05	0.08	<0.02	0.02	0.02	0.02	0.19	0.02	0.34	<0.01	0.076	0.62	0.11
Dissolved Magnesium (Mg)	mg/L		461	467	467	430	573	508	330	465	410	440	440	410	450
Dissolved Organic Carbon	mg/L	5**	1.1	1.9	1.6	1.8	2.2	1.1							
Dissolved Potassium (K)	mg/L		9.84	5.5	9.07	8.91	8.91	8.49	8.62	8.98	7.5	9.2	8.8	8.1	8.8
Dissolved Sodium (Na)	mg/L	200**	279	222	<204	<253	241	248	269	300	290	300	280	270	270
Dissolved Sulphate (SO4)	mg/L	500**	2700	2400	3000	2700	3800	3100	2700	3100	3700	3300	3300	3100	3200
Nitrate (N)	mg/L	10.0*													
Nitrite (N)	mg/L	1.0*													
NO3+NO2	mg/L	10.0*	0.08	0.36	0.16	0.16	0.07	0.07	0.23	0.07	0.027	0.074	0.11	<0.05	0.16
Total Ammonia-N	mg/L		0.37	0.25	0.27	0.12	0.22	0.22	0.2	0.17	0.16	<0.03	0.03	0.31	0.22
Total Kjeldahl Nitrogen (TKN)	mg/L		0.51	0.3	0.43	0.17	0.33	0.33	0.39	0.35	0.77	1.1	0.36	1.3	0.51
Ion Percentage	%		4.2	5.3			3.0	1.0		0.2	10.6	3.9	4.8	5.7	2.7

Parameter	Units	ODWQS	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7
Date			4-Dec-97	11-Mar-98	13-May-98	22-Dec-99	29-Mar-00	5-Dec-00	8-May-01	28-Nov-01	23-May-02	6-Nov-02	15-May-03	16-Jun-03	14-Nov-03
Laboratory			Zenon	Maxxam	Zenon	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	380	339	380	275	278	318	353	374	370	353	225	221	297
Dissolved Boron (B)	mg/L	5.0*								0.81	1.32	0.77	0.12	0.10	0.43
Dissolved Calcium (Ca)	mg/L		440	386	430	298	239	323	405	461	467	379	168	149	261
Dissolved Chloride (Cl)	mg/L	250**	13	11.3	13	18	15	15	15	16	12	14	15	15	13
Dissolved Iron (Fe)	mg/L	0.3**	1.9	1.18	0.016	1.76	0.02	1.41	0.04	3.92	4.95	0.09	0.01	<0.01	0.03
Dissolved Magnesium (Mg)	mg/L		460	457	460	379	285	329	341	423	496	420	224	172	270
Dissolved Organic Carbon	mg/L	5**								5.8	1.4	1.6	2.8	3.2	2.7
Dissolved Potassium (K)	mg/L		8.7	10	8.5	6	6	7	8	9	8	14	5	4	10
Dissolved Sodium (Na)	mg/L	200**	290	239	300		237	246	283	314	287	263	146	114	210
Dissolved Sulphate (SO4)	mg/L	500**	3200	2980	3400	2740	2020	2580	2840	2980	3290	3020	1160	993	1740
Nitrate (N)	mg/L	10.0*	<0.05	0.2	<0.05	0.44	0.83	0.57	0.12	0.32	<0.10	<0.10	5.32	5.18	1.08
Nitrite (N)	mg/L	1.0*	<0.05	<0.1	<0.05	<0.05	<0.05	<0.1	<0.1						
NO3+NO2	mg/L	10.0*	<0.05	0.2	<0.05	0.44	0.83	0.57	0.12						
Total Ammonia-N	mg/L		0.33		0.35	0.15	0.02	0.22	0.2	0.32	0.49	0.25	<0.02	<0.02	0.19
Total Kjeldahl Nitrogen (TKN)	mg/L		0.68		0.89	0.37	0.36	0.46	0.27	0.35	0.49	0.35	0.44	0.60	0.23
Ion Percentage	%		0.8	0.7	3.7		1.7	5.1	4.1	1.8	0.8	3.3	7.8	3.4	3.3

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7
Date			26-May-04	26-Nov-04	13-May-05	29-Nov-05	19-May-06	24-Nov-06	4-May-07	16-Nov-07	22-May-08	5-Nov-08	16-May-09	18-Nov-09	19-May-10
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	245	246	244	262	288	289	285	284	273	284	291	297	309
Conductivity	umho/cm										2830	2940	3140	3380	3250
Dissolved Barium (Ba)	mg/L	1*									<0.005	<0.005	<0.005	<0.005	<0.005
Dissolved Boron (B)	mg/L	5.0*	0.17	0.11	0.16	0.16	0.14	0.18	0.19	0.16	0.18	0.2	0.23	0.22	0.21
Dissolved Cadmium (Cd)	mg/L	0.005*									<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		192	244	211	252	210	223	240	261	230	230	260	280	260
Dissolved Chloride (Cl)	mg/L	250**	14	14	13	14	18	18	17	18	18	17	17	16	16
Dissolved Iron (Fe)	mg/L	0.3**	0.02	<0.01	<0.01	0.02	<0.01	<0.03	0.20	<0.03	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*									<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		223	271	244	257	230	256	260	278	270	250	320	330	300
Dissolved Organic Carbon	mg/L	5**	2.6	3.5	3.2	3.5	3.9	3.0	4.0	4.4	3.5	3.5	6.3	4.4	4.4
Dissolved Potassium (K)	mg/L		6	5	5	6	5	5	5	5	5.2	5.3	5.8	6.0	5.2
Dissolved Sodium (Na)	mg/L	200**	153	157	135	149	126	144	152	151	150	130	170	170	150
Dissolved Sulphate (SO4)	mg/L	500**	1280	1430	1430	1620	1300	1570	1700	1690	1580	1710	1800	1900	1800
Nitrate (N)	mg/L	10.0*	1.08	0.81	<0.10	<0.10	<0.10	<0.10	0.50	0.43	0.1	<0.1	<0.1	<0.1	<0.1
pH	(pH units)	6.5-8.5									8.4	8.3	8.3	8.3	8.3
Total Ammonia-N	mg/L		0.19	0.02	0.03	<0.02	0.05	<0.02	0.23	<0.02	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500									1610	2000	1960	2170	2000
Total Kjeldahl Nitrogen (TKN)	mg/L		0.32	0.32	0.10	0.18	0.25	0.25	3.08	<0.10	`	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		5.2	9.2	3.1	2.1	3.7	0.5	0.9	2.3	2.8	4.1	4.2	3.7	1.1

Parameter	Units	ODWQS	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7
Date			23-Nov-10	10-May-11	3-Nov-11	10-May-12	6-Nov-12	13-May-13	5-Nov-13	6-May-14	24-Nov-14	13-May-15	11-Nov-15	27-May-16	16-Nov-16
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	323	327	331	330	330	300	310	320	320	320	360	320	320
Conductivity	umho/cm		3330	2490	2790	2900	3100	2700	2900	2900	3200	3500	4200	3300	3400
Dissolved Barium (Ba)	mg/L	1*	0.005	<0.005	0.005	0.005	<0.01	0.007	0.0086	0.009	0.012	0.011	0.014	0.012	0.012
Dissolved Boron (B)	mg/L	5.0*	0.23	0.20	0.22	0.24	0.25	0.20	0.25	0.24	0.28	0.29	0.60	0.33	0.33
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.00010	<0.00010	0.0003	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		270	190	240	220	250	230	240	240	220	270	390	280	280
Dissolved Chloride (Cl)	mg/L	250**	15	21	20	17	16	15	14	13	14	14	13	15	16
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		310	230	260	280	290	270	300	280	270	310	410	350	350
Dissolved Organic Carbon	mg/L	5**	4.6	4.4	4.6	4.7	4.4	6.7	4.7	4.2	4.7	4.1	3.2	4.1	4.2
Dissolved Potassium (K)	mg/L		5.5	4.4	5.4	5.0	5.2	5.0	5.1	4.7	4.6	5.6	8.0	5.7	5.9
Dissolved Sodium (Na)	mg/L	200**	150	120	130	130	140	120	130	130	110	150	280	160	160
Dissolved Sulphate (SO4)	mg/L	500**	1800	1200	1400	1600	1500	1400	1500	1500	1600	1900	2700	1800	1800
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.3	8.5	8.3	8.3	8.3	8.3	7.9	6.9	8.3	8.3	7.8	8.3	8.1
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	1980	1550	2080	2510	2860	2430	2570	2600	2900	3210	3850	3140	3060
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	1.2	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		2.4	2.0	3.3	1.3	4.9	4.2	5.4	3.1	3.1	1.3	2.0	6.9	6.8

Parameter	Units	ODWQS	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7
Date			19-May-17	8-Nov-17	10-May-18	14-Nov-18	14-May-19	5-Nov-19	11-May-20	3-Nov-20	18-May-21	3-Nov-21	4-May-22	2-Nov-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	320	330	320	310	300	360	310	330	300	370	340	390
Conductivity	umho/cm		2900	2700	2900	2800	3200	4300	3600	3600	3700	4500	4500	4900
Dissolved Barium (Ba)	mg/L	1*	0.015	0.012	0.018	0.022	0.019	0.02	0.02	0.022	0.022	0.021	0.017	0.014
Dissolved Boron (B)	mg/L	5.0*	0.27	0.28	0.28	0.27	0.31	0.53	0.36	0.65	0.34	0.70	0.58	0.8
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		220	220	230	230	270	360	300	390	300	430	410	470
Dissolved Chloride (Cl)	mg/L	250**	14	14	13	14	14	13	14	13	14	13	14	13
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		260	260	270	280	300	390	330	400	360	450	420	490
Dissolved Organic Carbon	mg/L	5**	4.3	4.5	4	4.6	4	2.9	4.1	2.9	3.8	2.0	2.7	2.7
Dissolved Potassium (K)	mg/L		4.6	4.7	4.8	4.7	5	7	5.4	7.2	5.6	7.6	6.9	8.7
Dissolved Sodium (Na)	mg/L	200**	110	110	120	110	140	230	150	230	150	270	250	300
Dissolved Sulphate (SO4)	mg/L	500**	1500	1500	1400	1500	1800	2500	2000	2200	2200	3100	2800	3100
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	0.11	<0.10	<0.10	0.11	<0.10	0.15	0.15	0.17
pH	(pH units)	6.5-8.5	8.4	8.2	8.3	8.2	8.2	7.8	8.2	7.9	8.3	8.1	8.1	7.8
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	0.21	<0.15	<0.15	<0.050	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	2500	2470	2400	2590	3010	4720	3210	3590	3600	3670	3960	4470
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.2	<0.7	<0.7	<0.7
Ion Percentage	%		0.2	0.0	5.5	3.2	1.4	1.2	1.4	9.2	0.3	0.8	0.9	3.4

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6
Date			11-Dec-90	22-May-91	14-Nov-91	29-May-92	11-Nov-92	17-Jun-93	16-Dec-93	12-May-94	14-Dec-94	6-Jun-95	2-Nov-95	8-May-96	11-Dec-96
Laboratory			Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Enviroclean	Zenon	Zenon	Zenon	Zenon
Alkalinity (Total as CaCO3)	mg/L	30-500***	401	412	408	410	410	385	405	406	410	430	450	410	430
Dissolved Boron (B)	mg/L	5.0*							0.91	0.71	0.99	0.98	0.86	0.87	
Dissolved Calcium (Ca)	mg/L		344	287	457	374	474	536	477	424	490	460	420	390	410
Dissolved Chloride (Cl)	mg/L	250**	5	4	3	1	1	2	6	4	6.7	5.6	6.8	6	6.6
Dissolved Iron (Fe)	mg/L	0.3**		0.08	<0.2	<0.2	0.03	<0.02	0.02	0.02	0.46	<0.01	0.16	0.036	0.15
Dissolved Magnesium (Mg)	mg/L		490	505	496	488	514	548	488	501	430	510	460	440	460
Dissolved Organic Carbon	mg/L	5**	1	3.2	1.8	1.7	2.1	1.6							
Dissolved Potassium (K)	mg/L		8.87	7.61	7.37	7.26	7.71	7.36	7.08	7.54	7.2	8.3	8.6	6.9	7.1
Dissolved Sodium (Na)	mg/L	200**	186	175	<155	<170	170	174	182	181	190	190	180	160	180
Dissolved Sulphate (SO4)	mg/L	500**	2800	2500	3200	2800	3400	3400	3400	3100	3800	3200	3200	3200	3300
Nitrate (N)	mg/L	10.0*													
Nitrite (N)	mg/L	1.0*													
NO3+NO2	mg/L	10.0*	0.09	0.5	0.13	0.38	0.01	0.08	0.76	0.11	0.085	0.18	0.092	0.13	0.083
Total Ammonia-N	mg/L		0.32	0.23	0.39	0.2	0.23	0.27	0.2	0.14	0.15	<0.03	1.4	0.27	0.33
Total Kjeldahl Nitrogen (TKN)	mg/L		0.57	0.24	0.58	0.28	3.42	0.29	0.46	1.99	0.81	0.75	4.7	1.8	1.6
Ion Percentage	%		0.2	3.5			3.1	1.1	4.1	1.0	11.9	0.7	5.6	8.3	7.2

Parameter	Units	ODWQS	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6
Date			14-May-97	4-Dec-97	11-Mar-98	13-May-98	22-Dec-99	29-Mar-00	5-Dec-00	8-May-01	28-Nov-01	23-May-02	6-Nov-02	15-May-03	13-Nov-03
Laboratory			Zenon	Zenon	Maxxam	Zenon	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	410	410	418	420	453	402	414	399	418	407	416	385	400
Dissolved Boron (B)	mg/L	5.0*									0.80	1.38	0.90	0.98	0.91
Dissolved Calcium (Ca)	mg/L		430	450	443	460	98	509	486	476	488	478	455	464	459
Dissolved Chloride (Cl)	mg/L	250**	6.1	6.3	4	5.8	2	5	5	5	5	5	5	5	5
Dissolved Iron (Fe)	mg/L	0.3**	0.12	0.16	1.6	0.049	5.09	<0.01	6.28	<0.01	3.75	0.88	4.00	<0.01	0.97
Dissolved Magnesium (Mg)	mg/L		470	490	531	510	136	558	512	468	484	516	511	534	533
Dissolved Organic Carbon	mg/L	5**									2.8	1.9	2.2	1.8	2.0
Dissolved Potassium (K)	mg/L		7.9	7.9	8	8	3	8	8	7	8	7	12	8	13
Dissolved Sodium (Na)	mg/L	200**	180	190	175	190		220	198	200	199	200	221	224	235
Dissolved Sulphate (SO4)	mg/L	500**	3200	3300	3260	3300	1100	4000	3100	3200	3080	3200	2990	3000	3070
Nitrate (N)	mg/L	10.0*		0.079	<0.1	0.077	<0.10	<0.10	<0.1	0.12	<0.10	<0.10	<0.10	0.35	0.19
Nitrite (N)	mg/L	1.0*		<0.05	<0.1	<0.05	<0.10	<0.10	<0.1	<0.1					
NO3+NO2	mg/L	10.0*	0.21	0.079	<0.1	0.077	<0.10	<0.10	<0.1	0.12					
Total Ammonia-N	mg/L		0.23	0.23		0.11	8.26	0.86	0.88	<0.02	<0.02	0.22	0.47	<0.02	0.20
Total Kjeldahl Nitrogen (TKN)	mg/L		0.61	0.86		0.68	<0.10	1.36	1.09	0.11	0.48	0.30	0.60	0.14	0.37
Ion Percentage	%		4.2	3.4	1.2	2.0		5.7	2.1	1.9	0.9	0.8	3.4	5.2	4.1

Parameter	Units	ODWQS	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6
Date			26-May-04	26-Nov-04	13-May-05	29-Nov-05	18-May-06	24-Nov-06	4-May-07	16-Nov-07	22-May-08	5-Nov-08	16-May-09	18-Nov-09	19-May-10
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	396	389	376	387	381	401	368	375	360	411	388	406	350
Conductivity	umho/cm										4360	4870	4700	4820	4760
Dissolved Barium (Ba)	mg/L	1*									<0.03	0.01	0.009	0.009	<0.05
Dissolved Boron (B)	mg/L	5.0*	0.99	0.69	1.03	0.85	0.85	0.84	0.86	1.07	1.1	0.94	1.0	0.96	1.10
Dissolved Cadmium (Cd)	mg/L	0.005*									<0.0005	<0.0001	<0.0001	<0.0001	<0.001
Dissolved Calcium (Ca)	mg/L		474	423	453	420	454	443	417	460	430	470	480	460	460
Dissolved Chloride (Cl)	mg/L	250**	5	5	6	6	5	6	5	6	7	5	6	6	6
Dissolved Iron (Fe)	mg/L	0.3**	0.01	<0.01	0.01	0.01	<0.03	<0.03	<0.03	<0.30	6.9	9.4	3.7	<0.1	2
Dissolved Lead (Pb)	mg/L	0.01*									<0.003	<0.0005	<0.0005	<0.0005	<0.005
Dissolved Magnesium (Mg)	mg/L		528	476	479	456	483	479	462	495	440	440	510	450	480
Dissolved Organic Carbon	mg/L	5**	1.1	2.0	1.7	2.3	1.9	1.5	2.7	2.4	1.8	1.9	3.6	2.4	2.4
Dissolved Potassium (K)	mg/L		10	8	7	7	7	8	7	8	7	7.6	8.1	7.7	7
Dissolved Sodium (Na)	mg/L	200**	262	253	236	219	218	232	229	246	230	220	240	240	230
Dissolved Sulphate (SO4)	mg/L	500**	3330	3290	3070	2890	3050	3070	2990	3130	2730	3230	3000	3200	3100
Nitrate (N)	mg/L	10.0*	0.38	0.32	0.24	0.24	0.27	0.25	0.32	0.35	0.3	<0.1	0.5	0.3	0.5
pH	(pH units)	6.5-8.5									8.0	7.8	7.9	7.7	7.9
Total Ammonia-N	mg/L		0.09	<0.02	0.10	0.03	0.04	<0.02	0.23	<0.02	0.16	0.41	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500									3010	3200	2920	3060	3000
Total Kjeldahl Nitrogen (TKN)	mg/L		0.13	0.25	0.18	0.18	0.16	0.20	0.28	<0.10	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		1.4	2.9	1.1	0.7	1.1	0.4	0.0	1.7	3.3	3.7	4.8	2.4	1.1

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6
Date			23-Nov-10	10-May-11	3-Nov-11	10-May-12	8-Nov-12	13-May-13	5-Nov-13	6-May-14	24-Nov-14	13-May-15	11-Nov-15	27-May-16	16-Nov-16
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	399	356	556	430	460	380	450	400	480	410	480	460	530
Conductivity	umho/cm		4900	4780	4850	4800	4900	4800	4800	4900	4900	4900	4800	4900	5000
Dissolved Barium (Ba)	mg/L	1*	0.009	0.009	0.012	0.009	0.011	0.010	0.010	0.007	0.009	0.008	0.009	0.010	0.010
Dissolved Boron (B)	mg/L	5.0*	0.97	0.85	0.91	0.96	0.96	0.83	0.98	1	0.98	0.83	0.96	1.00	0.99
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		460	440	490	440	460	470	490	480	440	410	470	470	460
Dissolved Chloride (Cl)	mg/L	250**	5	6	7	6	6	6	7	6	7	6	6.9	6.0	7.4
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	4.5	<0.1	1.2	0.31	8.8	0.36	<0.1	<0.10	3.2	0.33	0.20	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		510	490	510	510	440	520	480	530	510	450	490	460	440
Dissolved Organic Carbon	mg/L	5**	2.3	2.2	3.7	2.8	3.0	2.8	6	2.8	4.4	2.8	4.2	3.8	5.5
Dissolved Potassium (K)	mg/L		7.3	7.3	10	7.8	8.4	8.2	13	7.6	9.1	7.8	10	9.4	11
Dissolved Sodium (Na)	mg/L	200**	220	250	250	240	240	230	260	230	200	190	240	240	230
Dissolved Sulphate (SO4)	mg/L	500**	3100	3000	2800	3000	2900	3100	2900	3200	2900	3000	3100	3100	3000
Nitrate (N)	mg/L	10.0*	0.4	0.4	<0.1	<0.10	<0.10	0.32	<0.10	<0.10	<0.10	1.06	0.26	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.7	8.1	7.6	7.7	7.8	7.7	7.1	7.3	7.9	8.0	7.7	7.8	7.7
Total Ammonia-N	mg/L		<0.15	<0.15	11.2 †	1.28	2.65	0.27	4.24	<0.15	5.55	1	6.47	3.93	12.3
Total Dissolved Solids	mg/L	500	2850	2830	4360	4690	4860	4910	4500	4950	4990	4940	4990	5120	4910
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	10 †	1.5	3.7	<0.7	4.3	<0.7	5.7	16	6.9	4.6	13
Ion Percentage	%		1.9	2.0	5.0	1.8	0.5	2.3	3.7	1.4	1.4	4.1	0.9	0.6	1.7

Parameter	Units	ODWQS	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6
Date			19-May-17	8-Nov-17	10-May-18	13-Nov-18	14-May-19	5-Nov-19	11-May-20	3-Nov-20	18-May-21	3-Nov-21	4-May-22	2-Nov-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	490	440	430	390	380	410	400	400	400	420	340	400
Conductivity	umho/cm		5000	4700	4800	4200	4500	4800	4800	4400	4800	4600	4400	4800
Dissolved Barium (Ba)	mg/L	1*	0.011	0.009	<0.03	0.011	0.01	0.009	0.008	0.009	0.008	0.008	0.017	0.007
Dissolved Boron (B)	mg/L	5.0*	0.91	0.92	1	0.95	0.92	0.84	1.1	1.1	0.91	0.96	0.58	1.0
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		470	450	460	460	450	450	450	450	450	480	400	470
Dissolved Chloride (Cl)	mg/L	250**	6.4	6	5.6	6.2	6.5	5.4	5.9	5.9	6.4	5.4	14	5.9
Dissolved Iron (Fe)	mg/L	0.3**	0.20	3.1	6.5	8	1.7	1.7	2.3	<0.1	0.2	3.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		510	460	490	450	470	480	460	460	470	490	420	490
Dissolved Organic Carbon	mg/L	5**	4.4	2.8	2.8	2.6	2.7	2.4	2.6	2.6	2.2	2.1	3.3	2.4
Dissolved Potassium (K)	mg/L		10	7.3	8	7.3	7.2	7.1	7.9	7.7	7.5	7.0	6.9	7.6
Dissolved Sodium (Na)	mg/L	200**	220	190	220	210	220	210	220	220	230	220	240	220
Dissolved Sulphate (SO4)	mg/L	500**	3200	2900	2800	2600	2900	2900	2900	2900	3100	3200	2800	3100
Nitrate (N)	mg/L	10.0*	0.17	<0.10	0.13	0.78	0.96	0.12	0.7	0.79	0.37	0.38	0.15	0.33
pH	(pH units)	6.5-8.5	7.9	7.6	7.7	7.7	7.9	7.5	8.0	7.8	8.0	7.8	8.1	7.9
Total Ammonia-N	mg/L		4.32	1.82	1.62	0.77	0.15	0.67	<0.15	<0.15	0.115	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	5000	4770	4580	4190	4700	4580	4820	4860	4950	4330	4140	4210
Total Kjeldahl Nitrogen (TKN)	mg/L		5.4	2.3	1.8	1	<0.7	0.7	<0.7	<0.7	0.3	1.0	<0.7	<0.7
Ion Percentage	%		0.1	0.3	5.1	6.2	2.6	2.5	1.8	1.8	0.4	0.2	0.2	1.2

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29
Date			**19-May-09**	**18-May-10**	**12-May-11**	**9-May-12**	**9-May-13**	**6-May-14**	**12-May-15**	**25-May-16**	**17-May-17**	**8-May-18**	**13-May-19**	**7-May-20**	**18-May-21**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	146	132	124	130	120	110	110	130	110	110	110	110	110
Conductivity	umho/cm		1600	1670	1800	1900	2000	2000	1600	2000	2200	2200	2100	2100	2100
Dissolved Barium (Ba)	mg/L	1*	0.015	0.015	0.016	0.017	0.015	0.015	0.016	0.015	0.012	0.012	0.011	0.011	0.011
Dissolved Boron (B)	mg/L	5.0*	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.6	1.4	1.5	1.5
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		84	86	100	110	110	110	110	120	110	120	130	130	130
Dissolved Chloride (Cl)	mg/L	250**	29	27	33	32	33	35	36	36	34	30	29	28	29
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	0.5	0.5	0.36	0.31	0.29	0.25	0.60	0.30	0.3	0.2	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		55	54	59	65	62	65	62	74	63	72	71	68	69
Dissolved Organic Carbon	mg/L	5**	3.6	1.2	1.5	1.5	1.6	1.9	3.2	1.6	1.5	1.5	1.4	1.8	1.6
Dissolved Potassium (K)	mg/L		4.7	4.4	6.1	6.8	6.8	6.7	7.3	7.5	6.9	7.5	6.3	6.5	6.3
Dissolved Sodium (Na)	mg/L	200**	220	210	230	260	250	260	250	270	250	260	250	250	240
Dissolved Sulphate (SO4)	mg/L	500**	610	630	720	780	850	870	840	830	950	910	910	940	940
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.2	8.2	7.9	7.8	8.0	7.9	7.8	8.0	7.9	8.0	7.9	7.9	8.0
Total Ammonia-N	mg/L		0.35	0.40	0.51	0.59	0.61	0.74	0.83	0.77	0.75	0.79	0.89	0.71	0.75
Total Dissolved Solids	mg/L	500	1020	1050	1080	1360	1480	1460	1510	1530	1570	1510	1580	1590	1470
Total Kjeldahl Nitrogen (TKN)	mg/L		<4	1.1	1.2	<0.7	0.9	0.8	1.0	0.8	0.9	0.8	0.8	0.8	0.8
Ion Percentage	%		6.8	5.2	3.6	5.6	0.8	0.8	0.8	7.6	2.4	3.5	3.5	1.6	0.7

Parameter	Units	ODWQS	OW49-29
Date			**3-May-22**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	100
Conductivity	umho/cm		2100
Dissolved Barium (Ba)	mg/L	1*	0.010
Dissolved Boron (B)	mg/L	5.0*	1.7
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		140
Dissolved Chloride (Cl)	mg/L	250**	27
Dissolved Iron (Fe)	mg/L	0.3**	0.2
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		66
Dissolved Organic Carbon	mg/L	5**	1.5
Dissolved Potassium (K)	mg/L		6.6
Dissolved Sodium (Na)	mg/L	200**	250
Dissolved Sulphate (SO4)	mg/L	500**	950
Nitrate (N)	mg/L	10.0*	<0.10
pH	(pH units)	6.5-8.5	7.9
Total Ammonia-N	mg/L		0.63
Total Dissolved Solids	mg/L	500	1370
Total Kjeldahl Nitrogen (TKN)	mg/L		0.7
Ion Percentage	%		2.3

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4
Date			22-Dec-99	29-Mar-00	7-Dec-00	10-May-01	23-May-02	6-Nov-02	15-May-03	14-Nov-03	26-May-04	26-Nov-04	13-May-05	29-Nov-05	19-May-06
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***					586	586							
Dissolved Barium (Ba)	mg/L	1*		0.01	0.03	0.02	<0.005	0.02	0.05	0.02	0.01	0.02	0.02	0.01	0.01
Dissolved Boron (B)	mg/L	5.0*		0.31	0.32	0.31	0.49	0.32	0.31	0.34	0.36	0.28	0.37	0.35	0.29
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.005	<0.00015	<0.005	<0.005	<0.001	<0.001	0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		105	145	114	141	136	131		133				130	
Dissolved Chloride (Cl)	mg/L	250**					7	8							
Dissolved Iron (Fe)	mg/L	0.3**			24	1.66	11.4	3.14	6.83	3.75	7.55	10.1	8.58	6.54	6.34
Dissolved Lead (Pb)	mg/L	0.01*	<0.02	<0.002	<0.001	<0.001	<0.001	<0.001	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Magnesium (Mg)	mg/L			250	180	211	216	193		220				204	
Dissolved Organic Carbon	mg/L	5**					4.7	4.8							
Dissolved Potassium (K)	mg/L				4		4	7		6				4	
Dissolved Sodium (Na)	mg/L	200**					106	121		116				102	
Dissolved Sulphate (SO4)	mg/L	500**					863	838							
Nitrate (N)	mg/L	10.0*					<0.10	<0.10							
Total Ammonia-N	mg/L						0.60	0.24							
Total Kjeldahl Nitrogen (TKN)	mg/L						0.75	0.55							
Ion Percentage	%						2.6	1.0							

Parameter	Units	ODWQS	OW54-4	OW54-4	OW54-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4
Date			24-Nov-06	4-May-07	16-Nov-07	22-May-08	5-Nov-08	19-May-09	19-Nov-09	20-May-10	22-Nov-10	11-May-11	2-Nov-11	9-May-12	5-Nov-12
Laboratory			Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***				517	549	570	DRY	554	542	539	542	600	590
Conductivity	umho/cm					2350	2120	2200		2140	2000	1950	1930	2100	2000
Dissolved Barium (Ba)	mg/L	1*	0.02	0.01	0.02	0.033	0.02	0.016		0.014	0.013	0.012	0.014	0.014	0.013
Dissolved Boron (B)	mg/L	5.0*	0.32	0.42	0.30	0.43	0.33	0.30		0.25	0.28	0.21	0.29	0.25	0.27
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L					170	130	140		130	130	120	120	120	110
Dissolved Chloride (Cl)	mg/L	250**				14	9	9		13	10	11	11	11	10
Dissolved Iron (Fe)	mg/L	0.3**	4.74	6.83	3.99	0.3	<0.1	<0.1		<0.1	0.1	0.2	0.2	<0.10	0.21
Dissolved Lead (Pb)	mg/L	0.01*	0.001	<0.001	<0.001	0.0007	<0.0005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L					200	180	200		190	200	190	210	200	180
Dissolved Organic Carbon	mg/L	5**				12.1	5.5	5.4		3.9	3.7	3.7	3.8	4.1	3.7
Dissolved Potassium (K)	mg/L					13.0	6	5.1		4.1	4.2	3.5	4	3.6	3.6
Dissolved Sodium (Na)	mg/L	200**				110	93	110		110	100	96	100	130	110
Dissolved Sulphate (SO4)	mg/L	500**				946	763	780		750	600	590	570	630	530
Nitrate (N)	mg/L	10.0*				<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.10	<0.10
pH	(pH units)	6.5-8.5				8.1	8.2	7.8		8.1	7.8	8.1	7.4	7.9	7.6
Total Ammonia-N	mg/L					<0.15	<0.15	<0.15		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500				1380	1360	1330		1370	1250	1170	1260	1630	1480
Total Kjeldahl Nitrogen (TKN)	mg/L					<0.7	<4	<4		1.1	<0.7	<0.7	<0.7	<0.7	0.9
Ion Percentage	%					2.5	0.7	4.6		3.7	11.8	4.9	9.3	5.0	4.1

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4
Date			**10-May-13**	**6-Nov-13**	**6-May-14**	**19-Nov-14**	**12-May-15**	**11-Nov-15**	**25-May-16**	**16-Nov-16**	**19-May-17**	**7-Nov-17**	**9-May-18**	**12-Nov-18**	**14-May-19**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**
Alkalinity (Total as CaCO3)	mg/L	30-500***	620	620	620	620	610	620	610	620	620	620	640	610	600
Conductivity	umho/cm		2200	2100	2200	2200	1700	2100	2200	2200	2400	2200	2300	2100	2200
Dissolved Barium (Ba)	mg/L	1*	0.016	0.015	0.013	0.013	0.013	0.013	0.014	0.015	0.014	0.015	0.014	0.016	0.014
Dissolved Boron (B)	mg/L	5.0*	0.23	0.26	0.20	0.24	0.23	0.24	0.22	0.26	0.22	0.24	0.23	0.26	0.19
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		120	110	120	110	110.0	120	110	120	110	120	130	130	120
Dissolved Chloride (Cl)	mg/L	250**	12	11	11	12	18	14	20	18	24	20	22	23	29
Dissolved Iron (Fe)	mg/L	0.3**	<0.10	0.44	<0.10	0.11	<0.10	0.4	<0.10	<0.1	<0.1	1.3	<0.1	0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		190	180	190	190	190	180	190	200	180	180	210	190	190
Dissolved Organic Carbon	mg/L	5**	4.5	3.7	3.3	4	4.0	3.7	3.5	3.4	3.4	3.5	3.6	3.8	3.9
Dissolved Potassium (K)	mg/L		3.0	3.3	3.2	3.4	3.5	3.6	2.9	3.6	2.9	3.5	3.2	3.2	2.9
Dissolved Sodium (Na)	mg/L	200**	160	140	150	140	150	140	160	160	150	140	160	160	150
Dissolved Sulphate (SO4)	mg/L	500**	630	650	670	640	610	610	690	630	730	640	670	680	700
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.0	7.4	8.0	7.9	7.9	7.7	8.1	7.8	7.8	7.7	7.9	7.9	7.8
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	1580	1490	1550	1500	1560	1520	1640	1570	1680	1600	1540	1570	1670
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		5.0	0.0	2.6	2.0	4.2	7.5	6.1	10.8	1.6	5.8	10.4	8.1	5.6

Parameter	Units	ODWQS	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4
Date			**7-Nov-19**	**8-May-20**	**3-Nov-20**	**19-May-21**	**2-Nov-21**	**4-May-22**	**1-Nov-22**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	610	610	610	590	630	600	650
Conductivity	umho/cm		2300	2400	2300	2200	2200	2300	2200
Dissolved Barium (Ba)	mg/L	1*	0.016	0.013	0.014	0.013	0.016	0.014	0.017
Dissolved Boron (B)	mg/L	5.0*	0.24	0.18	0.25	0.23	0.23	0.18	0.24
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	130	130	130	130	140	140
Dissolved Chloride (Cl)	mg/L	250**	26	29	26	24	23	28	25
Dissolved Iron (Fe)	mg/L	0.3**	1.2	<0.1	0.2	<0.1	1.1	<0.1	0.2
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	0.0023	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		200	190	190	200	200	200	200
Dissolved Organic Carbon	mg/L	5**	3.9	4.2	4.4	3.9	3.9	4.0	6.6
Dissolved Potassium (K)	mg/L		3.4	2.9	3.6	3.3	3.3	2.9	3.9
Dissolved Sodium (Na)	mg/L	200**	150	150	140	130	140	140	140
Dissolved Sulphate (SO4)	mg/L	500**	670	710	700	720	690	760	710
Nitrate (N)	mg/L	10.0*	0.16	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.7	7.9	7.7	7.9	8.0	8.0	7.9
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	0.059	<0.15	<0.15	1.37
Total Dissolved Solids	mg/L	500	1610	1660	1670	1660	1560	1620	1540
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.1	<0.7	<0.7	1.6
Ion Percentage	%		9.0	5.8	5.6	6.2	7.0	5.6	6.3

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10
Date			14-May-09	19-Nov-09	17-May-10	22-Nov-10	11-May-11	2-Nov-11	9-May-12	6-Nov-12	10-May-13	6-Nov-13	6-May-14	24-Nov-14	12-May-15
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	271	276	262	265	254	260	280	270	280	310	290	320	340
Conductivity	umho/cm		2500	2480	2500	2490	2460	2450	2500	2500	2400	2500	2400	2500	1900
Dissolved Barium (Ba)	mg/L	1*	0.011	0.012	0.016	0.013	0.012	0.013	0.013	0.012	0.013	0.012	0.012	0.014	0.014
Dissolved Boron (B)	mg/L	5.0*	1.2	1.1	1.0	1.0	0.95	1.1	1.1	1.0	1.0	0.9	0.9	0.96	0.9
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		190	200	190	190	190	200	180	170	180	160	180	160	160
Dissolved Chloride (Cl)	mg/L	250**	7	8	8	8	9	9	8	7	9	9	8	9	9
Dissolved Iron (Fe)	mg/L	0.3**	2.30	4.50	3.0	0.1	0.8	1.7	1.3	0.26	2.7	2.2	1	2.3	0.86
Dissolved Lead (Pb)	mg/L	0.01*	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		200	210	200	200	200	210	200	180	180	170	180	170	170
Dissolved Organic Carbon	mg/L	5**	4.6	1.7	2.5	1.6	1.4	1.8	2.3	2.0	2.8	4.8	2.3	2.5	2.0
Dissolved Potassium (K)	mg/L		5.2	5.4	5.1	5.1	5.0	5.3	4.9	4.7	4.8	4.5	4.5	4.3	4.3
Dissolved Sodium (Na)	mg/L	200**	130	150	140	140	150	150	150	140	170	190	190	180	190
Dissolved Sulphate (SO4)	mg/L	500**	1300	1300	1200	1200	1200	1200	1200	1100	1100	1200	1100	1100	1000
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.1	0.3	0.1	0.1	<0.10	0.11	0.13	0.12	0.15	0.15	0.11
pH	(pH units)	6.5-8.5	7.7	7.9	8.0	7.7	8.1	7.5	7.9	7.7	8.0	7.8	8.1	8.1	7.8
Total Ammonia-N	mg/L		0.72	0.65	0.72	0.31	0.21	0.2	<0.15	0.17	0.23	<0.15	<0.15	0.18	0.19
Total Dissolved Solids	mg/L	500	1550	1600	1550	1500	1520	1590	2090	2080	2060	1970	1990	1990	2110
Total Kjeldahl Nitrogen (TKN)	mg/L		8	<40	14	2	0.9	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		0.3	2.8	4.0	3.9	3.2	5.0	1.5	1.2	3.8	2.3	4.9	0.1	3.8

Parameter	Units	ODWQS	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10
Date			11-Nov-15	25-May-16	16-Nov-16	18-May-17	7-Nov-17	9-May-18	12-Nov-18	14-May-19	7-Nov-19	8-May-20	3-Nov-20	18-May-21	2-Nov-21
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	300	330	300	290	290		290	320	300	310	300	320	330
Conductivity	umho/cm		2400	2400	2400	2500	2300	2500	2400	2400	2500	2500	2400	2324	2300
Dissolved Barium (Ba)	mg/L	1*	0.014	0.014	0.014	0.014	0.016	0.013	0.012	0.011	0.011	0.011	0.01	0.01	0.014
Dissolved Boron (B)	mg/L	5.0*	1.0	0.9	1.0	1.0	0.96	1.1	0.99	0.95	1.00	0.88	0.97	0.96	0.95
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		170	160	160	160	170	180	180	170	180	170	170	160	190
Dissolved Chloride (Cl)	mg/L	250**	9	8.5	8.8	8.5	7.8	8.3	8.8	9.1	8.6	8.8	8.3	8.9	8.5
Dissolved Iron (Fe)	mg/L	0.3**	<0.10	1.80	0.60	0.30	6.6	5.5	4.4	1.8	0.2	0.6	<0.1	0.7	5.3
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		180	170	180	170	170	200	180	180	180	180	180	180	180
Dissolved Organic Carbon	mg/L	5**	2.1	2.4	1.8	1.5	2.1	1.7	2	1.6	1.9	1.8	2.0	1.5	2.0
Dissolved Potassium (K)	mg/L		4.5	4.1	4.4	4.2	4.3	4.5	4.4	4.3	4.6	4.3	4.5	4.6	4.6
Dissolved Sodium (Na)	mg/L	200**	190	200	190	170	160	150	150	160	170	170	170	170	160
Dissolved Sulphate (SO4)	mg/L	500**	1100	1100	1100	1200	890	1100	1200	1100	1100	1100	1100	1200	1100
Nitrate (N)	mg/L	10.0*	0.26	0.16	0.27	0.19	0.25	0.23	0.28	0.17	0.29	0.27	0.34	0.18	0.35
pH	(pH units)	6.5-8.5	7.9	7.9	8.0	8.0	7.9	7.9	7.8	7.9	8.0	8.0	7.9	8.2	8.0
Total Ammonia-N	mg/L		<0.15	0.24	<0.15	0.17	0.2	0.31	0.39	0.16	<0.15	<0.15	<0.15	0.209	0.29
Total Dissolved Solids	mg/L	500	1980	1980	1890	1990	1940	1940	2030	1970	1920	2000	1940	2040	1850
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.3	<0.7
Ion Percentage	%		5.7	3.4	4.9	1.2	11.1		0.4	3.0	5.1	4.0	4.3	0.6	4.4

Parameter	Units	ODWQS	OW54-10	OW54-10
Date			3-May-22	1-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	330	330
Conductivity	umho/cm		2400	2400
Dissolved Barium (Ba)	mg/L	1*	0.011	0.013
Dissolved Boron (B)	mg/L	5.0*	0.95	1.0
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		170	180
Dissolved Chloride (Cl)	mg/L	250**	9.2	8.8
Dissolved Iron (Fe)	mg/L	0.3**	2.3	0.7
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		180	180
Dissolved Organic Carbon	mg/L	5**	2.0	2.1
Dissolved Potassium (K)	mg/L		4.5	4.5
Dissolved Sodium (Na)	mg/L	200**	160	150
Dissolved Sulphate (SO4)	mg/L	500**	1100	1100
Nitrate (N)	mg/L	10.0*	0.57	0.27
pH	(pH units)	6.5-8.5	8.0	7.9
Total Ammonia-N	mg/L		<0.15	0.26
Total Dissolved Solids	mg/L	500	1920	1710
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7
Ion Percentage	%		2.7	2.9

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4
Date			11-Feb-99	8-Jun-99	21-Jun-00	5-Dec-00	8-May-01	28-Nov-01	23-May-02	6-Nov-02	15-May-03	16-Jun-03	14-Nov-03	18-Dec-03	25-May-04
Laboratory			Maxxam	Maxxam	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	368	428	383	402	378	392	399	336	288	296	143	159	239
Dissolved Boron (B)	mg/L	5.0*	0.582	0.529	0.46			0.40	0.59	0.33	0.16	0.21	0.17	0.15	0.29
Dissolved Calcium (Ca)	mg/L		378	428	423	461	452	414	422	348	333	333	70	104	238
Dissolved Chloride (Cl)	mg/L	250**	3.5	4.1	4	5	6	5	4	7	7	7	6	5	6
Dissolved Iron (Fe)	mg/L	0.3**	0.172	1.32	<0.01	0.38	0.37	0.31	0.78	0.03	0.02	<0.01	0.01	0.02	<0.01
Dissolved Magnesium (Mg)	mg/L		580	685	660	615	563	559	565	472	269	292	25	61	195
Dissolved Organic Carbon	mg/L	5**	5.3	3.9	5.9			4.3	3.9	4.3	3.3	2.9	8.1		4.0
Dissolved Potassium (K)	mg/L		7	3	5	4	3	4	4	6	3	2	3	3	3
Dissolved Sodium (Na)	mg/L	200**	118	151	127	111	124	107	107	127	82	80	12	22	57
Dissolved Sulphate (SO4)	mg/L	500**	3220	3370	3200	3280	3200	2920	2830	2350	2060	1780	145	276	1170
Nitrate (N)	mg/L	10.0*	<0.1	0.2	0.14	<0.1	0.29	<0.10	<0.10	1.12	5.15	4.31	3.24	4.97	3.75
Nitrite (N)	mg/L	1.0*	<0.1	<0.1	<0.10	<0.1	<0.1								
NO3+NO2	mg/L	10.0*	<0.1		0.14	<0.1	0.29								
Total Ammonia-N	mg/L		<0.05	<0.05	0.13	0.04	0.04	0.05	0.07	0.05	0.07	0.06	<0.02	<0.02	0.05
Total Kjeldahl Nitrogen (TKN)	mg/L		2.4	0.7	0.84	0.26	0.14	0.17	0.28	0.31	0.59	0.50	0.82	0.78	0.34
Ion Percentage	%		1.3	4.0	4.8	1.9	0.5	2.5	4.5	5.8	6.4	2.1	5.5	13.9	3.1

Parameter	Units	ODWQS	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4
Date			27-Nov-04	13-May-05	29-Nov-05	18-May-06	24-Nov-06	5-Jan-07	5-May-07	16-Nov-07	22-May-08	5-Nov-08	16-May-09	19-Nov-09	19-May-10
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	218	246	238	279	274	287	269	DRY	271	276	320	315	308
Conductivity	umho/cm										2950	3400	3920	3350	3040
Dissolved Barium (Ba)	mg/L	1*									0.018	0.016	0.013	0.013	0.011
Dissolved Boron (B)	mg/L	5.0*	0.26	0.35	0.29	0.20	0.32	0.29	0.36		0.25	0.41	0.41	0.43	0.34
Dissolved Cadmium (Cd)	mg/L	0.005*									<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		252	303	103	306	224	199	217		330	430	480	430	440
Dissolved Chloride (Cl)	mg/L	250**	7	7	17	10	13	12	14		8	7	7	7	8
Dissolved Iron (Fe)	mg/L	0.3**	0.01	0.01	<0.01	<0.03	0.16	0.07	<0.03		<0.1	<0.1	<0.1	<0.1	0.3
Dissolved Lead (Pb)	mg/L	0.01*									0.0007	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		165	261	51	213	153	130	155		270	350	440	370	380
Dissolved Organic Carbon	mg/L	5**	3.9	3.8	6.0	4.4	3.8	5.8	4.0		3.6	3.7	5.2	4.0	2.9
Dissolved Potassium (K)	mg/L		2	3	1	2	2	2	2		2.6	3.2	3.2	2.8	2.7
Dissolved Sodium (Na)	mg/L	200**	51	70	32	56	45	42	50		74	79	100	79	85
Dissolved Sulphate (SO4)	mg/L	500**	993	1400	288	1340	958	713	1040		1800	2150	2500	2100	2300
Nitrate (N)	mg/L	10.0*	5.26	2.56	0.88	0.51	5.34	3.85	2.21		0.4	0.3	<0.1	0.8	1.9
pH	(pH units)	6.5-8.5									8.0	7.9	7.8	7.8	7.9
Total Ammonia-N	mg/L		0.03	<0.02	<0.02	0.05	<0.02	0.05	<0.02		<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500									1630	2300	2360	950	2070
Total Kjeldahl Nitrogen (TKN)	mg/L		0.33	0.19	0.28	0.35	0.30	0.37	0.34		<0.7	<0.7	<1	<0.7	<0.7
Ion Percentage	%		7.3	8.3	1.9	3.4	1.7	6.1	1.5		0.6	3.8	5.4	5.7	3.1

Parameter	Units	ODWQS	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4
Date			23-Nov-10	10-May-11	3-Nov-11	10-May-12	8-Nov-12	3-Dec-12	13-May-13	10-Jun-13	5-Nov-13	6-May-14	24-Nov-14	13-May-15	11-Nov-15
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	330	308	308	330	300	DRY	310	330	300	330	400	330	380
Conductivity	umho/cm		3610	3920	3690	4100	3300		4100	4100	3300	4000	4500	4100	4300
Dissolved Barium (Ba)	mg/L	1*	0.013	0.011	0.011	0.011	0.012		0.008	0.01	0.012	0.009	0.013	0.007	0.009
Dissolved Boron (B)	mg/L	5.0*	0.46	0.35	0.41	0.38	0.45		0.35	0.42	0.32	0.41	0.32	0.41	0.52
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		0.0001	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		460	480	470	470	480		460	490	380	480	430	400	470
Dissolved Chloride (Cl)	mg/L	250**	8	8	10	8	15		8	7	7	7	8	7	7.5
Dissolved Iron (Fe)	mg/L	0.3**	0.2	0.2	0.4	1.2	1.0		<0.10	<0.10	<0.10	0.23	<0.10	0.82	0.84
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		<0.0005	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		440	450	400	490	420		510	480	340	480	390	460	480
Dissolved Organic Carbon	mg/L	5**	3.7	3.6	4	3.6	3.9		3.7	5.3	11	4.4	4.3	3.7	4
Dissolved Potassium (K)	mg/L		3.5	2.9	3.3	3.3	4.1		3.6	3.6	4	3.1	3	3.5	4
Dissolved Sodium (Na)	mg/L	200**	96	99	85	100	100		100	110	87	100	94	96	110
Dissolved Sulphate (SO4)	mg/L	500**	2100	2400	2200	2600	1700		2700	2700	1800	2600	2800	2500	2800
Nitrate (N)	mg/L	10.0*	0.6	0.2	0.3	0.19	9.9		0.95	0.55	0.62	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.6	7.9	7.6	7.6	7.7		7.6	7.6	7.1	7.8	7.8	7.9	7.6
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	2.86		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	1.04
Total Dissolved Solids	mg/L	500	1990	2390	3330	3980	3600		4230	4300	3060	4050	4410	4410	4350
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	4.3		<0.7	<0.7	1	<0.7	<0.7	<0.7	1.3
Ion Percentage	%		12.1	7.0	6.6	5.2	20.0		5.6	5.0	8.5	5.0	7.7	2.2	2.0

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4
Date			27-May-16	16-Nov-16	19-May-17	8-Nov-17	10-May-18	14-Nov-18	12-Dec-18	14-May-19	5-Nov-19	8-May-20	3-Nov-20	19-May-21	3-Nov-21
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	380	380	350	390	370	260	370	350	370	370	390	350	370
Conductivity	umho/cm		4400	4300	4200	4000	4200	1800	4300	4000	4300	4200	4400	4100	4100
Dissolved Barium (Ba)	mg/L	1*	0.014	0.011	0.007	0.007	<0.03	0.011	0.007	0.013	0.012	<0.03	0.012	<0.03	0.011
Dissolved Boron (B)	mg/L	5.0*	0.32	0.38	0.5	0.52	0.5	0.42	0.19	0.44	0.43	0.50	0.58	0.4	0.49
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0005	<0.0001
Dissolved Calcium (Ca)	mg/L		360	470	450	460	470	480	240	480	460	450	460	460	480
Dissolved Chloride (Cl)	mg/L	250**	7.1	7.6	7.5	7.4	7.3	10	7.3	7.8	6.6	7.7	7.9	8.6	7.6
Dissolved Iron (Fe)	mg/L	0.3**	0.10	0.30	0.60	0.9	0.5	0.6	<0.1	3.2	4.0	2.4	3.3	2	2.5
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		330	420	480	550	480	420	160	500	490	450	470	460	490
Dissolved Organic Carbon	mg/L	5**	3.8	3.9	3.7	3.8	3.3	4.6	10	3.7	4.5	3.8	4.3	3.7	3.8
Dissolved Potassium (K)	mg/L		8.2	3.9	4.3	3.9	4	4.3	28	3.4	3.8	3.0	4.2	3	3.9
Dissolved Sodium (Na)	mg/L	200**	85	110	100	100	100	100	63	100	98	93	100	99	100
Dissolved Sulphate (SO4)	mg/L	500**	2800	2600	2600	2700	2500	780	2700	2600	2500	2600	2700	2600	2800
Nitrate (N)	mg/L	10.0*	0.1	0.19	0.12	<0.10	0.17	14.9	0.68	0.97	<0.10	0.54	<0.10	0.31	0.11
pH	(pH units)	6.5-8.5	7.6	7.6	7.6	7.6	7.7	7.7	7.5	7.6	7.5	7.8	7.5	7.6	7.8
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.24	<0.15	0.5	0.131	0.16
Total Dissolved Solids	mg/L	500	4380	4420	4280	4240	4070	1480	4490	3570	4250	4170	4400	3700	3950
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.8	0.5	1.0
Ion Percentage	%		14.2	1.5	4.6	6.9	6.9	50.2	37.5	6.9	7.0	2.2	2.2	3.7	2.7

Parameter	Units	ODWQS	OW56-4	OW56-4
Date			4-May-22	2-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	390	370
Conductivity	umho/cm		4800	4200
Dissolved Barium (Ba)	mg/L	1*	0.011	0.012
Dissolved Boron (B)	mg/L	5.0*	0.35	0.5
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		470	450
Dissolved Chloride (Cl)	mg/L	250**	5.8	7.4
Dissolved Iron (Fe)	mg/L	0.3**	0.30	2.30
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		420	470
Dissolved Organic Carbon	mg/L	5**	3.1	3.7
Dissolved Potassium (K)	mg/L		2.9	3.7
Dissolved Sodium (Na)	mg/L	200**	99	98
Dissolved Sulphate (SO4)	mg/L	500**	3000	2800
Nitrate (N)	mg/L	10.0*	0.36	0.14
pH	(pH units)	6.5-8.5	8.0	7.5
Total Ammonia-N	mg/L		<0.15	<0.15
Total Dissolved Solids	mg/L	500	4340	3630
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.8
Ion Percentage	%		5.4	0.3

Parameter	Units	ODWQS	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4
Date			29-Jun-00	28-Nov-01	23-May-02	6-Nov-02	15-May-03	13-Nov-03	26-May-04	27-Nov-04	12-May-05	29-Nov-05	19-May-06	24-Nov-06	5-May-07
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	177	490	478	491	471	495	479	490	497	494	492	494	469
Dissolved Boron (B)	mg/L	5.0*	1.14	0.35	0.39	0.38	0.33	0.39	0.22	0.31	0.39	0.38	0.29	0.38	0.46
Dissolved Calcium (Ca)	mg/L		327	355	370	319	318	318	330	412	313	310	329	330	342
Dissolved Chloride (Cl)	mg/L	250**	6	4	4	5	5	6	5	4	5	6	5	5	5
Dissolved Iron (Fe)	mg/L	0.3**	0.02	2.03	4.69	2.18	3.81	1.54	4.61	1.65	0.86	0.86	8.90	1.77	1.28
Dissolved Magnesium (Mg)	mg/L		222	359	416	375	382	387	382	432	332	336	348	351	359
Dissolved Organic Carbon	mg/L	5**	3.5	5.5	5.8	4.7	3.4	3.3	2.5	3.2	2.7	3.4	5.6	2.5	3.0
Dissolved Potassium (K)	mg/L		6	5	6	8	4	8	5	6	4	5	4	5	4
Dissolved Sodium (Na)	mg/L	200**	152	109	132	134	116	132	131	143	117	110	105	114	116
Dissolved Sulphate (SO4)	mg/L	500**	2896	2040	2190	2120	2620	2140	2100	2240	1990	1850	1990	2090	1860
Nitrate (N)	mg/L	10.0*	0.21	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrite (N)	mg/L	1.0*	<0.10												
NO3+NO2	mg/L	10.0*	0.21												
Total Ammonia-N	mg/L		0.47	0.07	0.36	0.11	0.05	0.17	0.09	0.07	0.04	0.05	0.07	0.11	<0.02
Total Kjeldahl Nitrogen (TKN)	mg/L		0.8	0.16	1.13	0.51	0.28	0.39	0.23	0.38	0.24	0.22	0.49	0.30	0.35
Ion Percentage	%		21.5	1.2	4.2	0.1	9.0	0.5	1.6	6.3	1.9	1.0	0.2	1.6	5.0

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4
Date			16-Nov-07	22-May-08	5-Nov-08	16-May-09	19-Nov-09	19-May-10	23-Nov-10	10-May-11	2-Nov-11	9-May-12	5-Nov-12	13-May-13	5-Nov-13
Laboratory			Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	470	DRY	555	524	487	493	489	511	537	540	530	500	520
Conductivity	umho/cm				3570	3560	3530	3600	3630	3570	3590	3600	3600	3600	3600
Dissolved Barium (Ba)	mg/L	1*			0.007	0.007	0.006	0.005	0.007	0.006	0.007	0.007	<0.01	0.006	0.0071
Dissolved Boron (B)	mg/L	5.0*	0.5		0.41	0.36	0.40	0.34	0.41	0.33	0.4	0.35	0.42	0.29	0.42
Dissolved Cadmium (Cd)	mg/L	0.005*			<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.00010
Dissolved Calcium (Ca)	mg/L		342		330	340	340	340	330	340	360	330	330	340	360
Dissolved Chloride (Cl)	mg/L	250**	5		5	5	3	6	5	5	6	5	5	6	5
Dissolved Iron (Fe)	mg/L	0.3**	1.8		3.2	3.7	2.3	5.0	1.9	3.2	2.2	4.8	1.5	2.8	0.16
Dissolved Lead (Pb)	mg/L	0.01*			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.00050
Dissolved Magnesium (Mg)	mg/L		368		330	380	360	370	340	380	360	360	350	350	390
Dissolved Organic Carbon	mg/L	5**	3.5		3.7	5.1	3.7	3.0	3.9	4.2	4.0	3.5	3.4	4.1	12
Dissolved Potassium (K)	mg/L		4		4.7	4.2	4.9	4.2	4.6	4.2	5.3	4.3	4.8	4.1	5.4
Dissolved Sodium (Na)	mg/L	200**	116		110	130	120	120	110	130	130	120	120	120	130
Dissolved Sulphate (SO4)	mg/L	500**	1930		1960	2000	2000	2000	1900	1900	1800	1800	1700	2000	1800
Nitrate (N)	mg/L	10.0*	<0.10		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5			7.8	7.9	8.0	7.8	7.6	7.9	7.4	7.7	7.4	7.6	7.3
Total Ammonia-N	mg/L		0.14		0.18	<0.15	0.23	<0.15	0.16	<0.15	0.22	<0.15	0.24	<0.15	0.18
Total Dissolved Solids	mg/L	500			2250	2250	2260	2340	2220	2040	3000	3430	3350	3440	3380
Total Kjeldahl Nitrogen (TKN)	mg/L		0.24		<0.7	0.8	<0.7	0.8	<0.7	<0.7	1.0	<0.7	0.8	<0.7	<0.70
Ion Percentage	%		4.2		1.8	3.2	1.9	2.5	1.4	3.5	4.6	2.6	4.3	1.2	7.2

Parameter	Units	ODWQS	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4
Date			6-May-14	24-Nov-14	12-May-15	11-Nov-15	26-May-16	16-Nov-16	19-May-17	8-Nov-17	10-May-18	13-Nov-18	14-May-19	5-Nov-19	8-May-20
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	680	540	560	540	550	560	520	550	610	560	620	600	610
Conductivity	umho/cm		3100	3600	2700	2700	3600	3600	3700	3300	3600	3400	3600	3600	3800
Dissolved Barium (Ba)	mg/L	1*	0.005	0.009	0.005	0.007	0.006	0.006	0.006	0.008	0.007	0.006	0.006	0.007	0.006
Dissolved Boron (B)	mg/L	5.0*	0.30	0.37	0.34	0.41	0.39	0.41	0.37	0.42	0.35	0.4	0.33	0.37	0.32
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		340	300	310	320	320	330	320	340	330	330	330	320	330
Dissolved Chloride (Cl)	mg/L	250**	5	6	6	4.4	5.7	5.8	5.3	5.5	5.7	5.5	5.7	5.4	5.5
Dissolved Iron (Fe)	mg/L	0.3**	0.76	0.75	0.85	1.6	1.2	0.7	1.9	2.5	0.8	0.6	2	1.6	1.3
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		370	330	350	340	360	370	340	340	350	350	340	320	350
Dissolved Organic Carbon	mg/L	5**	3.3	3.9	4.9	3.4	2.7	3.1	3.0	3.3	3	3.3	3.1	3.5	3.3
Dissolved Potassium (K)	mg/L		4	4.4	4.7	4.8	4.3	4.7	4.2	4.7	4.3	4.6	4.2	4.7	4.1
Dissolved Sodium (Na)	mg/L	200**	130	130	140	120	130	140	120	120	140	140	160	130	140
Dissolved Sulphate (SO4)	mg/L	500**	1200	1800	1800	1100	1900	1800	2000	1900	1900	1800	1800	1600	1700
Nitrate (N)	mg/L	10.0*	0.98	<0.10	<0.10	1.69	<0.10	<0.10	<0.10	<0.10	<0.10	0.1	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.0	7.7	7.8	7.7	7.8	7.6	7.7	7.6	7.7	7.6	7.6	7.6	7.7
Total Ammonia-N	mg/L		0.16	0.16	<0.15	<0.15	<0.15	0.15	<0.15	<0.15	<0.15	0.16	0.15	0.55	<0.15
Total Dissolved Solids	mg/L	500	2290	3220	3400	2950	3410	3310	3410	3240	3210	3300	3360	3120	3450
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		18.8	1.2	3.5	21.4	2.4	6.1	1.3	1.3	1.5	4.5	3.5	5.0	5.9

Parameter	Units	ODWQS	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4
Date			3-Nov-20	19-May-21	3-Nov-21	3-May-22	2-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	590	570	590	580	590
Conductivity	umho/cm		3600	3600	3500	3500	3600
Dissolved Barium (Ba)	mg/L	1*	0.006	0.007	0.007	0.007	0.009
Dissolved Boron (B)	mg/L	5.0*	0.43	0.37	0.39	0.35	0.45
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		340	340	340	360	340
Dissolved Chloride (Cl)	mg/L	250**	5.5	6.6	6.4	6.0	6.1
Dissolved Iron (Fe)	mg/L	0.3**	1.3	2.2	2.4	1.6	1.9
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		340	360	350	360	360
Dissolved Organic Carbon	mg/L	5**	3.5	3.6	3.2	3.1	3.8
Dissolved Potassium (K)	mg/L		4.7	4.3	4.8	4.1	4.6
Dissolved Sodium (Na)	mg/L	200**	130	140	130	140	130
Dissolved Sulphate (SO4)	mg/L	500**	1700	1900	1900	1800	1800
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.6	7.6	7.8	8.0	7.6
Total Ammonia-N	mg/L		<0.15	<0.050	0.25	<0.15	0.2
Total Dissolved Solids	mg/L	500	3410	2880	2920	3160	2820
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.2	0.7	<0.7	0.9
Ion Percentage	%		5.5	3.4	1.9	6.3	4.8

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15
Date			9-Jun-99	7-Dec-99	21-Jun-00	28-Nov-01	23-May-02	6-Nov-02	15-May-03	13-Nov-03	26-May-04	27-Nov-04	12-May-05	29-Nov-05	19-May-06
Laboratory			Maxxam	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	183	171	163	163	165	172	165	164	161	157	158	157	157
Dissolved Boron (B)	mg/L	5.0*	1.11	1.13	1.03	0.96	1.54	1.07	1.13	1.07	1.17	0.84	1.31	0.99	0.79
Dissolved Calcium (Ca)	mg/L		326	287	316	310	311	287	319	284	290	265	271	270	292
Dissolved Chloride (Cl)	mg/L	250**	7.19	9	6	8	7	8	8	8	8	8	8	8	8
Dissolved Iron (Fe)	mg/L	0.3**	0.051	0.05	0.03	0.19	0.48	0.16	0.06	0.08	0.02	0.14	1.65	1.54	1.44
Dissolved Magnesium (Mg)	mg/L		243	227	228	207	221	190	237	228	212	253	219	215	206
Dissolved Organic Carbon	mg/L	5**	2.8	4.8	3.5	3.0	2.2	2.8	2.4	1.9	1.1	1.9	1.7	2.4	2.3
Dissolved Potassium (K)	mg/L		9	8	6	6	5	9	5	8	6	5	5	5	5
Dissolved Sodium (Na)	mg/L	200**	181	176	156	164	148	181	169	177	182	190	172	168	169
Dissolved Sulphate (SO4)	mg/L	500**	4010	1820	2270	1770	1730	1730	2260	1780	1770	1920	1740	1610	1690
Nitrate (N)	mg/L	10.0*	0.3	<0.10	0.63	0.12	0.14	0.17	0.27	0.10	0.13	0.14	0.15	0.17	0.24
Nitrite (N)	mg/L	1.0*	<0.1	<0.10	<0.10										
NO3+NO2	mg/L	10.0*			0.63										
Total Ammonia-N	mg/L		0.41	0.54	0.56	0.44	0.75	0.42	0.03	0.21	0.08	0.09	0.28	0.17	0.11
Total Kjeldahl Nitrogen (TKN)	mg/L		0.8	0.85	1.14	0.45	0.75	0.49	0.16	0.25	0.16	0.23	0.25	0.37	0.16
Ion Percentage	%			0.6	9.9	0.4	1.3	1.8	8.1	0.6	0.1	0.9	0.3	2.6	0.9

Parameter	Units	ODWQS	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15
Date			24-Nov-06	5-May-07	16-Nov-07	22-May-08	5-Nov-08	16-May-09	18-Nov-09	19-May-10	23-Nov-10	10-May-11	2-Nov-11	9-May-12	6-Nov-12
Laboratory			Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	153	154	151	151	149	159	148	144	145	142	145	150	150
Conductivity	umho/cm					3000	2980	3000	3010	3000	3030	2990	2970	3000	3000
Dissolved Barium (Ba)	mg/L	1*				0.01	0.01	0.01	0.011	0.010	0.010	0.010	0.010	0.009	<0.01
Dissolved Boron (B)	mg/L	5.0*	1.17	0.95	1.19	1.1	1.1	1.3	1.2	1.1	1.2	1.0	1.1	1.1	1.1
Dissolved Cadmium (Cd)	mg/L	0.005*				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002
Dissolved Calcium (Ca)	mg/L		286	264	276	280	280	310	290	280	280	280	260	270	270
Dissolved Chloride (Cl)	mg/L	250**	8	8	9	8	8	7	8	8	8	8	7	8	8
Dissolved Iron (Fe)	mg/L	0.3**	1.49	1.08	1.57	0.8	1.7	1.2	1.6	1.4	1.3	1.1	1.2	1.7	1.6
Dissolved Lead (Pb)	mg/L	0.01*				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001
Dissolved Magnesium (Mg)	mg/L		213	207	218	220	200	230	220	200	210	210	180	210	200
Dissolved Organic Carbon	mg/L	5**	1.8	2.5	2.6	2	1.9	2.9	2.6	2.1	2.1	2.1	2.0	2.1	2.2
Dissolved Potassium (K)	mg/L		5	5	5	5	4.6	5.2	5.1	4.8	4.7	4.7	4.3	4.7	4.5
Dissolved Sodium (Na)	mg/L	200**	180	181	185	190	170	200	200	180	180	200	160	190	180
Dissolved Sulphate (SO4)	mg/L	500**	1790	1760	1720	1740	1790	1800	1700	1600	1600	1600	1100	1700	1500
Nitrate (N)	mg/L	10.0*	0.22	0.23	0.34	0.3	0.2	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.29
pH	(pH units)	6.5-8.5				8.1	7.9	7.8	7.9	7.9	7.8	8.0	7.8	7.9	7.4
Total Ammonia-N	mg/L		0.25	0.12	0.06	<0.15	0.28	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.18
Total Dissolved Solids	mg/L	500				1710	1950	1950	1900	1910	1840	1780	2510	2780	2730
Total Kjeldahl Nitrogen (TKN)	mg/L		0.38	0.22	<0.10	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		0.8	2.0	1.2	1.5	3.0	3.1	3.7	2.9	3.9	4.3	14.2	0.1	4.2

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15
Date			**13-May-13**	**5-Nov-13**	**6-May-14**	**24-Nov-14**	**12-May-15**	**11-Nov-15**	**26-May-16**	**16-Nov-16**	**19-May-17**	**8-Nov-17**	**10-May-18**	**13-Nov-18**	**14-May-19**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**
Alkalinity (Total as CaCO3)	mg/L	30-500***	140	150	150	150	150	150	150	150	150	160	150	150	140
Conductivity	umho/cm		3000	3000	3000	3000	2300	3000	3000	3000	3100	3000	3100	2900	3000
Dissolved Barium (Ba)	mg/L	1*	0.009	0.01	0.0	0.01	0.009	0.01	0.009	0.009	0.009	0.008	0.01	0.01	0.008
Dissolved Boron (B)	mg/L	5.0*	1.0	1.1	1.0	1.2	1.1	1.2	1.2	1.2	1.2	1.1	1.2	1.1	1.1
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		300	290	310	270	280	290	270	280	270	280	290	280	290
Dissolved Chloride (Cl)	mg/L	250**	8	8	9	9	8	8.5	8.6	8.9	8.2	8.2	8.2	8.6	8.8
Dissolved Iron (Fe)	mg/L	0.3**	1.6	<0.10	1.9	0.3	<0.10	1.5	0.8	1.4	1.5	2.2	1.1	2	0.4
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		220	220	210	210	210	220	210	220	200	200	200	200	200
Dissolved Organic Carbon	mg/L	5**	2.6	9.3	3.1	2.4	3.1	2.5	2.0	1.9	1.8	2.3	2	2.3	1.9
Dissolved Potassium (K)	mg/L		4.9	5.1	4.7	4.8	5	5	4.5	4.9	4.6	4.5	4.6	4.7	4.4
Dissolved Sodium (Na)	mg/L	200**	200	210	200	180	190	200	190	200	180	180	190	180	180
Dissolved Sulphate (SO4)	mg/L	500**	1700	1600	1600	1600	1700	1600	1700	1700	1700	1600	1600	1700	1700
Nitrate (N)	mg/L	10.0*	0.32	0.12	0.4	0.29	0.38	0.42	0.29	0.24	0.41	<0.10	0.58	0.37	0.56
pH	(pH units)	6.5-8.5	7.9	7.7	7.9	7.9	7.7	7.7	7.9	7.8	7.9	7.8	7.9	7.7	7.9
Total Ammonia-N	mg/L		0.17	0.46	<0.15	0.16	0.21	0.2	0.3	0.33	0.26	0.33	0.28	0.22	<0.15
Total Dissolved Solids	mg/L	500	2720	2670	2650	2690	2790	2700	2760	2610	3470	2530	2590	2650	2680
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		4.5	7.0	6.7	3.1	1.5	6.5	0.9	3.1	0.7	2.5	3.9	0.1	0.7

Parameter	Units	ODWQS	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15
Date			**5-Nov-19**	**8-May-20**	**3-Nov-20**	**18-May-21**	**3-Nov-21**	**3-May-22**	**2-Nov-22**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	150	150	150	150	160	150	170
Conductivity	umho/cm		3000	3100	3000	2714	2900	3000	3000
Dissolved Barium (Ba)	mg/L	1*	0.009	0.009	0.009	0.009	0.01	0.009	0.01
Dissolved Boron (B)	mg/L	5.0*	1	1	1.2	1.1	1.1	1.2	1.2
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		270	280	290	290	300	290	310
Dissolved Chloride (Cl)	mg/L	250**	8.0	8.4	7.7	8.8	8.4	8.8	8.7
Dissolved Iron (Fe)	mg/L	0.3**	1.7	0.5	2.2	1.2	1.7	1.8	3.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		190	210	210	200	210	210	220
Dissolved Organic Carbon	mg/L	5**	2.3	1.9	2.2	1.7	1.8	2.0	2.5
Dissolved Potassium (K)	mg/L		4.5	4.6	4.7	4.7	4.5	4.4	5
Dissolved Sodium (Na)	mg/L	200**	170	190	180	180	180	190	190
Dissolved Sulphate (SO4)	mg/L	500**	1500	1700	1600	1600	1800	1700	1600
Nitrate (N)	mg/L	10.0*	0.37	0.38	0.36	0.44	<0.10	0.80	<0.10
pH	(pH units)	6.5-8.5	7.7	7.9	7.7	8.1	7.9	7.9	7.8
Total Ammonia-N	mg/L		0.23	0.17	0.24	0.053	0.53	<0.15	1.08
Total Dissolved Solids	mg/L	500	2500	2750	2590	2710	2380	2570	2370
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.2	1.1	<0.7	1.2
Ion Percentage	%		3.4	1.5	4.4	3.4	0.6	2.1	6.7

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW58-4	OW58-4	OW58-4	OW58-4	OW58-4	OW58-4	OW58-4	OW58-4
Date			15-Jun-02 to 2-Jul-02	16-Jul-02 to 22-Jul-02	6-Aug-02	6-Nov-02	13-Nov-03	30-Sep-04	27-Nov-04	12-May-05
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	251	310	320	349	295	289	292	361
Dissolved Boron (B)	mg/L	5.0*	0.6	0.44	0.43	0.34	0.17	0.41	0.25	0.26
Dissolved Calcium (Ca)	mg/L		462	569	531	242	70	137	157	200
Dissolved Chloride (Cl)	mg/L	250**	1	3	4	12	18	12	21	15
Dissolved Iron (Fe)	mg/L	0.3**	0.12	0.03	0.03	1.02	0.03	1.62	0.17	0.20
Dissolved Magnesium (Mg)	mg/L		284	299	339	127	42	78	93	112
Dissolved Organic Carbon	mg/L	5**	10.3	110	4	8.9	8.9	6.5	7.9	5.4
Dissolved Potassium (K)	mg/L		7	9	6	7	4	3	4	4
Dissolved Sodium (Na)	mg/L	200**	84	86	85	99	120	99	112	88
Dissolved Sulphate (SO4)	mg/L	500**	2120	2060	2580	933	275	487	628	681
Nitrate (N)	mg/L	10.0*	<0.10	0.17	<0.10	<0.10	<0.10	0.15	0.11	<0.10
Total Ammonia-N	mg/L		<0.02	0.13	<0.02	0.04	0.08	0.11	<0.02	0.12
Total Kjeldahl Nitrogen (TKN)	mg/L		0.31	0.35	0.29	0.49	0.61	487	0.31	0.10
Ion Percentage	%		1.6	8.2	1.1	2.7	5.2	7.3	5.0	5.9

Parameter	Units	ODWQS	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6
Date			29-Nov-05	19-May-06	24-Nov-06	5-May-07	16-Nov-07	22-May-08	5-Nov-08	19-May-09	19-Nov-09	19-May-10	23-Nov-10	10-May-11	2-Nov-11
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	313	300	357	416	452	416	452	439	464	437	445	416	433
Conductivity	umho/cm							4040	4160	4100	4180	4070	4090	3910	3900
Dissolved Barium (Ba)	mg/L	1*						0.011	0.011	0.010	0.012	0.011	0.012	0.010	0.011
Dissolved Boron (B)	mg/L	5.0*	0.59	0.41	0.75	0.75	0.7	0.59	0.63	0.60	0.69	0.60	0.66	0.56	0.63
Dissolved Cadmium (Cd)	mg/L	0.005*						<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		383	425	331	295	281	320	300	310	290	320	310	330	370
Dissolved Chloride (Cl)	mg/L	250**	6	5	5	6	6	5	5	5	5	6	5	5	5
Dissolved Iron (Fe)	mg/L	0.3**	5.85	3.29	2.66	0.24	1.4	0.3	1.0	1.6	2.9	2.7	2.8	<0.1	4.5
Dissolved Lead (Pb)	mg/L	0.01*						<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		261	275	225	204	183	220	190	200	210	220	210	230	230
Dissolved Organic Carbon	mg/L	5**	5.6	4.2	2.5	2.3	2.4	1.5	1.5	1.9	2.2	1.5	1.8	1.4	1.7
Dissolved Potassium (K)	mg/L		11	8	8	7	7	7.1	6.7	6.8	7.3	6.8	6.9	6.5	7.6
Dissolved Sodium (Na)	mg/L	200**	88	86	362	551	606	460	460	490	530	460	450	410	410
Dissolved Sulphate (SO4)	mg/L	500**	1870	1990	2320	2220	2110	2200	2240	270	2300	2100	2000	1900	1900
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
pH	(pH units)	6.5-8.5						7.8	7.9	7.6	7.7	7.9	7.6	8.1	7.5
Total Ammonia-N	mg/L		0.37	0.19	0.36	0.45	0.54	0.26	0.48	0.35	0.44	0.35	0.43	0.23	0.36
Total Dissolved Solids	mg/L	500						2420	2800	2560	2660	2590	2450	2350	2960
Total Kjeldahl Nitrogen (TKN)	mg/L		1.95	0.37	0.48	0.57	0.52	<0.7	<0.7	0.8	<0.7	0.7	<0.7	<0.7	<0.7
Ion Percentage	%		0.2	1.0	3.6	1.8	3.4	0.9	3.7	61.1	1.1	2.6	2.9	4.8	6.4

Parameter	Units	ODWQS	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6
Date			9-May-12	5-Nov-12	13-May-13	5-Nov-13	6-May-14	24-Nov-14	12-May-15	11-Nov-15	26-May-16	17-Nov-16	19-May-17	8-Nov-17	10-May-18
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	420	420	400	410	390	410	390	410	400	400	390	410	430
Conductivity	umho/cm		3900	3900	3800	3700	3700	3800	2800	3800	3800	3800	3800	3400	4000
Dissolved Barium (Ba)	mg/L	1*	0.010	0.011	0.009	0.01	0.008	0.011	0.007	0.009	0.007	0.009	0.008	0.009	0.008
Dissolved Boron (B)	mg/L	5.0*	0.61	0.65	0.53	0.66	0.58	0.69	0.64	0.63	0.67	0.67	0.67	0.62	0.58
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		340	330	390	360	390	350	370	370	380	380	370	380	410
Dissolved Chloride (Cl)	mg/L	250**	5	4	5	4	4	5	4	4.7	4.1	4.7	4.2	4.5	5.1
Dissolved Iron (Fe)	mg/L	0.3**	0.32	5.0	0.12	1.1	<0.10	3	<0.10	2.7	<0.1	1.2	<0.1	5	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		250	230	260	250	260	250	260	260	270	280	250	250	270
Dissolved Organic Carbon	mg/L	5**	1.6	1.7	1.8	8.3	1.7	2.2	3.7	2.7	1.5	4.3	1.3	1.6	1.5
Dissolved Potassium (K)	mg/L		6.7	6.9	6.9	7	6.1	6.8	7.1	6.7	6.5	7.0	6.5	6.5	6.2
Dissolved Sodium (Na)	mg/L	200**	390	360	320	320	290	270	290	300	300	300	260	250	290
Dissolved Sulphate (SO4)	mg/L	500**	1900	1800	2100	1900	2000	2000	1900	2000	2000	2000	2100	2000	2100
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	<0.10	0.13	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.7	7.4	7.6	7.4	7.7	7.9	8.0	7.5	7.9	7.6	7.7	7.6	7.7
Total Ammonia-N	mg/L		0.16	0.40	0.25	0.38	<0.15	0.33	<0.15	0.3	<0.15	0.75	<0.15	0.28	<0.15
Total Dissolved Solids	mg/L	500	3610	3590	3410	3350	3340	3360	3410	3430	3450	3370	2660	3360	3440
Total Kjeldahl Nitrogen (TKN)	mg/L		0.8	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		5.9	4.9	2.4	4.3	3.5	0.6	4.7	4.1	5.5	6.3	0.1	1.7	3.9

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6
Date			12-Nov-18	14-May-19	5-Nov-19	8-May-20	3-Nov-20	19-May-21	3-Nov-21	4-May-22	2-Nov-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	410	390	400	390	400	380	400	400	380
Conductivity	umho/cm		3600	3800	3800	3900	3800	3700	3600	4900	3600
Dissolved Barium (Ba)	mg/L	1*	0.01	0.008	0.008	0.008	0.009	0.008	0.012	0.010	0.009
Dissolved Boron (B)	mg/L	5.0*	0.64	0.55	0.51	0.5	0.66	0.62	0.59	0.41	0.69
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		390	390	370	390	400	400	390	470	410
Dissolved Chloride (Cl)	mg/L	250**	5.3	5.7	5	4.9	5.3	6.1	5.3	5.5	4.6
Dissolved Iron (Fe)	mg/L	0.3**	3.8	<0.1	0.5	<0.1	2.3	<0.1	9.2	1.4	3.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		270	260	250	260	260	270	270	460	270
Dissolved Organic Carbon	mg/L	5**	1.6	1.5	1.7	1.7	1.6	1.4	2.0	3.3	3.3
Dissolved Potassium (K)	mg/L		6.5	5.9	6	5.9	6.6	6.3	6.7	3.2	6.5
Dissolved Sodium (Na)	mg/L	200**	280	260	250	250	230	230	220	100	210
Dissolved Sulphate (SO4)	mg/L	500**	2100	2200	2000	2100	2100	2000	2100	3000	2100
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.47	<0.10
pH	(pH units)	6.5-8.5	7.6	7.7	7.5	7.8	7.7	7.6	7.9	8.0	7.5
Total Ammonia-N	mg/L		0.22	<0.15	0.5	<0.15	0.22	<0.050	0.56	<0.15	0.16
Total Dissolved Solids	mg/L	500	3510	3580	3170	3580	3480	2880	3000	3310	2950
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.1	1.1	0.9	<0.7
Ion Percentage	%		2.9	0.4	1.4	1.2	0.7	3.9	0.6	2.9	1.5

Parameter	Units	ODWQS	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14
Date			9-Jun-99	7-Dec-99	21-Jun-00	14-Jun-02	22-May-08	20-Jun-08	3-Jul-08	6-Nov-08	4-Dec-08	15-Dec-08	19-May-09	11-Jun-09	25-Nov-09
Laboratory			Maxxam	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	88	91	93	84	86	109	81	87	131	117	93	89	80
Conductivity	umho/cm		3760	3460	3770		3900	3840	3890	3870	4240	3920	3860	3850	3850
Dissolved Barium (Ba)	mg/L	1*	0.022	0.01	<0.01		0.007	0.008	0.01	0.007	<0.005	0.007	0.007	0.007	0.006
Dissolved Boron (B)	mg/L	5.0*	1.63	1.53	1.32	3.72	6	3.5	3.9	2.5	2.4	2.1	2.1	2.0	1.9
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.003	<0.005	<0.005		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		427	432	476	429	400	370	430	400	260	360	420	410	410
Dissolved Chloride (Cl)	mg/L	250**	6.67	8	6	10	14	14	10	9	9	9	8	8	7
Dissolved Iron (Fe)	mg/L	0.3**	0.04	0.04	0.22	0.54	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.002	<0.002	<0.001		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		342	288	321	294	260	250	280	250	290	280	310	300	270
Dissolved Organic Carbon	mg/L	5**	2.4	3.1	3.2	3	1.6	4.3	1.8	2.6	2.4	1.8	2.8	4.4	2.5
Dissolved Potassium (K)	mg/L		9	7	6	6	6.8	6.4	7.7	5.3	7.8	6.4	5.5	5.4	4.7
Dissolved Sodium (Na)	mg/L	200**	190	169	170	198	250	270	260	210	470	340	260	250	200
Dissolved Sulphate (SO4)	mg/L	500**	4940	2690	2200	2620	2490	2500	2280	2620	2720	2530	2400	2400	2400
Nitrate (N)	mg/L	10.0*	<0.1	<0.10	0.21	0.18	0.1	0.3	<0.1	0.3	0.3	0.4	0.3	0.4	0.5
pH	(pH units)	6.5-8.5	7.43	7.58	6.87		7.8	7.8	7.9	7.9	8.2	7.9	7.2	7.7	7.8
Total Ammonia-N	mg/L		0.54	0.53	1.03	0.58	0.16	0.60	0.17	0.26	<0.15	<0.15	0.21	0.20	<0.15
Total Dissolved Solids	mg/L	500	3600	3940	3900		2410	2690	2750	2410	2700	2600	2400	2360	2430
Total Kjeldahl Nitrogen (TKN)	mg/L		1.7	0.67	1.43	0.75	<0.7	<7	<1	<4	<4	4.0	<4	<4	<0.7
Ion Percentage	%		29.1	5.0	9.2	2.2	1.7	3.7	6.1	6.6	2.0	0.4	5.1	3.6	0.5

Parameter	Units	ODWQS	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14
Date			20-May-10	23-Nov-10	10-May-11	2-Nov-11	9-May-12	6-Nov-12	13-May-13	10-Jun-13	5-Nov-13	13-Dec-13	6-May-14	19-Nov-14	12-May-15
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as CaCO3)	mg/L	30-500***	105	89	92	94	93	120	110	110	110	100	110	110	120
Conductivity	umho/cm		4060	3920	3870	3830	3900	3800	3800	3800	3800	3800	3900	3800	2900
Dissolved Barium (Ba)	mg/L	1*	0.007	0.007	0.006	0.006	0.006	<0.03	0.006	0.007	0.0063	0.006	0.006	0.007	0.007
Dissolved Boron (B)	mg/L	5.0*	1.7	1.8	2.0	2.1	2.1	2.0	2.9	3.6	3.1	3	3.9	3.7	3.4
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		320	390	410	470	420	410	450	460	460	400	450	440	430
Dissolved Chloride (Cl)	mg/L	250**	9	8	9	9	8	8	10	10	9	9	10	10	11
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.1	<0.10	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.003	<0.0005	<0.0005	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		270	280	290	300	310	280	290	290	310	270	290	290	280
Dissolved Organic Carbon	mg/L	5**	2.8	1.9	1.7	2.1	1.7	1.7	2.2	3.7	4.7	3.3	2	2.1	3.6
Dissolved Potassium (K)	mg/L		6.5	5.0	5.4	5.9	5.1	4.5	6.3	6.9	6.5	6	6.4	6.6	6.6
Dissolved Sodium (Na)	mg/L	200**	340	220	240	230	220	200	210	220	220	190	210	210	210
Dissolved Sulphate (SO4)	mg/L	500**	2600	2500	2400	2400	2500	2300	2500	2400	2400	2400	2300	2500	2300
Nitrate (N)	mg/L	10.0*	0.4	0.3	0.2	0.2	0.11	<0.10	0.24	0.24	0.19	0.18	0.29	0.31	0.36
pH	(pH units)	6.5-8.5	7.9	7.8	7.8	7.8	7.8	7.3	7.8	7.8	7.2	7.2	7.9	7.8	7.8
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	0.52	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	2500	2340	2300	3250	3840	3800	3760	3750	3690	3680	3620	3710	3800
Total Kjeldahl Nitrogen (TKN)	mg/L		1.2	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	1.2	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		3.3	2.0	2.1	5.1	1.3	1.2	0.5	3.3	4.7	2.1	4.4	4.2	4.2

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.
5) The November 16, 2007 lab sample was labelled as OW58-4.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW58-14	OW58-14
Date			11-Nov-15	26-May-16
Laboratory			Maxxam	Maxxam
Alkalinity (Total as CaCO3)	mg/L	30-500***	110	130
Conductivity	umho/cm		3800	3900
Dissolved Barium (Ba)	mg/L	1*	0.006	0.007
Dissolved Boron (B)	mg/L	5.0*	3.8	4.2
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		440	430
Dissolved Chloride (Cl)	mg/L	250**	11	12
Dissolved Iron (Fe)	mg/L	0.3**	<0.10	<0.10
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		290	290
Dissolved Organic Carbon	mg/L	5**	1.9	1.7
Dissolved Potassium (K)	mg/L		6.8	7
Dissolved Sodium (Na)	mg/L	200**	220	220
Dissolved Sulphate (SO4)	mg/L	500**	2500	2400
Nitrate (N)	mg/L	10.0*	0.26	0.41
pH	(pH units)	6.5-8.5	7.7	7.9
Total Ammonia-N	mg/L		<0.15	<0.15
Total Dissolved Solids	mg/L	500	3730	3770
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7
Ion Percentage	%		3.3	2.0

Parameter	Units	ODWQS	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17
Date			27-May-14	19-Nov-14	12-May-15	11-Nov-15	27-May-16	16-Nov-16	19-May-17	8-Nov-17	10-May-18	12-Nov-18	14-May-19	5-Nov-19	8-May-20
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	71	74	73	56	61	67	69	80	75	74	72	70	67
Conductivity	umho/cm		3800	3800	2900	3800	3800	3900	3900	3600	4000	3700	3800	3800	4000
Dissolved Barium (Ba)	mg/L	1*	0.023	0.024	0.021	0.022	0.018	0.018	0.017	0.015	<0.03	0.015	0.014	0.015	0.014
Dissolved Boron (B)	mg/L	5.0*	1.2	1.4	1.2	1.3	1.3	1.4	1.3	1.3	1.4	1.2	1.2	1.1	1.2
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		480	490	440	490	470	500	460	480	490	450	480	470	470
Dissolved Chloride (Cl)	mg/L	250**	11	10	11	9.5	9.8	8.8	9.6	8.8	8.8	8.8	9.1	8.3	8.7
Dissolved Iron (Fe)	mg/L	0.3**	0.16	0.99	0.14	<0.10	<0.1	0.10	0.10	<0.1	<0.5	0.3	0.1	0.9	0.2
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.003	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		270	270	240	280	270	290	250	260	260	240	270	250	270
Dissolved Organic Carbon	mg/L	5**	3.7	4.4	3.6	3.1	2.4	2.5	3.3	2	1.9	2.2	2.1	2.1	2.2
Dissolved Potassium (K)	mg/L		11	9.1	7.3	6	5.7	5.6	5.1	5.3	5	4.7	4.7	4.6	4.7
Dissolved Sodium (Na)	mg/L	200**	190	190	180	190	190	200	180	190	180	170	190	180	190
Dissolved Sulphate (SO4)	mg/L	500**	2600	2500	2300	2500	2500	2400	2600	2400	2400	2500	2600	2300	2400
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	0.20	<0.10	0.15	0.11	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.3	7.7	7.4	7.4	7.6	7.7	7.7	7.8	7.8	7.5	7.7	7.7	7.7
Total Ammonia-N	mg/L		0.51	0.52	0.64	0.6	0.35	0.62	0.39	0.35	0.37	0.45	0.43	0.47	0.41
Total Dissolved Solids	mg/L	500	3940	3750	3780	3670	3830	3730	3820	3500	3540	3770	3890	3510	3830
Total Kjeldahl Nitrogen (TKN)	mg/L		1.0	1	1.1	0.9	0.7	<0.7	1.0	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		1.3	1.0	0.2	1.9	0.2	5.3	4.3	1.6	1.7	4.2	1.4	2.2	2.1

Parameter	Units	ODWQS	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17
Date			3-Nov-20	18-May-21	3-Nov-21	3-May-22	2-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	66	69	65	64	64
Conductivity	umho/cm		3800	3545	3700	3800	3800
Dissolved Barium (Ba)	mg/L	1*	0.015	0.014	0.016	0.014	0.014
Dissolved Boron (B)	mg/L	5.0*	1.4	1.3	1.3	1.4	1.3
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		460	470	480	480	470
Dissolved Chloride (Cl)	mg/L	250**	8.6	9.5	8.4	8.4	9.5
Dissolved Iron (Fe)	mg/L	0.3**	0.6	0.5	0.9	0.9	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		270	260	270	270	260
Dissolved Organic Carbon	mg/L	5**	2.1	1.8	1.9	1.5	2
Dissolved Potassium (K)	mg/L		4.8	4.6	4.5	4.3	4.9
Dissolved Sodium (Na)	mg/L	200**	190	190	190	200	200
Dissolved Sulphate (SO4)	mg/L	500**	2500	2500	2600	2400	2400
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	0.25	<0.10
pH	(pH units)	6.5-8.5	7.5	7.8	7.7	7.7	7.8
Total Ammonia-N	mg/L		0.53	0.194	0.31	0.31	0.24
Total Dissolved Solids	mg/L	500	3660	3070	3490	3660	3370
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.3	0.8	0.9	<0.7
Ion Percentage	%		0.3	0.7	1.3	3.0	1.8

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parmeter	Units	ODWQS	OW59-4	OW59-4	OW59-4	OW59-4
Date			15-Jun-02	30-Sep-04	27-Nov-04 to 30-Nov-04	2-Jun-05 to 27-Jun-05
Laboratory			Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	309	325	343	332
Dissolved Boron (B)	mg/L	5.0*	0.89	0.77	0.67	0.47
Dissolved Calcium (Ca)	mg/L		465	427	558	456
Dissolved Chloride (Cl)	mg/L	250**	5	6	6	6
Dissolved Iron (Fe)	mg/L	0.3**	0.02	<0.01	0.01	<0.03
Dissolved Magnesium (Mg)	mg/L		530	530	623	531
Dissolved Organic Carbon	mg/L	5**	5.5	2.1	3.1	1.9
Dissolved Potassium (K)	mg/L		7	6	9	7
Dissolved Sodium (Na)	mg/L	200**	176	186	212	168
Dissolved Sulphate (SO4)	mg/L	500**		3510	3370	2740
Nitrate (N)	mg/L	10.0*		<0.10	<0.10	0.10
Nitrite (N)	mg/L	1.0*				
NO3+NO2	mg/L	10.0*				
Total Ammonia-N	mg/L		0.03	0.02	0.04	0.03
Total Kjeldahl Nitrogen (TKN)	mg/L		0.35	0.12	0.66	0.24
Ion Percentage	%			4.0	7.2	7.8

Parameter	Units	ODWQS	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6
Date			29-Nov-05	19-May-06	24-Nov-06	5-May-07	16-Nov-07	22-May-08	5-Nov-08	16-May-09	11-Jun-09	18-Nov-09	19-May-10	23-Nov-10	10-May-11
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	367	375	375	368	504	373	368	348	375	383	390	370	387
Conductivity	umho/cm							3620	3560	3710	4090	4320	4840	4640	4700
Dissolved Barium (Ba)	mg/L	1*						0.008	0.008	<0.03	0.009	0.009	0.009	0.009	0.008
Dissolved Boron (B)	mg/L	5.0*	0.75	0.57	0.81	0.82	0.38	0.82	0.82	1.0	0.83	0.85	0.76	0.83	0.70
Dissolved Cadmium (Cd)	mg/L	0.005*						<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		292	314	307	324	473	320	310	340	330	340	360	350	360
Dissolved Chloride (Cl)	mg/L	250**	9	7	7	8	13	7	5	6	7	7	7	7	7
Dissolved Iron (Fe)	mg/L	0.3**	2.87	<0.03	0.61	0.05	<0.3	<0.1	0.4	<0.1	<0.1	0.7	1.0	1.9	0.2
Dissolved Lead (Pb)	mg/L	0.01*						<0.0005	<0.0005	<0.003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		298	326	329	342	589	360	320	370	380	360	380	360	380
Dissolved Organic Carbon	mg/L	5**	5.6	2.8	1.4	1.9	3.0	1.4	1.3	3.7	2.6	2.2	2.0	2.5	2.3
Dissolved Potassium (K)	mg/L		10	7	7	7	8	6.9	6.3	6.9	7.6	7.6	7.6	7.5	7.2
Dissolved Sodium (Na)	mg/L	200**	164	160	161	164	195	170	150	220	360	350	490	440	420
Dissolved Sulphate (SO4)	mg/L	500**	1900	2000	2160	2090	3230	2170	2200	2100	2300	2700	2800	2600	2700
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	0.21	<0.10	0.1	<0.1	0.2	<0.1	<0.1	<0.1	0.2	<0.1
pH	(pH units)	6.5-8.5						8.1	7.9	7.8	7.6	7.7	7.9	7.6	7.9
Total Ammonia-N	mg/L		0.34	0.19	0.22	0.03	0.06	<0.15	<0.15	<0.15	<0.15	0.26	0.37	0.28	0.30
Total Dissolved Solids	mg/L	500						2230	2400	2400	2460	2600	3000	2920	2800
Total Kjeldahl Nitrogen (TKN)	mg/L		0.52	0.46	0.22	0.08	0.16	<0.7	<0.7	<0.7	<0.7	<0.7	0.7	<0.7	<0.7
Ion Percentage	%		0.4	1.3	2.1	1.5	2.7	1.2	3.9	6.7	7.5	1.0	3.8	4.3	2.1

Parameter	Units	ODWQS	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6
Date			2-Nov-11	9-May-12	6-Nov-12	10-May-13	5-Nov-13	6-May-14	19-Nov-14	12-May-15	12-Nov-15	26-May-16	16-Nov-16	18-May-17	7-Nov-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXM	MAXXAM	MAXXM
Alkalinity (Total as CaCO3)	mg/L	30-500***	389	390	380	390	400	380	390	400	400	400	410	400	410
Conductivity	umho/cm		4790	4900	4700	4600	4700	4700	4800	3800	4800	4900	4800	4900	4800
Dissolved Barium (Ba)	mg/L	1*	0.010	0.009	<0.03	0.008	0.009	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.007
Dissolved Boron (B)	mg/L	5.0*	0.90	0.77	0.8	0.85	0.85	0.74	0.86	0.82	0.79	0.78	0.79	0.79	0.79
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0005	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		400	370	350	390	400	390	400	410	410	390	400	380	400.0
Dissolved Chloride (Cl)	mg/L	250**	7	7	6	6	6	6	7	6	6.6	6.9	6.8	6.3	6.1
Dissolved Iron (Fe)	mg/L	0.3**	3.3	2.9	3.6	0.20	<0.10	<0.10	<0.10	<0.10	0.27	0.40	<0.10	<0.1	0.5
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.003	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		420	400	370	390	370	410	410	400	410	400	410	400	400.0
Dissolved Organic Carbon	mg/L	5**	2.4	2.6	2.6	3.3	4.3	2.5	2.4	2.8	2.9	2.3	2.2	2.4	3.3
Dissolved Potassium (K)	mg/L		8.4	7.3	7.0	7.3	7.8	6.9	7.4	7.3	7.4	6.9	7.4	6.8	6.9
Dissolved Sodium (Na)	mg/L	200**	490	480	390	370	400	370	380	370	400	380	380	320	320
Dissolved Sulphate (SO4)	mg/L	500**	2700	2900	2600	2700	2800	2700	2900	2800	3000	2900	2900	3000	2900
Nitrate (N)	mg/L	10.0*	<0.1	<0.10	<0.10	<0.10	<0.10	0.18	0.13	0.13	0.14	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.0	7.7	7.4	7.8	7.7	7.8	7.8	7.8	7.6	7.8	7.6	7.7	7.7
Total Ammonia-N	mg/L		0.33	0.30	0.40	0.20	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	3290	4830	4360	4490	4500	4440	4570	4770	4590	4940	4580	4670	4510
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		8.0	2.3	1.9	2.2	0.6	3.6	0.9	1.8	1.4	1.0	1.8	2.8	0.7

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6
Date			10-May-18	12-Nov-18	14-May-19	5-Nov-19	8-May-20	3-Nov-20	19-May-21	3-Nov-21	4-May-22	2-Nov-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	420	400	390	400	420	410	410	420	420	430
Conductivity	umho/cm		5000	4500	4800	4900	5100	4900	4900	4800	4900	4900
Dissolved Barium (Ba)	mg/L	1*	<0.03	0.006	0.007	0.007	0.007	0.007	<0.03	0.007	0.007	0.007
Dissolved Boron (B)	mg/L	5.0*	0.8	0.8	0.7	0.65	0.71	0.86	0.8	0.72	0.72	0.74
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		420	430	440	420	430	440	430	460	450	430
Dissolved Chloride (Cl)	mg/L	250**	6	6.4	6.6	6.0	6.2	6.6	7	6.5	6.2	6.4
Dissolved Iron (Fe)	mg/L	0.3**	<0.5	<0.1	<0.1	<0.1	0.1	<0.1	<0.5	0.2	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		430	410	460	430	440	440	470	470	460	460
Dissolved Organic Carbon	mg/L	5**	2.3	2.4	2.3	2.8	2.6	2.6	2.2	2.4	2.4	2.8
Dissolved Potassium (K)	mg/L		7	7.1	6.6	6.8	6.4	6.8	7	6.9	6.6	6.4
Dissolved Sodium (Na)	mg/L	200**	330	340	330	310	320	310	310	300	290	290
Dissolved Sulphate (SO4)	mg/L	500**	3000	3000	3100	2700	3000	2900	3000	3100	3100	3200
Nitrate (N)	mg/L	10.0*	<0.10	0.11	<0.10	0.10	<0.10	0.1	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.7	7.6	7.7	7.6	7.7	7.6	7.6	7.8	7.8	7.5
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	0.40	<0.15	<0.15	<0.050	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	4570	4800	5000	4700	4860	4720	4280	4670	4830	4370
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.2	0.8	<0.7	0.7
Ion Percentage	%		0.5	0.2	1.8	4.9	1.1	2.8	2.6	1.8	0.6	1.6

Parameter	Units	ODWQS	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4
Date			10-Feb-99	3-Jun-99	22-Jun-00	23-May-08	19-May-09	21-May-10	12-May-11	15-May-12	9-May-13	6-May-14	13-May-15	18-Jun-15	27-May-16
Laboratory			Maxxam	Maxxam	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	372	541	238	242	357	325	207	270	240	430	320	310	250
Conductivity	umho/cm		840	790	570	594	821	782	627	700	620	1400	750		610
Dissolved Barium (Ba)	mg/L	1*	0.068	0.051	0.04	0.04	0.06	0.048	0.044	0.049	0.041	0.021	0.055		0.047
Dissolved Boron (B)	mg/L	5.0*	0.205	0.15	0.06	0.04	0.04	0.04	0.03	0.05	0.03	0.2	0.04		0.06
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.003	<0.003	<0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001
Dissolved Calcium (Ca)	mg/L		104	99	77	71	120	97	84	91	85	130	100	100	86
Dissolved Chloride (Cl)	mg/L	250**	8.4	11.8	14	18	29	24	21	16	13	14	11	12	8.7
Dissolved Iron (Fe)	mg/L	0.3**	0.027	0.01	0.32	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10		0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.025	<0.002	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0023	<0.0005	0.008		0.0061
Dissolved Magnesium (Mg)	mg/L		41.7	40.2	22	22	32	31	23	27	23	93	31	29	23
Dissolved Organic Carbon	mg/L	5**	1.4	1.3	6.2	4.0	5.8	3.9	3.1	4.2	4.1	3.6	3.2		3.3
Dissolved Potassium (K)	mg/L		3	3	2	1.5	1.6	1.9	1.4	1.7	1.4	1.4	1.8	1.6	1.6
Dissolved Sodium (Na)	mg/L	200**	25.1	27.3	11	13	14	15	12	14	14	68	17	17	15
Dissolved Sulphate (SO4)	mg/L	500**	90.3	97.2	56	59	56	70	81	88	72	370	67	74	69
Nitrate (N)	mg/L	10.0*	<0.1	0.3	0.42	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10		<0.10
pH	(pH units)	6.5-8.5	7.2	7.3	7.1	8.0	7.4	8.0	8.2	7.8	8.1	8.1	7.8		7.9
Total Ammonia-N	mg/L		<0.05	<0.05	0.07	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15		<0.15
Total Dissolved Solids	mg/L	500	666	447	368	375	530	500	318	396	404	1120	444		372
Total Kjeldahl Nitrogen (TKN)	mg/L		1.4	0.4	0.52	<1	1	4	<0.7	<0.7	0.7	<0.7	0.6		<0.7
Ion Percentage	%		9.5	7.5	6.9	2.9	9.2	4.8	8.5	5.7	8.5	6.4	9.8	8.7	9.4

Parameter	Units	ODWQS	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4
Date			16-May-17	8-May-18	15-May-19	7-May-20	19-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	260	260	300	280	230	280
Conductivity	umho/cm		620	610	710	680	560	730
Dissolved Barium (Ba)	mg/L	1*	0.039	0.04	0.049	0.048	0.038	0.046
Dissolved Boron (B)	mg/L	5.0*	0.04	0.03	0.04	0.04	0.03	0.04
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		80	81	93	94	79	97
Dissolved Chloride (Cl)	mg/L	250**	8.2	7.1	9.2	8.0	6.5	8.3
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	0.013	0.0086	0.0055	0.0047	0.0081	0.012
Dissolved Magnesium (Mg)	mg/L		23	23	30	26	24	29
Dissolved Organic Carbon	mg/L	5**	3.7	3.4	3.0	3.7	3.3	3.4
Dissolved Potassium (K)	mg/L		1.4	1.4	1.5	1.5	1.5	1.5
Dissolved Sodium (Na)	mg/L	200**	13	12	15	13	12	13
Dissolved Sulphate (SO4)	mg/L	500**	61	55	71	79	67	99
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.0	8.0	7.8	8.0	7.9	8.1
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.050	<0.15
Total Dissolved Solids	mg/L	500	338	300	455	370	340	415
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	0.1	<0.7
Ion Percentage	%		6.7	8.1	8.7	7.7	10.3	7.1

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8
Date			10-Feb-99	3-Jun-99	1-Dec-99	22-Jun-00	23-May-08	14-May-09	21-May-10	12-May-11	15-May-12	9-May-13	6-May-14	13-May-15	27-May-16
Laboratory			Maxxam	Maxxam	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	205	207	213	178	247	254	252	241	240	240	630	230	260
Conductivity	umho/cm		895	752	744	839	834	839	825	803	790	790	4800	770	750
Dissolved Barium (Ba)	mg/L	1*	0.044	0.03	0.03	0.02	0.019	0.021	0.020	0.019	0.018	0.019	0.008	0.019	0.015
Dissolved Boron (B)	mg/L	5.0*	0.847	0.773	0.82	0.74	0.86	0.81	0.83	0.81	0.86	0.80	0.97	0.85	0.77
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.003	<0.003		<0.005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		86.6	54.8	51	46	43	44	45	46	45	44	450	45	33
Dissolved Chloride (Cl)	mg/L	250**	9.6	5.8	7	5	7	7	7	7	7	7	10	7	6.9
Dissolved Iron (Fe)	mg/L	0.3**	0.291	0.13	0.33	0.02	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	20	<0.10	<0.10
Dissolved Lead (Pb)	mg/L	0.01*	<0.025	<0.002	<0.002	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	0.0005
Dissolved Magnesium (Mg)	mg/L		29.5	28.6	30	28	28	30	30	30	29	29	560	29	24
Dissolved Organic Carbon	mg/L	5**	2.9	2.4	3.5	3.9	1.6	3.7	1.8	1.8	2.1	1.7	3.8	2.4	1.9
Dissolved Potassium (K)	mg/L		7	4	3	3	2	2.6	2.3	2.2	2.1	2.0	5.6	2.1	4.6
Dissolved Sodium (Na)	mg/L	200**	72.7	74.4	80	86	87	110	100	93	89	86	280	84	97
Dissolved Sulphate (SO4)	mg/L	500**	248	177	180	392	195	180	180	170	160	160	2900	150	130
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.10	0.47	<0.1	0.2	0.1	<0.1	<0.10	<0.10	<0.10	<0.10	0.13
pH	(pH units)	6.5-8.5	7.5	7.8	7.8	7.0	8.2	8.0	8.2	8.1	8.1	8.3	7.6	8.1	8.4
Total Ammonia-N	mg/L		0.09	0.22	0.28	0.18	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	659	508	456	560	548	530	524	500	456	482	5090	460	442
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.1	0.3	0.4	0.41	<0.7	<1	1.0	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		6.9	7.7	7.2	14.5	0.02	8.1	6.2	7.3	7.0	5.9	6.2	8.3	5.5

Parameter	Units	ODWQS	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8
Date			16-May-17	8-May-18	15-May-19	7-May-20	19-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	250		240	250	240	240
Conductivity	umho/cm		780	800	760	770	760	780
Dissolved Barium (Ba)	mg/L	1*	0.014	0.018	0.017	0.018	0.02	0.018
Dissolved Boron (B)	mg/L	5.0*	0.74	0.91	0.87	0.85	0.85	0.85
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		31	41	41	41	43	43
Dissolved Chloride (Cl)	mg/L	250**	7.6	8	8.1	8.6	8.8	8.8
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.0005
Dissolved Magnesium (Mg)	mg/L		23	29	29	28	28	26
Dissolved Organic Carbon	mg/L	5**	2	1.7	1.6	1.9	1.2	1.5
Dissolved Potassium (K)	mg/L		4.6	2.6	2.1	2.0	2.1	2.0
Dissolved Sodium (Na)	mg/L	200**	96	92	91	87	87	82
Dissolved Sulphate (SO4)	mg/L	500**	150	140	150	150	150	150
Nitrate (N)	mg/L	10.0*	<0.10	0.1	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.2	8.3	8.2	8.3	8.2	8.3
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.050	<0.15
Total Dissolved Solids	mg/L	500	430	420	470	475	445	415
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.1	<0.7
Ion Percentage	%		2.1		7.6	4.8	6.5	4.1

Parameter	Units	ODWQS	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4
Date			2-Dec-99	19-Jun-00	28-Nov-01	22-May-02	5-Nov-02	15-May-03	13-Nov-03	26-May-04	27-Nov-04	12-May-05	30-Nov-05	19-May-06	24-Nov-06
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	535	527	456	491	459	260	301	339	373	298	203	268	267
Dissolved Boron (B)	mg/L	5.0*	0.44	0.35	0.38	1.36	0.65	0.41	0.82	0.78	0.48	0.61	0.95	0.69	0.91
Dissolved Calcium (Ca)	mg/L		192	150	257	293	262	175	164	232	232	201	178	179	210
Dissolved Chloride (Cl)	mg/L	250**	70	102	56	56	47	41	35	41	44	34	28	33	33
Dissolved Iron (Fe)	mg/L	0.3**	<0.01	<0.01	<0.01	0.08	0.02	0.01	0.01	0.02	1.35	0.29	<0.01	<0.03	<0.03
Dissolved Magnesium (Mg)	mg/L		75	54	83	114	92	70	63	83	85	73	55	68	77
Dissolved Organic Carbon	mg/L	5**	4.8	4.8	5.0	5.4	5.4	3.6	<0.5	3.6	3.0	2.4	4.7	3.9	4.0
Dissolved Potassium (K)	mg/L		2	1	2	2	3	2	3	2	2	1	2	1	2
Dissolved Sodium (Na)	mg/L	200**	178	139	90	161	96	91	95	104	75	76	125	79	90
Dissolved Sulphate (SO4)	mg/L	500**	492	590	705	976	654	759	467	653	567	580	708	644	704
Nitrate (N)	mg/L	10.0*	6.05	10.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrite (N)	mg/L	1.0*	0.25	<0.10											
NO3+NO2	mg/L	10.0*		10.1											
Total Ammonia-N	mg/L		0.07	0.09	0.04	0.07	0.04	0.03	0.02	0.08	<0.02	<0.02	<0.02	<0.02	<0.02
Total Kjeldahl Nitrogen (TKN)	mg/L		0.46	0.51	0.47	0.57	0.42	0.28	0.45	0.26	0.14	0.12	0.39	0.42	0.22
Ion Percentage	%		5.9	13.8	0.2	1.7	5.2	7.0	5.8	6.1	6.7	3.8	0.2	2.1	1.9

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4
Date			4-May-07	16-Nov-07	22-May-08	5-Nov-08	4-Dec-08	16-May-09	11-Jun-09	18-Nov-09	15-Dec-09	20-May-10	22-Nov-10	23-Dec-10	12-May-11
Laboratory			Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	303	DRY	DRY	140	162	196	269	281	330	333	268	300	338
Conductivity	umho/cm		1830			1590	1600	870	1160	1150	1340	1320	960	1090	1270
Dissolved Barium (Ba)	mg/L	1*	0.01			0.037	0.034	0.026	0.025	0.026	0.026	0.026	0.025	0.025	0.027
Dissolved Boron (B)	mg/L	5.0*	0.81			0.86	0.72	0.59	0.77	0.77	0.83	0.72	0.66	0.59	0.53
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001			<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		252			180	190	160	140	140	160	170	160	120	150
Dissolved Chloride (Cl)	mg/L	250**	34			54	47	26	27	27	26	22	18	19	22
Dissolved Iron (Fe)	mg/L	0.3**	<0.03			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		85			60	69	61	56	51	55	67	62	48	56
Dissolved Organic Carbon	mg/L	5**	4.2			1.8	3.5	7.8	4.9	4.0	4.7	3.2	5.0	4.2	4.4
Dissolved Potassium (K)	mg/L		2			2.2	1.9	1.5	1.7	1.9	1.9	1.5	1.9	1.6	1.4
Dissolved Sodium (Na)	mg/L	200**	83			75	77	68	71	64	66	63	58	61	54
Dissolved Sulphate (SO4)	mg/L	500**	686			643	686	230	350	340	360	390	210	260	340
Nitrate (N)	mg/L	10.0*	<0.10			3.4	3.1	2.9	0.5	0.3	0.2	<0.1	2.4	0.7	<0.1
pH	(pH units)	6.5-8.5	8.2			8.0	8.0	7.8	8.0	8.0	8.0	8.1	8.0	7.8	7.9
Total Ammonia-N	mg/L		<0.02			<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	1090			1030	1050	565	710	745	854	836	610	674	772
Total Kjeldahl Nitrogen (TKN)	mg/L		0.27			<4	<7	1	<4	<1	<0.7	<0.7	1.4	0.7	<0.7
Ion Percentage	%		6.9			0.2	0.6	29.5	8.4	6.0	6.3	8.4	25.9	7.7	4.7

Parameter	Units	ODWQS	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4
Date			2-Nov-11	9-May-12	6-Nov-12	9-May-13	6-Nov-13	6-May-14	6-Nov-14	12-May-15	12-Nov-15	25-May-16	15-Nov-16	17-May-17	7-Nov-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	208	300	220	330	270	450	310	290	180	310	290	380	270
Conductivity	umho/cm		613	990	800	1200	770	1500	890	940	950	1300	850	1300	1100
Dissolved Barium (Ba)	mg/L	1*	0.037	0.038	0.039	0.051	0.037	0.1	0.034	0.049	0.043	0.071	0.066	0.057	0.049
Dissolved Boron (B)	mg/L	5.0*	0.48	0.38	0.20	0.49	0.34	0.6	0.42	0.39	0.32	0.39	0.36	0.38	0.32
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		100	120	91	130	71	160	88	110	97	120	96	130	86
Dissolved Chloride (Cl)	mg/L	250**	8	18	17	21	16	18	11	26	71	45	36	38	40
Dissolved Iron (Fe)	mg/L	0.3**	0.5	0.85	0.24	2.0	0.3	0.4	<0.10	4.2	1.5	1.7	1.9	1.8	0.3
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		35	51	24	43	22	56	42	42	32	46	30	43	26
Dissolved Organic Carbon	mg/L	5**	5.5	4.1	10.5	6.7	10	6.6	9.1	7.5	8.7	7.0	13.0	9.2	12
Dissolved Potassium (K)	mg/L		1.7	1.4	2.9	2.5	3.1	2.7	3.3	2.6	3.0	3.2	4.8	3	3.6
Dissolved Sodium (Na)	mg/L	200**	41	48	41	73	61	110	65	66	65	70	52	55	110
Dissolved Sulphate (SO4)	mg/L	500**	92	210	160	330	110	360	160	220	210	360	100	300	230
Nitrate (N)	mg/L	10.0*	0.5	<0.10	1.4	<0.10	0.67	<0.10	0.42	0.1	1.4	0.24	<0.10	<0.10	0.72
pH	(pH units)	6.5-8.5	7.6	7.9	7.7	8.0	7.4	8.0	8.2	7.9	7.8	7.9	8.0	8.1	8.0
Total Ammonia-N	mg/L		<0.15	<0.15	0.24	0.66	0.22	<0.15	<0.15	<0.15	<0.15	0.25	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	408	492	572	884	482	958	542	402	578	952	540	818	760
Total Kjeldahl Nitrogen (TKN)	mg/L		3	<0.7	2.5	7	2.8	0.8	1.9	<0.7	<1 (1)	<0.7	0.8	<0.7	2.7
Ion Percentage	%		27.7	11.7	6.4	1.7	6.5	6.5	10.8	8.5	5.4	3.4	10.8	3.8	4.6

Parameter	Units	ODWQS	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4
Date			8-May-18	12-Nov-18	13-May-19	7-Nov-19	6-May-20	3-Nov-20	20-May-21	2-Nov-21	5-May-22	1-Nov-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	340	290	370	300	230	290	250	300	400	240
Conductivity	umho/cm		1300	770	970	840	600	880	690	780	1500	880
Dissolved Barium (Ba)	mg/L	1*	0.059	0.023	0.051	0.037	0.048	0.038	0.043	0.037	0.019	0.048
Dissolved Boron (B)	mg/L	5.0*	0.37	0.12	0.29	0.26	0.25	0.32	0.17	0.21	0.68	0.21
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	37	110	67	98	82	88	58	150	89
Dissolved Chloride (Cl)	mg/L	250**	31	15	15	12	8.1	14	12	18	23	60
Dissolved Iron (Fe)	mg/L	0.3**	2.5	<0.1	0.1	<0.1	3.8	0.2	11	0.2	0.5	0.7
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		44	12	36	21	33	24	28	17	110	24
Dissolved Organic Carbon	mg/L	5**	6.8	9	7	11	7.1	10	10	13	2.4	12
Dissolved Potassium (K)	mg/L		2.3	2.1	2.1	2.4	1.9	2.3	2.3	4.4	4.3	2.2
Dissolved Sodium (Na)	mg/L	200**	73	53	83	85	57	66	59	95	64	62
Dissolved Sulphate (SO4)	mg/L	500**	310	130	150	130	71	160	95	92	430	140
Nitrate (N)	mg/L	10.0*	0.29	0.74	0.46	0.37	0.62	1.05	1.21	0.78	0.20	0.16
pH	(pH units)	6.5-8.5	7.9	7.9	7.8	8.0	7.9	7.8	8.0	8.2	8.0	8.0
Total Ammonia-N	mg/L		0.25	0.21	<0.15	0.23	<0.15	<0.15	0.574	0.23	0.63	<0.15
Total Dissolved Solids	mg/L	500	770	500	610	495	465	615	350	495	1010	625
Total Kjeldahl Nitrogen (TKN)	mg/L		3.7	<0.7	<0.7	2.0	<0.7	2.7	<2	1.2	1.0	<0.7
Ion Percentage	%		1.9	20.2	12.0	5.5	30.4	3.3	19.0	8.0	9.3	3.9

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11
Date			2-Dec-99	19-Jun-00	28-Nov-01	22-May-02	7-Nov-02	15-May-03	16-Jun-03	13-Nov-03	26-May-04	27-Nov-04	12-May-05	30-Nov-05	19-May-06
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	383	384	386	376	427	385	374	372	379	371	348	371	342
Dissolved Boron (B)	mg/L	5.0*	0.95	1.00	0.70	1.17	0.85	0.81	0.77	1.00	1.33	0.89	1.12	1.00	0.93
Dissolved Calcium (Ca)	mg/L		91	95	84	90	75	30	19	85	71	76	94	85	83
Dissolved Chloride (Cl)	mg/L	250**	7	5	8	6	9	34	41	9	25	19	27	12	21
Dissolved Iron (Fe)	mg/L	0.3**	1.77	2.46	<0.01	0.68	0.36	0.13	0.07	2.24	0.65	<0.01	1.25	1.85	0.05
Dissolved Magnesium (Mg)	mg/L		120	120	101	117	98	38	20	116	81	96	100	102	88
Dissolved Organic Carbon	mg/L	5**	2.4	1.8	176	1.0	3.4	3.4	3.5	1.2	2.8	2.1	2.2	1.6	2.7
Dissolved Potassium (K)	mg/L		4	4	5	4	7	3	2	5	3	3	3	3	2
Dissolved Sodium (Na)	mg/L	200**	120	116	124	111	136	397	423	158	286	239	228	139	160
Dissolved Sulphate (SO4)	mg/L	500**	559	531	502	539	446	809	591	581	690	645	707	544	534
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	1.27	0.92	<0.10	0.36	0.28	0.17	<0.10	0.37
Nitrite (N)	mg/L	1.0*	<0.10	<0.10											
NO3+NO2	mg/L	10.0*		<0.10											
Total Ammonia-N	mg/L		0.40	0.52	0.26	0.63	5.05	0.87	0.91	0.66	0.60	0.11	0.41	0.63	0.08
Total Kjeldahl Nitrogen (TKN)	mg/L		0.60	0.82	0.33	0.66	6.56	1.11	1.20	0.72	0.79	0.24	0.50	0.79	0.22
Ion Percentage	%		4.2	6.1	2.9	4.0	4.0	5.1	3.2	5.8	3.0	4.8	3.7	2.7	2.9

Parameter	Units	ODWQS	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11
Date			24-Nov-06	4-May-07	16-Nov-07	22-May-08	5-Nov-08	19-May-09	18-Nov-09	19-May-10	22-Nov-10	12-May-11	2-Nov-11	9-May-12	6-Nov-12
Laboratory			Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	334	340	414	415	393	373	369	359	364	374	352	390	390
Conductivity	umho/cm		1830			1570	1510	1510	1530	1590	1570	1590	1530	1600	1600
Dissolved Barium (Ba)	mg/L	1*	0.01			0.02	0.018	0.018	0.016	0.018	0.016	0.018	0.018	0.017	0.017
Dissolved Boron (B)	mg/L	5.0*	1.17	1.00	1.01	1	0.96	0.99	1.0	0.99	0.92	0.92	0.93	0.8	0.84
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001			<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		80	91	76	88	83	87	89	86	87	95	88	96	92
Dissolved Chloride (Cl)	mg/L	250**	23	24	23	16	11	9	11	19	14	30	24	30	24
Dissolved Iron (Fe)	mg/L	0.3**	0.07	0.33	0.11	<0.1	0.2	0.4	0.7	1.8	0.9	0.9	0.6	0.65	1.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		86	92	79	100	89	100	110	100	110	110	98	110	100
Dissolved Organic Carbon	mg/L	5**	2.7	3.6	5.6	2.7	2.2	3.2	2.1	2.4	2.2	2.5	2.6	2.3	2.4
Dissolved Potassium (K)	mg/L		2	2	3	3.4	2.8	3.1	3.1	2.8	2.8	2.8	2.7	2.8	2.8
Dissolved Sodium (Na)	mg/L	200**	158	150	126	150	110	120	120	120	110	110	100	110	110
Dissolved Sulphate (SO4)	mg/L	500**	534	533	455	446	443	450	470	500	460	550	430	430	400
Nitrate (N)	mg/L	10.0*	0.46	0.31	<0.10	<0.1	<0.1	0.8	0.5	0.1	0.5	0.2	0.5	0.19	0.35
pH	(pH units)	6.5-8.5	8.2			8.2	8.0	8.0	8.2	8.0	7.9	7.7	7.6	7.9	7.8
Total Ammonia-N	mg/L		0.26	0.55	7.31	3.07	1.79	0.50	0.58	0.76	0.53	0.64	0.34	0.53	0.61
Total Dissolved Solids	mg/L	500	1090			1000	970	955	980	1020	962	974	988	1110	1170
Total Kjeldahl Nitrogen (TKN)	mg/L		0.34	0.71	8.26	4	2.1	<4	<4	1.2	0.8	2	<0.7	0.9	1.0
Ion Percentage	%		2.0	3.6	3.2	7.5	1.1	6.3	7.6	2.8	6.7	3.5	0.2	2.8	2.2

Parameter	Units	ODWQS	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11
Date			9-May-13	6-Nov-13	6-May-14	24-Nov-14	12-May-15	12-Nov-15	25-May-16	16-Nov-16	17-May-17	7-Nov-17	8-May-18	12-Nov-18	13-May-19
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	390	410	400	400	400	380	400	400	410	420		420	410
Conductivity	umho/cm		1600	1500	1600	1600	1200	1600	1600	1600	1700	1600	1800	1600	1600
Dissolved Barium (Ba)	mg/L	1*	0.019	0.018	0.0	0.019	0.02	0.017	0.018	0.024	0.023	0.018	0.023	0.021	0.021
Dissolved Boron (B)	mg/L	5.0*	0.61	0.64	0.6	0.67	0.59	0.63	0.60	0.62	0.47	0.53	0.56	0.46	0.5
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		110	110	120	120	120	110	120	120	140	120	160	150	150
Dissolved Chloride (Cl)	mg/L	250**	34	33	33	34	33	32	38	35	41	37	38	34	33
Dissolved Iron (Fe)	mg/L	0.3**	1.4	1	1.0	0.69	0.37	<0.10	0.10	0.40	0.70	0.2	0.4	0.7	1.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		110	110	120	120	130	120	120	120	110	110	130	110	110
Dissolved Organic Carbon	mg/L	5**	3.0	2.6	2.5	3.1	2.6	2.7	2.8	2.7	2.6	3.4	2.8	3.1	3
Dissolved Potassium (K)	mg/L		2.8	2.8	2.8	3.3	3.3	3.1	3.3	3.8	3.9	4	4.3	4.1	4.2
Dissolved Sodium (Na)	mg/L	200**	90	89	89	88	89	89	83	80	63	73	66	57	57
Dissolved Sulphate (SO4)	mg/L	500**	430	410	420	430	440	440	460	410	470	430	450	430	430
Nitrate (N)	mg/L	10.0*	0.30	0.30	0.6	0.5	0.35	0.90	0.24	<0.10	0.60	<0.10	0.52	<0.10	0.23
pH	(pH units)	6.5-8.5	8.0	7.3	8.0	8.0	7.9	7.9	7.9	7.8	7.9	7.9	7.9	7.8	7.9
Total Ammonia-N	mg/L		0.83	0.82	0.6	0.82	0.84	0.69	0.98	2.42	0.84	1.73	0.97	1.03	0.78
Total Dissolved Solids	mg/L	500	1100	1040	1080	1090	1180	1080	1220	1130	1210	1120	1230	1100	1130
Total Kjeldahl Nitrogen (TKN)	mg/L		1.1	1.1	1.0	1.5	1	0.8	1.1	2.6	1	1.8	1.2	1	1.1
Ion Percentage	%		6.5	6.7	10.0	9.2	10.8	8.5	6.5	9.6	3.4	4.2		6.6	7.2

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11
Date			7-Nov-19	6-May-20	3-Nov-20	18-May-21	2-Nov-21	3-May-22	1-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	420	410	410	400	420	410	420
Conductivity	umho/cm		1500	1500	1500	1500	1500	1500	1500
Dissolved Barium (Ba)	mg/L	1*	0.0	0.0	0.018	0.019	0.022	0.019	0.019
Dissolved Boron (B)	mg/L	5.0*	0.5	0.5	0.56	0.51	0.53	0.47	0.58
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		140	150	140	140	150	150	140
Dissolved Chloride (Cl)	mg/L	250**	33	32	32	24	31	30	25
Dissolved Iron (Fe)	mg/L	0.3**	0.4	0.6	0.2	0.7	3.0	0.8	0.3
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		110	110	100	100	100	110	100
Dissolved Organic Carbon	mg/L	5**	2.8	2.8	3.2	2.8	2.8	2.8	2.8
Dissolved Potassium (K)	mg/L		4.3	4.6	4.3	4.5	4.3	4.3	4.4
Dissolved Sodium (Na)	mg/L	200**	59	56	57	53	54	53	57
Dissolved Sulphate (SO4)	mg/L	500**	390	410	400	410	410	430	430
Nitrate (N)	mg/L	10.0*	<0.10	0.3	0.43	0.14	<0.10	0.26	0.1
pH	(pH units)	6.5-8.5	7.8	7.9	7.8	8.1	8.0	7.9	7.9
Total Ammonia-N	mg/L		0.6	0.5	0.37	0.652	1.01	0.43	0.62
Total Dissolved Solids	mg/L	500	1030	1070	1050	1010	1010	1070	980
Total Kjeldahl Nitrogen (TKN)	mg/L		1.0	0.7	<0.7	0.8	1.3	<0.7	0.7
Ion Percentage	%		8.2	8.5	5.7	5.8	5.6	7.0	3.8

Parameter	Units	ODWQS	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5
Date			22-May-02	13-Jun-02	6-Nov-02	15-May-03	13-Nov-03	26-May-04	27-Nov-04	13-May-05	8-Dec-05	18-May-06	24-Nov-06	4-May-07	16-Nov-07
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	422	422	430	391	394	403	394	397	412	378	384	394	
Dissolved Boron (B)	mg/L	5.0*	0.14	0.24	0.11	0.09	0.12	0.08	0.08	0.06	0.08	0.06	0.09	0.07	
Dissolved Calcium (Ca)	mg/L		90	90	101	81	86	81	87	81	95	66	87	84	
Dissolved Chloride (Cl)	mg/L	250**	10	11	9	9	8	8	7	8	12	7	8	7	
Dissolved Iron (Fe)	mg/L	0.3**	0.03	<0.01	0.32	0.01	0.09	0.01	0.32	<0.01	0.03	<0.03	0.17	<0.03	
Dissolved Magnesium (Mg)	mg/L		65	64	64	68	67	66	69	62	66	52	62	64	
Dissolved Organic Carbon	mg/L	5**	3.3	3.2	3.1	2.4	1.9	2.2	2.3	1.9	2.5	2.4	2.0	2.4	
Dissolved Potassium (K)	mg/L		3	3	4	2	3	3	2	2	3	2	2	2	DRY
Dissolved Sodium (Na)	mg/L	200**	53	45	33	41	41	50	46	43	34	32	34	40	
Dissolved Sulphate (SO4)	mg/L	500**	171	181	153	214	165	174	154	142	175	124	148	138	
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.23	<0.10	<0.10	
Nitrite (N)	mg/L	1.0*													
NO3+NO2	mg/L	10.0*													
Total Ammonia-N	mg/L		0.04	0.03	<0.02	<0.02	<0.02	0.02	<0.02	0.16	0.03	<0.02	<0.02	<0.02	
Total Kjeldahl Nitrogen (TKN)	mg/L		0.32	0.20	0.38	0.06	0.14	0.17	<0.05	0.15	0.10	0.05	0.09	0.16	
Ion Percentage	%		6.9	4.0	6.7	2.0	7.6	6.2	10.6	7.2	4.9	0.8	7.2	8.8	

Parameter	Units	ODWQS	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5
Date			22-May-08	5-Nov-08	16-May-09	18-Nov-09	20-May-10	22-Nov-10	23-Dec-10	12-May-11	3-Nov-11	15-May-12	8-Nov-12	3-Dec-12	13-May-13
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	409	431	421	413	429		367	387	411	440			370
Conductivity	umho/cm		980	1020	998	997	1040		968	999	1020	1000			980
Dissolved Barium (Ba)	mg/L	1*	0.038	0.039	0.035	0.035	0.035		0.037	0.036	0.035	0.034			0.034
Dissolved Boron (B)	mg/L	5.0*	0.06	0.08	0.08	0.08	0.07		0.07	0.07	0.08	0.08			0.06
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001			<0.0001
Dissolved Calcium (Ca)	mg/L		85	79	86	88	82		84	87	91	83			87
Dissolved Chloride (Cl)	mg/L	250**	7	8	7	8	9		7	8	8	7			8
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	3.9	<0.1	1.5	<0.1		<0.1	<0.1	0.1	<0.10			<0.10
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005			<0.0005
Dissolved Magnesium (Mg)	mg/L		67	60	75	72	69	DRY	71	68	69	70	DRY	DRY	70
Dissolved Organic Carbon	mg/L	5**	2.3	2.3	3.4	2.8	2.1		2.8	2.8	3	2.6			9.5
Dissolved Potassium (K)	mg/L		2.4	2.3	2.2	2.4	1.9		2.4	2.1	2.6	2			2.3
Dissolved Sodium (Na)	mg/L	200**	46	46	51	51	51		48	41	47	49			41
Dissolved Sulphate (SO4)	mg/L	500**	158	146	150	150	160		140	160	150	150			160
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.1	0.1	<0.1		<0.1	<0.1	<0.1	<0.10			<0.10
pH	(pH units)	6.5-8.5	8.3	8	8.1	7.9	8.2		7.9	8.2	7.8	7.9			7.9
Total Ammonia-N	mg/L		<0.15	0.19	<0.15	<0.15	<0.15		<0.15	<0.15	<0.15	<0.15			<0.15
Total Dissolved Solids	mg/L	500	641	645	640	660	646		636	616	628	604			620
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7		<0.7	<0.7	<0.7	<0.7			<0.7
Ion Percentage	%		7.9	3.4	11.5	11.4	6.8		14.8	2.0	3.2	0.4			4.4

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5
Date			5-Nov-13	6-May-14	24-Nov-14	13-May-15	12-Nov-15	25-May-16	16-May-17	8-Nov-17	8-May-18	14-Nov-18	14-May-19	5-Nov-19	7-May-20
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	410	420	440	430	430	420	420	460	470	460	460	460	470
Conductivity	umho/cm		1000	1000	1000	1000	1000	1000	1100	1100	1200	1100	1100	1100	1100
Dissolved Barium (Ba)	mg/L	1*	0.036	0.0	0.033	0.035	0.037	0.033	0.032	0.034	0.038	0.035	0.035	0.035	0.032
Dissolved Boron (B)	mg/L	5.0*	0.089	0.1	0.08	0.04	0.09	0.07	0.07	0.09	0.08	0.09	0.07	0.09	0.08
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		94	83	80	77	90	81	79	91	91	98	97	95	98
Dissolved Chloride (Cl)	mg/L	250**	7	8	8	8	8.1	7.4	7.8	8.1	8	8	8.5	7.8	8.6
Dissolved Iron (Fe)	mg/L	0.3**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	0.1	<0.1	0.4	<0.1	0.2	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		77	72	70	68	77	70	69	73	77	78	79	74	77
Dissolved Organic Carbon	mg/L	5**	6.1	4.8	4.2	2.4	3.3	2.5	2.9	3.3	2.8	3	2.7	4.8	2.7
Dissolved Potassium (K)	mg/L		2.7	1.8	2.2	1.7	2.3	2.0	1.9	2.2	1.8	2.3	1.7	2.4	2.0
Dissolved Sodium (Na)	mg/L	200**	45	50.0	47	45	50	41	40	40	43	41	42	35	38
Dissolved Sulphate (SO4)	mg/L	500**	160	150	150	150	160	160	180	170	180	190	180	180	180
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.0	8.0	8.1	8.1	7.9	8.0	8.0	7.9	8.0	7.8	7.9	7.8	8.0
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	588	576	598	618	634	656	602	690	580	660	650	660	660
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		12.5	9.7	6.3	5.3	10.9	6.0	3.0	4.9	5.1	6.3	7.3	4.3	5.6

Parameter	Units	ODWQS	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5
Date			4-Nov-20	20-May-21	2-Nov-21	4-May-22	2-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	460	470	470	480	480
Conductivity	umho/cm		1100	1100	1100	1100	1100
Dissolved Barium (Ba)	mg/L	1*	0.033	0.034	0.034	0.035	0.037
Dissolved Boron (B)	mg/L	5.0*	0.09	0.08	0.09	0.08	0.1
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		100	100	100	110	110
Dissolved Chloride (Cl)	mg/L	250**	8.6	9.1	8.5	9.9	9.8
Dissolved Iron (Fe)	mg/L	0.3**	0.2	<0.1	0.2	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		82	84	79	85	81
Dissolved Organic Carbon	mg/L	5**	3	2.8	2.6	2.6	2.9
Dissolved Potassium (K)	mg/L		2.5	2.1	2.5	1.9	2.6
Dissolved Sodium (Na)	mg/L	200**	38	39	36	39	36
Dissolved Sulphate (SO4)	mg/L	500**	180	180	180	180	180
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.9	8.0	8.0	8.0	7.75
Total Ammonia-N	mg/L		<0.15	<0.050	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	660	615	655	590	590
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.1	<0.7	<0.7	<0.7
Ion Percentage	%		8.2	8.2	6.3	9.5	7.9

Parameter	Units	ODWQS	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5
Date			23-May-02	13-Jun-02	6-Nov-02	15-May-03	13-Nov-03	26-May-04	27-Nov-04	13-May-05	29-Nov-05	19-May-06	24-Nov-06	5-May-07	16-Nov-07
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as CaCO3)	mg/L	30-500***	461	468	517	467	509	509	594	554	558	519	562	540	599
Dissolved Boron (B)	mg/L	5.0*	1.25	1.15	0.96	0.96	0.98	0.71	0.79	0.93	1	1	1	1	1
Dissolved Chloride (Cl)	mg/L	250**	9	9	9	8	7	8	8	9	9	8	8	10	8
Dissolved Sulphate (SO4)	mg/L	500**	3840	5100	3870		3630	3690	4570	3700	3520	3500	3770	3540	3730
Dissolved Calcium (Ca)	mg/L		444	441	412	531	451	447	546	452	440	455	451	493	477
Dissolved Magnesium (Mg)	mg/L		641	574	603	660	689	622	790	654	616	618	651	680	678
Dissolved Potassium (K)	mg/L		8	8	15	7	14	10	9	7	7	6	7	7	7
Dissolved Sodium (Na)	mg/L	200**	322	348	327	328	297	288	384	298	284	251	286	291	331
Dissolved Iron (Fe)	mg/L	0.3**	2.14	1.55	6.20	1.85	5.67	2.23	3.73	1.26	3.12	1.66	3.17	0.7	3.98
Total Ammonia-N	mg/L		0.19	0.16	0.11	0.12	0.19	0.29	0.08	0.13	0.12	0.08	0.15	0.13	0.14
Total Kjeldahl Nitrogen (TKN)	mg/L		0.45	0.29	0.30	0.33	0.24	0.82	0.23	0.23	0.28	0.66	0.20	0.57	0.29
Nitrite (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate (N)	mg/L	10.0*													
NO3+NO2	mg/L	5**	6.0	4.7	3.1	3.4	1.9	3.6	2.7	2.7	3.0	3.2	2.3	2.6	3.1
Dissolved Organic Carbon	mg/L	5.0*	1.25	1.15	0.96	0.96	0.98	0.71	0.79	0.93	1.00	0.68	1.29	1.0	0.91
Ion Percentage	%		0.3	15.3	3.0		4.3	0.1	1.5	1.4	1.1	1.4	0.0	5.6	3.1

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5
Date			22-May-08	5-Nov-08	16-May-09	11-Jun-09	19-Nov-09	19-May-10	23-Nov-10	10-May-11	2-Nov-11	10-May-12	6-Nov-12	13-May-13	5-Nov-13
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	520	552	556	571	657	648	665	626	674	670	670	610	680
Conductivity	umho/cm		5680	5680	5650	5710	5900	5880	6000	5820	5870	5900	5900	5700	5800
Dissolved Barium (Ba)	mg/L	1*	0.009	0.01	<0.03	0.009	0.01	<0.05	0.010	0.008	0.01	0.008	<0.03	0.008	0.0086
Dissolved Boron (B)	mg/L	5.0*	1	1	1.1	1	1.1	0.9	1.0	0.87	1.0	0.94	1.1	0.76	1.1
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.00010
Dissolved Calcium (Ca)	mg/L		480	460	490	470	480	460	460	470	500	470	430	470	490
Dissolved Chloride (Cl)	mg/L	250**	8	9	9	9	9	9	9	9	9	9	8	9	9
Dissolved Iron (Fe)	mg/L	0.3**	0.7	3.4	1.7	2.2	2.7	2.0	2.7	0.3	3.5	2.0	4.4	0.54	<0.10
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.003	<0.0005	<0.0005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.003	<0.0005	<0.00050
Dissolved Magnesium (Mg)	mg/L		630	580	700	590	670	700	710	660	710	750	630	740	640
Dissolved Organic Carbon	mg/L	5**	1.7	2.3	2.9	2.6	2.0	1.6	2.1	2.1	2.1	1.7	2.0	2.2	9.3
Dissolved Potassium (K)	mg/L		7.4	7.3	7.3	7.4	7.5	6	6.9	6.5	8.3	6.8	6.4	6.2	7.6
Dissolved Sodium (Na)	mg/L	200**	320	270	310	310	340	310	300	320	330	320	280	260	320
Dissolved Sulphate (SO4)	mg/L	500**	3820	3830	3700	3700	3900	3900	3800	3800	3700	3700	3600	3700	3600
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.7	7.7	7.7	7.7	7.6	7.6	7.4	7.8	7.3	7.4	7.2	7.4	7.1
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.15
Total Dissolved Solids	mg/L	500	3520	3800	3550	3440	3700	3610	3520	3440	4900	6030	6460	5990	5950
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		0.5	4.2	4.7	1.0	0.6	0.7	2.0	0.6	3.3	4.1	2.2	2.9	0.8

Parameter	Units	ODWQS	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5
Date			6-May-14	24-Nov-14	17-Dec-14	12-May-15	18-Jun-15	12-Nov-15	27-May-16	16-Nov-16	19-May-17	8-Nov-17	10-May-18	13-Nov-18	14-May-19
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	630	660	630	660	650	620	590	630	600	650	690	680	670
Conductivity	umho/cm		5000	5600	5600	4000	4600	5300	5400	5500	5600	5600	5800	5300	5600
Dissolved Barium (Ba)	mg/L	1*	0.008	0.011	0.011	0.009	0.009	0.010	0.008	0.008	0.007	0.009	<0.03	0.009	0.008
Dissolved Boron (B)	mg/L	5.0*	0.98	1.2	1.3	1.1	1.0	1	1.1	1.1	1.1	1.1	1	1.1	0.91
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		480	450	480	490	460	470	440	450	450	470	480	490	500
Dissolved Chloride (Cl)	mg/L	250**	9	9	10	10	12	11	10	11	10	11	10	11	11
Dissolved Iron (Fe)	mg/L	0.3**	8.2	4.1	6.1	1.9	7.3	6.9	4.0	3.3	2.2	5.1	4.6	4.3	4.4
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.003	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		690	620	610	690	600	560	570	580	580	580	620	630	680
Dissolved Organic Carbon	mg/L	5**	2.8	3.4	2.5	8.2	3	2.7	2.4	2.5	2.2	2.3	2.3	2.5	2.4
Dissolved Potassium (K)	mg/L		6.2	6.8	7.0	7.4	6.0	6.6	6.2	6.7	6.6	6.7	6	6.8	6.1
Dissolved Sodium (Na)	mg/L	200**	290	270	290	320	270	270	260	290	270	280	280	290	290
Dissolved Sulphate (SO4)	mg/L	500**	3100	3500	3600	3100	2900	3300	3400	3400	3600	3400	3500	3600	3600
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.6	7.6	7.5	7.7	7.6	7.4	7.5	7.5	7.4	7.5	7.5	7.4	7.4
Total Ammonia-N	mg/L		<0.15	0.19	0.2	<0.15	0.22	0.29	0.21	0.27	0.16	0.21	0.2	0.33	0.19
Total Dissolved Solids	mg/L	500	5330	5770	5820	5390	5320	5350	5570	5520	5650	5690	5550	5730	6150
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.9	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		10.5	0.5	0.4	11.2	7.9	1.0	0.6	0.6	2.2	0.7	1.3	1.1	3.8

Parameter	Units	ODWQS	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5
Date			5-Nov-19	8-May-20	3-Nov-20	20-May-21	3-Nov-21	5-May-22	2-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	700	730	720	690	720	710	720
Conductivity	umho/cm		5700	5800	5800	5800	5800	5800	5800
Dissolved Barium (Ba)	mg/L	1*	0.009	<0.03	0.009	<0.03	0.009	0.007	0.009
Dissolved Boron (B)	mg/L	5.0*	0.83	0.9	1.1	1.0	0.9	0.94	1.1
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0005	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		450	450	460	460	470	500	460
Dissolved Chloride (Cl)	mg/L	250**	10	11	11	11	11	12	11
Dissolved Iron (Fe)	mg/L	0.3**	2.2	3.1	3.2	3.5	3.4	3.3	3.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		620	630	620	660	640	640	650
Dissolved Organic Carbon	mg/L	5**	2.8	2.6	2.8	2.3	2.7	2.8	3
Dissolved Potassium (K)	mg/L		6.2	6.0	6.8	6.0	6.7	5.9	6.6
Dissolved Sodium (Na)	mg/L	200**	270	280	290	290	290	300	290
Dissolved Sulphate (SO4)	mg/L	500**	3100	3300	3600	3800	3700	3500	3700
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.3	7.5	7.4	7.5	7.7	7.7	7.36
Total Ammonia-N	mg/L		0.36	0.15	0.16	0.162	0.15	<0.15	0.17
Total Dissolved Solids	mg/L	500	5690	5590	6160	5440	5430	5780	4950
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.3	0.9	0.9	0.9
Ion Percentage	%		5.3	3.0	0.5	0.8	0.5	3.0	0.3

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW70-5	OW70-5	OW70-5	OW70-5	OW70-5	OW70-5	OW70-5	OW70-5	OW70-5	OW70-5	OW70-5	OW70-5	OW70A-5
Date			22-May-02	13-Jun-02	7-Nov-02	14-May-03	13-Nov-03	26-May-04	27-Nov-04	13-May-05	29-Nov-05	19-May-06	24-Nov-06	4-May-07	15-Nov-07
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	
Alkalinity (Total as CaCO3)	mg/L	30-500***	533	532	549	563	564	569	565	574	573	579	564	571	
Dissolved Boron (B)	mg/L	5.0*	0.64	0.72	0.38	0.31	0.47	0.29	0.41	0.58	0.40	0.37	0.57	0.42	
Dissolved Calcium (Ca)	mg/L		230	228	180	213	209	234	265	269	241	199	217	239	
Dissolved Chloride (Cl)	mg/L	250**	5	6	6	6	3	5	5	5	5	6	5	5	
Dissolved Iron (Fe)	mg/L	0.3**	1.32	<0.01	0.74	0.25	1.79	1.68	1.7	1.8	0.49	0.93	1.37	0.66	
Dissolved Magnesium (Mg)	mg/L		383	358	257	320	349	319	268	343	315	321	318	320	
Dissolved Organic Carbon	mg/L	5**	4.8	3.7	3.1	3.3	2.5	2.3	2.9	2.4	2.8	2.8	2.6	3.1	
Dissolved Potassium (K)	mg/L		6	6	7	5	8	6	5	5	5	4	5	4	
Dissolved Sodium (Na)	mg/L	200**	143	129	120	111	123	129	123	126	113	103	114	111	
Dissolved Sulphate (SO4)	mg/L	500**	1660	1630	1220	1900	1460	1480	1510	1500	1590	1510	1570	1430	
Nitrate (N)	mg/L	10.0*	<0.10	0.04	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Nitrite (N)	mg/L	1.0*													
NO3+NO2	mg/L	10.0*													
Total Ammonia-N	mg/L		0.08	0.04	0.03	0.07	0.08	0.05	0.02	0.20	<0.02	<0.02	0.02	0.03	
Total Kjeldahl Nitrogen (TKN)	mg/L		0.24	0.13	0.17	<0.05	1.96	0.13	0.07	0.26	0.20	0.20	0.10	<0.05	
Ion Percentage	%		6.1	4.0	1.2	8.0	5.7	3.9	0.3	7.2	0.2	0.4	0.2	4.6	

COMPROMISED DURING CONSTRUCTION ACTIVITIES

Parameter	Units	ODWQS	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5
Date			22-May-08	5-Nov-08	14-May-09	19-Nov-09	20-May-10	17-Nov-10	12-May-11	2-Nov-11	9-May-12	6-Nov-12	9-May-13	6-Nov-13	6-May-14
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***			498	547	542	552	566	573	590	590	590	610	600
Conductivity	umho/cm				2750	2620	2470	2310	2250	2130	2200	2200	2100	2100	2100
Dissolved Barium (Ba)	mg/L	1*			0.020	0.020	0.016	0.019	0.017	0.019	0.016	0.017	0.014	0.016	0.013
Dissolved Boron (B)	mg/L	5.0*			0.70	0.66	0.56	0.50	0.52	0.58	0.46	0.54	0.40	0.55	0.49
Dissolved Cadmium (Cd)	mg/L	0.005*			<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001
Dissolved Calcium (Ca)	mg/L				190	160	160	130	140	140	130	130	120	130	130
Dissolved Chloride (Cl)	mg/L	250**			7	6	6	6	5	6	5	5	5	6	5
Dissolved Iron (Fe)	mg/L	0.3**			1.6	1.8	<0.1	<0.1	1.0	1.9	0.3	2.6	<0.10	3.5	2.1
Dissolved Lead (Pb)	mg/L	0.01*			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005
Dissolved Magnesium (Mg)	mg/L		DRY	DRY	280	280	270	230	240	210	240	220	220	220	230
Dissolved Organic Carbon	mg/L	5**			7.4	5.9	3.4	3.4	3.1	3.5	2.9	2.8	3.8	3	3.3
Dissolved Potassium (K)	mg/L				8.3	8.2	6.9	6.4	6.0	5.8	5.6	5.7	4.9	5.5	5
Dissolved Sodium (Na)	mg/L	200**			100	100	98	85	87	81	93	87	82	89	92
Dissolved Sulphate (SO4)	mg/L	500**			1300	1200	1000	840	780	700	740	670	740	660	690
Nitrate (N)	mg/L	10.0*			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5			7.8	7.8	8.1	7.7	8.1	7.2	7.9	7.5	8.0	7.3	8.0
Total Ammonia-N	mg/L				<0.15	0.2	<0.15	<0.15	<0.15	<0.15	<0.15	0.18	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500			1750	1700	1590	1440	1340	1470	1660	1650	1650	1620	1550
Total Kjeldahl Nitrogen (TKN)	mg/L				<4	<7	2.0	<0.7	<0.7	<0.7	<0.7	0.8	<0.7	<0.7	<0.7
Ion Percentage	%				2.1	1.9	7.3	4.6	8.9	7.4	9.4	9.2	4.9	9.0	9.7

Parameter	Units	ODWQS	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5
Date			19-Nov-14	12-May-15	12-Nov-15	25-May-16	14-Nov-16	17-May-17	8-Nov-17	8-May-18	12-Nov-18	13-May-19	7-Nov-19	6-May-20	4-Nov-20
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	610	590	600	600	620	600	630	620	610	590	620	610	610
Conductivity	umho/cm		2200	1600	2100	2100	2200	2100	2100	2200	2000	2100	2100	2100	2000
Dissolved Barium (Ba)	mg/L	1*	0.013	0.013	0.014	0.013	0.012	0.011	0.012	0.012	0.014	0.011	0.013	0.01	0.012
Dissolved Boron (B)	mg/L	5.0*	0.47	0.47	0.52	0.53	0.55	0.45	0.5	0.44	0.53	0.42	0.51	0.43	0.51
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		120	130	130	130	120	110	130	120	130	120	130	120	130
Dissolved Chloride (Cl)	mg/L	250**	6	6	5.6	5.9	6.3	6.8	6.3	6.1	6.2	6.3	6.4	6.4	6.8
Dissolved Iron (Fe)	mg/L	0.3**	0.66	1.80	2.10	1.90	2.10	0.50	1.6	<0.1	2.5	0.1	2.5	<0.1	0.8
Dissolved Lead (Pb)	mg/L	0.01*	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		220	220	230	230	220	200	210	200	210	200	210	210	220
Dissolved Organic Carbon	mg/L	5**	3.5	3.0	3.2	2.6	2.7	3.0	2.7	2.8	3	2.8	2.9	2.8	2.9
Dissolved Potassium (K)	mg/L		5.1	5.0	5.5	5.1	5.3	4.6	5.1	4.5	5.1	4.3	5.0	4.4	5.2
Dissolved Sodium (Na)	mg/L	200**	88	90	94	92	90	93	90	88	92	87	90	90	93
Dissolved Sulphate (SO4)	mg/L	500**	730	690	690	670	660	670	620	640	690	640	630	660	650
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.9	8.0	7.7	7.9	7.8	7.8	7.8	7.9	7.8	7.7	7.8	7.8	7.8
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	1690	1550	1640	1570	1550	1580	1430	1470	1480	1500	1500	1480	1540
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		5.1	8.4	9.8	10.5	7.9	4.3	8.7	5.6	6.5	6.5	8.6	6.7	9.7

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW70B-5	OW70B-5	OW70B-5	OW70B-5
Date			18-May-21	2-Nov-21	5-May-22	1-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	600	630	610	650
Conductivity	umho/cm		2100	2000	2100	2000
Dissolved Barium (Ba)	mg/L	1*	0.011	0.012	0.011	0.012
Dissolved Boron (B)	mg/L	5.0*	0.43	0.46	0.42	0.51
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		110	120	120	130
Dissolved Chloride (Cl)	mg/L	250**	7.0	6.4	6.8	7.2
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	0.3	0.1	1.40
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		200	210	210	220
Dissolved Organic Carbon	mg/L	5**	2.7	2.6	2.7	2.7
Dissolved Potassium (K)	mg/L		4.3	4.9	4.1	5.2
Dissolved Sodium (Na)	mg/L	200**	90	88	92	94
Dissolved Sulphate (SO4)	mg/L	500**	620	650	630	590
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.8	7.9	8.0	7.9
Total Ammonia-N	mg/L		<0.050	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	1300	1330	1390	1320
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.1	<0.7	<0.7	<0.7
Ion Percentage	%		6.3	6.3	8.1	11.1

Parameter	Units	ODWQS	OW71-5	OW71-5	OW71-5	OW71-5	OW71-5	OW71-5	OW71-5	OW71-5	OW71-5	OW71-5
Date			21-Jun-04	27-Nov-04	13-May-05	24-Nov-06	5-May-07	16-Nov-07	22-May-08	4-Nov-08	19-May-09	18-Nov-09	17-May-10
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	371	452	467	472	484	469	438	458	350	314	255
Dissolved Chloride (Cl)	mg/L	250**	11	<1	6	9	10	7	13	11	20	22	11
Dissolved Sulphate (SO4)	mg/L	500**	191	122	167	236	252	200	406	351	230	230	120
Dissolved Calcium (Ca)	mg/L		96	89	101	108	117	98	130	110	87	81	58
Dissolved Magnesium (Mg)	mg/L		67	77	78	79	77	75	86	75	50	42	27
Dissolved Potassium (K)	mg/L		7	5	5	4	4	4	4.3	4.6	3.2	3.4	2.2
Dissolved Sodium (Na)	mg/L	200**	30	30	34	57	86	47	82	70	84	85	50
Dissolved Iron (Fe)	mg/L	0.3**	0.29	2.71	<0.01	0.03	<0.03	<0.03	<0.1	0.1	0.1	1.1	0.5
Total Ammonia-N	mg/L		0.08	0.05	<0.02	0.02	0.06	0.04	<0.15	<0.15	<0.15	<0.15	1.00
Total Kjeldahl Nitrogen (TKN)	mg/L		0.64	0.16	0.12	0.09	0.13	<0.10	<0.7	<0.7	<4	<4	2.5
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	0.26	<0.10	<0.1	<0.1	<0.1	<0.1	0.7
Dissolved Organic Carbon	mg/L	5**	11.6	3.3	1.8	1.8	2.0	2.4	1.5	1.4	3.1	4.7	3.4
Dissolved Boron (B)	mg/L	5.0*	0.20	0.18	0.24	0.23	0.15	0.20	0.16	0.18	0.13	0.16	0.09
Conductivity	umho/cm								1500	1370	1080	1030	739
Total Dissolved Solids	mg/L	500							932	880	695	675	472
pH	(pH units)	6.5-8.5							8.0	8.0	7.6	8.0	8.2
Dissolved Barium (Ba)	mg/L	1*							0.039	0.034	0.031	0.031	0.024
Dissolved Cadmium (Cd)	mg/L	0.005*							<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Lead (Pb)	mg/L	0.01*							0.00	<0.0005	<0.0005	<0.0005	<0.0005
Ion Percentage	%		6.9	10.8	7.8	6.2	9.0	5.1	3.9	0.8	5.0	3.5	96.2

Parameter	Units	ODWQS	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5
Date			12-May-11	2-Nov-11	9-May-12	6-Nov-12	9-May-13	6-Nov-13	6-May-14	24-Nov-14	12-May-15	12-Nov-15	25-May-16	16-Nov-16	17-May-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	407	412	450	450	440	460	440	440	430	440	420	430	430
Conductivity	umho/cm		1130	998	1100	1000	1100	1100	1100	1100	870	1100	1100	1100	1200
Dissolved Barium (Ba)	mg/L	1*	0.044	0.066	0.083	0.092	0.093	0.096	0.094	0.092	0.095	0.095	0.091	0.100	0.087
Dissolved Boron (B)	mg/L	5.0*	0.14	0.17	0.13	0.16	0.12	0.13	0.12	0.16	0.13	0.14	0.15	0.15	0.12
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		100	100	95	90	97	97	100	93	100	99	95	100	99
Dissolved Chloride (Cl)	mg/L	250**	11	11	10	10	11	14	14	16	17	16	19	20	22
Dissolved Iron (Fe)	mg/L	0.3**	0.1	0.9	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		73	81	79	68	76	73	78	74	77	75	77	81	76
Dissolved Organic Carbon	mg/L	5**	3.9	3.3	2.3	2.4	3.0	2.5	2	3.1	3.6	2.3	2.3	2.5	2.4
Dissolved Potassium (K)	mg/L		4.7	4.5	3.5	3.3	2.8	3.1	2.6	2.9	2.7	2.9	2.6	3.0	2.4
Dissolved Sodium (Na)	mg/L	200**	51	46	38	31	29	42	42	38	39	35	37	42	35
Dissolved Sulphate (SO4)	mg/L	500**	210	140	130	110	160	170	180	170	180	170	190	180	210
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.0	7.1	7.9	7.6	8.0	7.2	8.0	7.9	7.9	7.8	7.9	7.9	7.9
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	690	680	578	652	666	648	486	640	688	652	716	656	698
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		8.4	16.5	11.8	8.0	7.3	5.8	8.4	5.8	8.0	6.8	6.2	9.3	3.4

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5
Date			7-Nov-17	9-May-18	12-Nov-18	13-May-19	7-Nov-19	6-May-20	3-Nov-20	19-May-21	2-Nov-21	5-May-22	1-Nov-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	440	430	450	430	470	440	460	430	460	430	480
Conductivity	umho/cm		1200	1200	1100	1200	1200	1300	1300	1300	1300	1300	1300
Dissolved Barium (Ba)	mg/L	1*	0.09	0.082	0.096	0.099	0.099	0.084	0.087	0.087	0.086	0.073	0.076
Dissolved Boron (B)	mg/L	5.0*	0.14	0.12	0.15	0.11	0.14	0.12	0.16	0.12	0.14	0.12	0.13
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		100	100	110	110	110	110	120	120	120	130	120
Dissolved Chloride (Cl)	mg/L	250**	22	24	26	27	26	27	28	29	29	30	32
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	0.2	4.5	0.1	1.6	0.1	3.5	0.3	1.7	0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		79	74	80	84	84	88	88	92	92	95	91
Dissolved Organic Carbon	mg/L	5**	2.5	2.8	3.6	2.9	4.9	3.0	4.4	3.3	3.2	3.6	3.8
Dissolved Potassium (K)	mg/L		2.7	2.4	3	2.3	2.9	2.5	2.8	2.6	2.9	2.7	2.7
Dissolved Sodium (Na)	mg/L	200**	38	37	39	35	39	36	37	40	41	41	39
Dissolved Sulphate (SO4)	mg/L	500**	190	210	210	230	190	240	230	280	270	300	270
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.8	7.9	7.8	7.9	7.7	7.8	7.7	7.8	8.0	8.1	7.9
Total Ammonia-N	mg/L		<0.15	<0.15	0.74	0.15	1.46	0.20	1.33	0.25	0.68	<0.15	0.98
Total Dissolved Solids	mg/L	500	690	675	675	750	745	775	830	730	805	810	665
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	0.8	<0.7	2.1	<0.7	2.1	0.4	1.0	<0.7	1.1
Ion Percentage	%		6.2	3.1	5.6	5.6	7.2	5.5	6.8	6.1	5.3	7.0	3.3

Parameter	Units	ODWQS	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6
Date			8-Dec-05	19-May-06	24-Nov-06	5-May-07	16-Nov-07	22-May-08	5-Nov-08	16-May-09	19-Nov-09	20-May-10	22-Nov-10	10-May-11	2-Nov-11
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	345	426	350	491	518	521	517	525	536	522	530	519	503
Conductivity	umho/cm							2960	2940	2930	2940	2910	2920	2890	2840
Dissolved Barium (Ba)	mg/L	1*						0.007	0.008	0.008	0.008	0.008	0.008	0.008	0.009
Dissolved Boron (B)	mg/L	5.0*	0.45	0.42	0.73	0.65	0.67	0.68	0.65	0.65	0.69	0.68	0.66	0.59	0.74
Dissolved Cadmium (Cd)	mg/L	0.005*						<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		272	264	239	268	234	220	220	220	220	220	210	210	200
Dissolved Chloride (Cl)	mg/L	250**	10	5	5	4	4	4	4	4	4	5	4	4	5
Dissolved Iron (Fe)	mg/L	0.3**	0.02	0.85	3.60	3.53	3.07	0.5	2.1	<0.1	0.5	0.5	1.1	0.3	0.6
Dissolved Lead (Pb)	mg/L	0.01*						0.00	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		344	325	294	322	312	300	280	330	320	330	310	310	270
Dissolved Organic Carbon	mg/L	5**	6.0	6.6	6.4	5.7	5.2	3.9	3.8	4.5	4.1	3.7	4.2	3.7	4.5
Dissolved Potassium (K)	mg/L		12	8	6	6	6	5.8	5.9	5.7	5.8	5.8	5.7	5.4	5.3
Dissolved Sodium (Na)	mg/L	200**	123	115	110	114	108	110	110	120	120	120	120	120	100
Dissolved Sulphate (SO4)	mg/L	500**	1800	1720	1760	1590	1500	1480	1480	1400	1500	1400	1300	1300	1300
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1
pH	(pH units)	6.5-8.5						8.1	7.9	7.9	7.7	8.1	7.7	8.0	7.1
Total Ammonia-N	mg/L		0.16	0.05	0.09	0.08	0.06	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500						1720	1900	1860	1880	1850	1810	1770	1880
Total Kjeldahl Nitrogen (TKN)	mg/L		0.27	0.24	0.38	0.24	<0.10	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		4.2	2.2	2.1	4.1	2.7	1.2	0.8	6.7	2.9	6.7	6.9	7.2	1.5

Parameter	Units	ODWQS	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6
Date			9-May-12	6-Nov-12	10-May-13	6-Nov-13	6-May-14	24-Nov-14	12-May-15	12-Nov-15	26-May-16	16-Nov-16	18-May-17	7-Nov-17	9-May-18
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	530	540	530	550	540	570	540	550	560	570	560	580	570
Conductivity	umho/cm		2900	2900	2800	2800	2900	3000	2200	2800	2900	2900	2900	2600	3000
Dissolved Barium (Ba)	mg/L	1*	0.01	0.009	0.009	0.008	0.009	0.008	0.009	0.01	0.009	0.009	0.009	0.01	0.009
Dissolved Boron (B)	mg/L	5.0*	0.71	0.69	0.72	0.71	0.66	0.69	0.66	0.71	0.69	0.73	0.7	0.69	0.73
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		210	210	210	210	210	190	200	210	210	200	200	210	210
Dissolved Chloride (Cl)	mg/L	250**	4	4	4	5	4	5	4	4.6	4.8	5.1	4.9	4.7	4.6
Dissolved Iron (Fe)	mg/L	0.3**	0.74	0.70	0.40	0.28	0.23	<0.10	0.24	0.29	0.30	0.30	0.30	3.1	1.2
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		330	290	300	300	300	290	300	310	310	310	280	290	320
Dissolved Organic Carbon	mg/L	5**	3.9	4.0	4.8	4	4.2	5.3	5.6	4.2	4.2	3.8	3.7	4.2	3.9
Dissolved Potassium (K)	mg/L		5.7	5.4	5.2	5.4	4.8	4.9	5.2	5.4	5.3	5.2	4.9	5.3	5.1
Dissolved Sodium (Na)	mg/L	200**	120	110	110	110	110	100	110	120	120	120	110	110	120
Dissolved Sulphate (SO4)	mg/L	500**	1300	1200	1300	1300	1200	1300	1200	1300	1300	1300	1300	1300	1300
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.8	7.5	7.9	7.0	7.9	7.9	7.9	7.6	7.9	7.7	7.7	7.7	7.8
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	2420	2590	2470	2410	2480	2480	2690	2420	2470	2610	2460	2290	2390
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		8.9	7.1	5.4	4.9	8.1	1.5	7.5	6.4	6.2	5.4	1.9	3.2	7.0

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6
Date			12-Nov-18	14-May-19	7-Nov-19	8-May-20	3-Nov-20	21-May-21	2-Nov-21	5-May-22	1-Nov-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	560	540	560	560	560	550	560	620	570
Conductivity	umho/cm		2700	2800	2900	3000	2800	2900	2700	2100	2800
Dissolved Barium (Ba)	mg/L	1*	0.009	0.008	0.009	0.007	0.01	0.007	0.009	0.011	0.008
Dissolved Boron (B)	mg/L	5.0*	0.73	0.63	0.71	0.58	0.74	0.62	0.67	0.43	0.7
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		210	210	200	200	200	200	200	110	210
Dissolved Chloride (Cl)	mg/L	250**	4.6	5.1	4.8	4.8	4.7	5.1	4.7	6.5	4.8
Dissolved Iron (Fe)	mg/L	0.3**	1.5	<0.1	0.9	<0.1	0.1	<0.1	<0.1	<0.1	0.2
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		300	290	290	290	280	280	290	200	300
Dissolved Organic Carbon	mg/L	5**	4.1	4	3.8	4.2	3.8	3.7	3.7	3.0	3.9
Dissolved Potassium (K)	mg/L		5.4	4.6	5.1	4.7	4.9	5	5.1	4.4	5.4
Dissolved Sodium (Na)	mg/L	200**	120	110	110	110	110	110	110	87	120
Dissolved Sulphate (SO4)	mg/L	500**	1300	1300	1200	1300	1200	1300	1300	620	1200
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.7	7.8	7.6	7.8	7.7	7.8	7.8	8.1	7.81
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.050	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	2290	2480	2470	2470	2530	2230	2350	1400	2230
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.1	<0.7	<0.7	<0.7
Ion Percentage	%		5.2	4.1	6.0	3.0	4.9	2.1	3.0	5.4	7.9

Parameter	Units	ODWQS	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10
Date			30-Nov-05	19-May-06	24-Nov-06	5-May-07	16-Nov-07	22-May-08	5-Nov-08	19-May-09	18-Nov-09	19-May-10	22-Nov-10	10-May-11	2-Nov-11
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	338	337	331	321	329	326	332	329	331	326	326	326	320
Conductivity	umho/cm							2270	2260	2250	2230	2220	2230	2230	2210
Dissolved Barium (Ba)	mg/L	1*						0.01	0.011	0.01	0.010	0.010	0.010	0.009	0.01
Dissolved Boron (B)	mg/L	5.0*	0.92	0.87	1.23	0.90	1.07	1.1	1.1	1.1	1.1	1.1	1.0	0.93	1.1
Dissolved Cadmium (Cd)	mg/L	0.005*						<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		204	212	200	201	195	190	180	190	190	180	190	180	190
Dissolved Chloride (Cl)	mg/L	250**	7	6	5	6	5	5	5	5	5	5	5	5	6
Dissolved Iron (Fe)	mg/L	0.3**	0.09	0.17	0.43	0.15	5.22	0.7	3.7	0.8	4.1	1.8	1.9	0.6	2.3
Dissolved Lead (Pb)	mg/L	0.01*						<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		187	186	186	186	175	190	170	190	190	170	180	180	190
Dissolved Organic Carbon	mg/L	5**	2.1	1.8	2.3	2.6	1.9	1.2	1.3	2.5	1.8	1.4	1.6	1.2	1.5
Dissolved Potassium (K)	mg/L		7	6	6	6	5	5.1	4.6	5.2	5.0	4.7	4.8	4.8	5.1
Dissolved Sodium (Na)	mg/L	200**	105	108	109	119	107	120	99	120	120	110	120	120	120
Dissolved Sulphate (SO4)	mg/L	500**	1130	1010	1180	1050	1080	1070	1100	1000	1100	1000	980	990	950
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	0.40	0.23	0.3	0.1	0.4	<0.1	0.4	0.1	0.2	0.2
pH	(pH units)	6.5-8.5						8	7.9	7.9	7.8	7.8	7.64	8.01	7.51
Total Ammonia-N	mg/L		0.51	0.47	0.33	0.18	0.48	0.15	0.49	0.18	0.4	<0.15	0.25	<0.15	<0.15
Total Dissolved Solids	mg/L	500						1270	1400	1390	1430	1410	1310	1350	1430
Total Kjeldahl Nitrogen (TKN)	mg/L		0.85	0.78	0.42	0.17	0.88	<4	<4	<4	<4	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		1.5	6.8	0.2	5.6	1.3	4.4	2.2	7.0	3.1	2.7	6.5	5.3	9.2

Parameter	Units	ODWQS	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10
Date			9-May-12	6-Nov-12	10-May-13	6-Nov-13	6-May-14	24-Nov-14	12-May-15	12-Nov-15	26-May-16	16-Nov-16	18-May-17	7-Nov-17	9-May-18
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Maxxam	MAXXAM	Maxxam	Maxxam
Alkalinity (Total as CaCO3)	mg/L	30-500***	320	340	310	340	320	340	330	340	350	350	340	340	
Conductivity	umho/cm		2200	2300	2200	2300	2300	2400	1800	2400	2500	2500	2500	2300	2700
Dissolved Barium (Ba)	mg/L	1*	0.01	0.011	0.011	0.011	0.010	0.014	0.011	0.011	0.010	0.011	0.011	0.01	0.011
Dissolved Boron (B)	mg/L	5.0*	1.1	1.0	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1	1.2
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		180	170	190	180	190	200	190	200	190	200	190	200	210
Dissolved Chloride (Cl)	mg/L	250**	5	5	6	6	5	6	5	6	5.6	5.9	5.6	5.5	5.5
Dissolved Iron (Fe)	mg/L	0.3**	0.98	1.3	2.0	0.6	1.5	0.94	0.7	2.0	2.3	1.9	7.5	1.8	2.7
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.00050	<0.0005	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		180	160	170	180	170	180	180	190	190	200	180	190	230
Dissolved Organic Carbon	mg/L	5**	1.4	1.3	1.7	1.7	2.0	2.2	3.2	1.9	1.7	1.7	1.8	1.7	1.7
Dissolved Potassium (K)	mg/L		4.9	4.8	4.8	5.1	4.7	5	5.3	5.1	5.0	5.2	4.9	4.9	5.1
Dissolved Sodium (Na)	mg/L	200**	120	140	110	140	130	140	150	160	150	160	140	150	160
Dissolved Sulphate (SO4)	mg/L	500**	1000	940	930	1000	940	1100	1000	1100	1100	1100	1200	1100	1200
Nitrate (N)	mg/L	10.0*	0.24	0.21	0.39	0.21	0.43	0.31	0.26	0.36	0.13	0.34	0.39	0.56	0.28
pH	(pH units)	6.5-8.5	7.91	7.65	8.01	7.19	8.03	7.85	7.89	7.75	7.96	7.77	7.83	7.89	7.88
Total Ammonia-N	mg/L		<0.15	<0.15	0.22	0.37	<0.15	0.21	0.22	0.15	0.49	0.37	0.26	0.18	0.42
Total Dissolved Solids	mg/L	500	1940	1940	1870	1840	1830	1900	1950	1950	2060	1980	2020	2020	2080
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.9	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		5.0	4.6	6.9	5.8	7.7	3.7	7.7	6.3	4.6	7.3	0.6	5.7	

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10
Date			12-Nov-18	14-May-19	7-Nov-19	8-May-20	3-Nov-20	18-May-21	2-Nov-21	3-May-22	1-Nov-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	370	340	340	340	330	350	380	340	390
Conductivity	umho/cm		2600	2600	2600	2600	2500	2700	2600	2700	2700
Dissolved Barium (Ba)	mg/L	1*	0.010	0.011	0.010	0.011	0.01	0.01	0.009	0.010	0.01
Dissolved Boron (B)	mg/L	5.0*	1.0	1.1	1.1	1.0	1.2	1.1	1.1	1.2	1.1
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		210	230	210	220	220	230	230	240	240
Dissolved Chloride (Cl)	mg/L	250**	5.6	5.9	5.5	5.2	5.3	6.3	5.3	5.7	5.4
Dissolved Iron (Fe)	mg/L	0.3**	1.6	2.9	0.9	2.5	0.5	2.4	3.5	5.1	3.3
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		200	210	210	220	210	230	220	240	240
Dissolved Organic Carbon	mg/L	5**	1.7	1.9	1.8	3.2	1.9	1.5	1.6	1.5	1.8
Dissolved Potassium (K)	mg/L		5.0	4.8	5.1	5.0	5.3	5.3	5.1	5.1	5.3
Dissolved Sodium (Na)	mg/L	200**	140	150	150	150	150	150	140	150	140
Dissolved Sulphate (SO4)	mg/L	500**	1200	1200	1200	1200	1200	1300	1300	1300	1300
Nitrate (N)	mg/L	10.0*	0.32	0.27	0.38	0.33	0.5	0.34	<0.10	0.38	<0.10
pH	(pH units)	6.5-8.5	7.8	7.7	7.9	7.9	7.7	8.1	8.0	7.8	7.82
Total Ammonia-N	mg/L		0.23	0.47	0.38	0.18	0.44	0.189	0.44	0.46	0.15
Total Dissolved Solids	mg/L	500	2180	2320	2070	2210	2230	1850	2110	2210	1900
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	0.4	0.7	0.9	<0.7
Ion Percentage	%		2.8	6.8	5.4	7.3	6.4	5.5	3.1	7.5	5.8

Parameter	Units	ODWQS	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6
Date			30-Nov-05	19-May-06	24-Nov-06	5-May-07	16-Nov-07	22-May-08	5-Nov-08	16-May-09	11-Jun-09	19-Nov-09	19-May-10	22-Jun-10	22-Nov-10
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	329	499	673	542	482	451	452	416	419	427	402		414
Conductivity	umho/cm							5240	5140	5130	5190	5130	5120		5080
Dissolved Barium (Ba)	mg/L	1*						0.013	0.014	<0.03	0.014	0.012	<0.05		0.011
Dissolved Boron (B)	mg/L	5.0*	0.62	0.50	0.85	1.1	1.00	0.93	0.96	1.1	1	1	0.9		1.0
Dissolved Cadmium (Cd)	mg/L	0.005*						<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.001		<0.0001
Dissolved Calcium (Ca)	mg/L		416	474	446	516	459	470	450	470	470	480	450		440
Dissolved Chloride (Cl)	mg/L	250**	10	8	8	6	6	7	6	6	6	6	6		6
Dissolved Iron (Fe)	mg/L	0.3**	1.44	1.38	1.21	3.3	3.37	0.2	2.4	3.3	3.0	1.0	2.0		1.4
Dissolved Lead (Pb)	mg/L	0.01*						<0.0005	<0.0005	<0.003	<0.0005	<0.0005	<0.005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		371	500	419	526	538	480	540	630	560	580	600		540
Dissolved Organic Carbon	mg/L	5**	7.0	4.0	4.1	3.9	4.0	3	2.9	4.5	4.1	3.4	2.9		3.2
Dissolved Potassium (K)	mg/L		11	9	9	9	9	8.8	8.2	8.9	8.9	8.8	8		7.9
Dissolved Sodium (Na)	mg/L	200**	191	189	563	344	267	320	200	230	230	230	210		190
Dissolved Sulphate (SO4)	mg/L	500**	2810	2980	3340	3190	3320	3430	3510	3300	3500	3500	3500		3200
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	0.1	0.1	0.2	0.1		0.1
pH	(pH units)	6.5-8.5						7.7	7.8	7.6	7.8	7.7	7.8		7.6
Total Ammonia-N	mg/L		0.41	0.27	0.38	0.25	0.32	<0.15	0.22	<0.15	<0.15	<0.15	<0.15		<0.15
Total Dissolved Solids	mg/L	500						3210	3250	3200	3160	3250	3040		1510
Total Kjeldahl Nitrogen (TKN)	mg/L		1.12	0.75	0.53	0.42	0.42	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7		<0.7
Ion Percentage	%		3.9	1.6	0.0	5.1	0.8	1.7	3.5	5.7	0.5	0.7	0.5		0.4

Parameter	Units	ODWQS	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6
Date			10-May-11	2-Nov-11	9-May-12	6-Nov-12	10-May-13	5-Nov-13	6-May-14	24-Nov-14	12-May-15	12-Nov-15	26-May-16	16-Nov-16	18-May-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	393	400	400	400	390	410	400	410	390	400	400	410	400
Conductivity	umho/cm		5040	5020	5100	5000	4900	5000	5000	5200	3900	4900	5100	5100	5200
Dissolved Barium (Ba)	mg/L	1*	0.010	0.011	0.010	<0.03	0.011	0.009	0.0	0.008	0.009	0.009	0.009	0.009	0.009
Dissolved Boron (B)	mg/L	5.0*	0.83	1.1	0.96	1.0	1.1	0.99	1.0	1	0.9	0.96	1.0	1.1	1.0
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		460	480	460	430	490	490	480	430	470	470	460	470	440
Dissolved Chloride (Cl)	mg/L	250**	6	6	6	5	6	6	6.0	6	6	5.9	5.5	5.8	5.7
Dissolved Iron (Fe)	mg/L	0.3**	0.8	1.3	1.4	1.1	2.7	<0.10	2.6	0.25	0.44	2.8	3.3	3.2	3.3
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.003	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		580	640	630	540	540	530	630	510	540	600	550	550	590
Dissolved Organic Carbon	mg/L	5**	2.9	3.3	3.1	3.0	3.5	10	2.9	3.2	3.3	3.1	3.0	3.0	2.8
Dissolved Potassium (K)	mg/L		7.8	9	8.2	7.4	8.3	8.6	7.5	7.5	8.2	7.8	8.1	8.6	7.7
Dissolved Sodium (Na)	mg/L	200**	220	230	220	190	200	210	200	180	190	200	200	210	190
Dissolved Sulphate (SO4)	mg/L	500**	3200	3200	3400	3000	3200	3300	3400	3200	3200	3300	3300	3300	3400
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.14	0.15	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.9	7.0	7.8	7.4	7.9	7.2	7.8	7.8	7.8	7.6	7.9	7.8	8.0
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	2950	3360	6650	5350	5240	5160	3310	5340	5600	5130	5280	5290	5240
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	0.8	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		4.3	8.0	3.9	3.2	2.6	0.8	4.0	1.8	1.7	3.6	0.7	1.2	0.5

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.
5) OW73-6 resampled for lead on June 22, 2010 due to elevated lead reportable detection limit for May 19, 2010.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6
Date			7-Nov-17	10-May-18	12-Nov-18	14-May-19	6-Nov-19	8-May-20	3-Nov-20	21-May-21	3-Nov-21	5-May-22	1-Nov-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	410	410	430	400	430	460	460	490	510	710	530
Conductivity	umho/cm		5100	5100	4500	4700	4800	4800	4700	4500	4400	5800	4400
Dissolved Barium (Ba)	mg/L	1*	0.009	<0.03	0.008	0.007	0.007	0.008	0.009	<0.03	0.008	<0.03	0.008
Dissolved Boron (B)	mg/L	5.0*	1.1	1.1	1	0.81	0.76	0.78	1	0.9	0.84	1.0	0.86
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0005	<0.0001
Dissolved Calcium (Ca)	mg/L		470	470	470	490	460	460	460	460	480	450	520
Dissolved Chloride (Cl)	mg/L	250**	6.1	5.5	6.4	6.2	5.8	6.3	6.5	7.3	8.6	12	8.2
Dissolved Iron (Fe)	mg/L	0.3**	2.6	2.7	1.2	0.1	0.8	0.5	1.9	<0.5	0.5	2.9	0.5
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.003	<0.0005
Dissolved Magnesium (Mg)	mg/L		550	580	520	510	490	450	440	410	400	650	410
Dissolved Organic Carbon	mg/L	5**	3	3.1	3.1	2.6	3	3	2.6	2.7	3.1	2.8	3.7
Dissolved Potassium (K)	mg/L		7.9	8	7.9	7.0	7.2	7	7.7	7	7.4	6.0	8.1
Dissolved Sodium (Na)	mg/L	200**	190	200	190	200	190	220	220	230	250	280	260
Dissolved Sulphate (SO4)	mg/L	500**	3200	3300	3100	3000	2800	2800	2800	2800	2600	3600	2600
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.7	7.7	7.6	7.6	7.6	7.8	7.6	7.7	7.8	7.7	7.62
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	0.24	<0.15	<0.15	<0.050	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	4930	5000	4890	4850	4770	4730	4630	4030	3220	5720	3670
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.1	0.7	<0.7	<0.7
Ion Percentage	%		2.0	2.5	1.6	3.8	4.1	2.4	1.8	0.1	3.6	0.4	5.7

Parameter	Units	ODWQS	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9
Date			30-Nov-05	19-May-06	24-Nov-06	5-Jan-07	5-May-07	16-Nov-07	22-May-08	5-Nov-08	19-May-09	18-Nov-09	19-May-10	22-Nov-10	10-May-11
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Alkalinity (Total as CaCO3)	mg/L	30-500***	258	306	297	288	273	261	270	260	260	262	253	254	252
Conductivity	umho/cm								3610	3480	3510	3490	3480	3490	3480
Dissolved Barium (Ba)	mg/L	1*							0.007	0.006	0.006	0.006	0.007	0.006	0.006
Dissolved Boron (B)	mg/L	5.0*	0.96	1.02	1.54	0.28	1.07	1.29	1.2	1.1	1.2	1.2	1.2	1.2	1.0
Dissolved Cadmium (Cd)	mg/L	0.005*							<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		356	399	381	406	375	382	380	360	360	350	360	340	350
Dissolved Chloride (Cl)	mg/L	250**	9	9	9	8	8	9	8	8	8	8	8	8	8
Dissolved Iron (Fe)	mg/L	0.3**	0.85	4.66	5.00	8.15	9.71	6.33	6.2	1.7	1.7	1.2	5.2	0.7	0.6
Dissolved Lead (Pb)	mg/L	0.01*							<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		281	296	288	308	286	297	280	260	300	280	280	260	290
Dissolved Organic Carbon	mg/L	5**	2.1	2.5	1.3	2.4	2.0	2.0	1.4	1.4	3.3	1.9	1.6	1.9	1.4
Dissolved Potassium (K)	mg/L		7	6	6	6	6	6	5.8	5.8	6	5.8	5.9	5.6	5.8
Dissolved Sodium (Na)	mg/L	200**	186	181	185	185	192	186	170	160	190	180	180	170	190
Dissolved Sulphate (SO4)	mg/L	500**	2030	2210	2340	2290	2100	2180	2120	2240	2000	2100	1900	1900	2000
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	0.12	0.36	0.4	0.4	0.4	0.4	0.5	0.2	0.4
pH	(pH units)	6.5-8.5							8.0	7.7	7.6	7.7	7.9	7.8	7.9
Total Ammonia-N	mg/L		0.70	0.61	0.62	0.67	0.54	0.25	0.19	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500							2280	2300	2170	2210	2200	2080	1970
Total Kjeldahl Nitrogen (TKN)	mg/L		1.26	0.89	0.59	0.68	0.63	0.29	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		2.1	0.6	3.2	0.7	1.9	1.4	0.4	5.2	4.7	0.2	5.0	1.8	3.5

Parameter	Units	ODWQS	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9
Date			2-Nov-11	9-May-12	6-Nov-12	10-May-13	6-Nov-13	6-May-14	24-Nov-14	12-May-15	12-Nov-15	26-May-16	16-Nov-16	18-May-17	7-Nov-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Maxxam	MAXXAM	Maxxam
Alkalinity (Total as CaCO3)	mg/L	30-500***	237	250	260	250	260	250	270	250	260	260	260	260	270
Conductivity	umho/cm		3400	3500	3500	3400	3500	3500	3700	2800	3600	3700	3700	3700	3700
Dissolved Barium (Ba)	mg/L	1*	0.007	0.006	<0.01	0.006	0.007	0.008	0.008	0.007	0.007	0.008	0.008	0.007	0.007
Dissolved Boron (B)	mg/L	5.0*	1.3	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0002	<0.0001	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		370	350	340	360	350	380	340	350	360	390	380	350	360
Dissolved Chloride (Cl)	mg/L	250**	9	8	8	7	13	9	9	8	8.8	8.9	8.1	8.2	8.5
Dissolved Iron (Fe)	mg/L	0.3**	0.8	1.1	0.65	0.78	1.5	6.4	1.2	<0.10	3.3	6.1	3.8	2.1	3.5
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.001	<0.0005	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		310	300	270	280	280	290	280	290	280	330	310	280	290
Dissolved Organic Carbon	mg/L	5**	1.7	1.7	1.4	1.8	2.2	2.2	2.2	2	2.7	2.0	1.8	1.9	2
Dissolved Potassium (K)	mg/L		6.3	5.9	5.6	6.0	5.9	5.5	6	6.1	5.9	6.5	6.5	5.9	5.9
Dissolved Sodium (Na)	mg/L	200**	200	190	180	180	190	190	180	190	200	220	220	190	210
Dissolved Sulphate (SO4)	mg/L	500**	1900	1900	1800	2000	1900	2000	2000	2000	2100	2100	2100	2200	2100
Nitrate (N)	mg/L	10.0*	0.4	0.39	0.39	0.39	0.35	0.51	<0.10	0.57	0.63	0.55	0.54	0.67	0.69
pH	(pH units)	6.5-8.5	7.2	7.9	7.6	8.0	7.3	8.0	7.8	7.9	7.7	8.0	7.7	7.9	7.8
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	0.16	<0.15	0.25	0.19	<0.15	<0.15	0.3	0.3	<0.15	<0.15
Total Dissolved Solids	mg/L	500	2240	3350	3370	3300	3210	5270	3350	3460	3340	3510	3360	3500	3220
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.9	<0.7	<0.7	<0.7
Ion Percentage	%		9.0	6.7	5.4	2.8	4.7	5.0	1.4	3.5	1.2	7.3	5.4	1.8	2.3

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.
5) OW73-6 resampled for lead on June 22, 2010 due to elevated lead reportable detection limit for May 19, 2010.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9
Date			10-May-18	12-Nov-18	14-May-19	6-Nov-19	8-May-20	3-Nov-20	18-May-21	3-Nov-21	3-May-22	1-Nov-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	270	370	260	270	270	280	280	280	270	290
Conductivity	umho/cm		3900	2600	3700	3800	3900	3700	3900	3800	3900	3900
Dissolved Barium (Ba)	mg/L	1*	<0.03	0.01	0.006	0.007	0.007	0.008	0.006	0.007	0.006	0.007
Dissolved Boron (B)	mg/L	5.0*	1.3	1	1.1	1.1	1.1	1.4	1.1	1.2	1.2	1.3
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		380	210	390	390	380	400	390	420	420	390
Dissolved Chloride (Cl)	mg/L	250**	8.1	5.6	8.4	7.8	8.2	8.2	8.9	8.1	8.3	7.7
Dissolved Iron (Fe)	mg/L	0.3**	4.9	1.6	0.6	3.7	2.4	3.5	1.1	2.5	3.1	2.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.003	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		310	200	300	310	310	320	320	330	340	340
Dissolved Organic Carbon	mg/L	5**	1.7	1.7	1.8	2.0	1.9	2.2	1.7	1.7	1.8	2
Dissolved Potassium (K)	mg/L		6	5	6	6.2	5.9	6.3	6.3	6.1	6.1	6.2
Dissolved Sodium (Na)	mg/L	200**	220	140	210	230	220	220	230	230	240	230
Dissolved Sulphate (SO4)	mg/L	500**	2200	1200	2300	2200	2200	2300	2400	2500	2400	2400
Nitrate (N)	mg/L	10.0*	0.61	0.32	0.56	0.54	0.57	0.42	0.45	0.6	0.61	0.6
pH	(pH units)	6.5-8.5	7.9	7.8	7.9	7.7	8.0	7.7	8.0	7.9	7.9	7.87
Total Ammonia-N	mg/L		0.17	0.23	<0.15	0.46	<0.15	0.31	0.108	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	3340	2180	3750	3500	3660	3780	2940	3620	3680	3280
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.3	1.1	<0.7	<0.7
Ion Percentage	%		3.1	2.8	0.6	4.0	3.1	2.6	0.6	0.8	3.9	1.9

Parameter	Units	ODWQS	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5
Date			20-May-09	17-May-10	12-May-11	16-May-12	8-May-13	5-May-14	13-May-15	27-May-16	17-May-17	8-May-18	15-May-19	6-May-20	21-May-21
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	478	446	412	490	420	470	480	490	510	520	480	480	420
Conductivity	umho/cm		1610	1710	1670	1800	1600	2000	1700	1600	1700	1700	1700	1500	1200
Dissolved Barium (Ba)	mg/L	1*	0.010	0.013	0.017	0.022	0.022	0.024	0.021	0.026	0.023	0.024	0.023	0.023	0.020
Dissolved Boron (B)	mg/L	5.0*	0.13	0.12	0.13	0.12	0.10	0.09	0.08	0.16	0.13	0.12	0.09	0.09	0.09
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		160	140	140	140	130	160	130	140	120	130	120	120	110
Dissolved Chloride (Cl)	mg/L	250**	15	17	17	27	33	36	36	60	73	77	38	43	26
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		110	110	110	120	100	140	120	120	100	100	110	97	92
Dissolved Organic Carbon	mg/L	5**	3.5	2.2	2.1	2.5	2.4	4.0	2.9	2.7	2.9	2.7	3.3	3.1	2.8
Dissolved Potassium (K)	mg/L		3.7	3.3	2.9	3.1	3.0	2.7	2.7	3.1	3.0	3.1	2.4	2.5	2.6
Dissolved Sodium (Na)	mg/L	200**	61	76	96	110	110	130	100	110	91	87	110	94	90
Dissolved Sulphate (SO4)	mg/L	500**	430	460	470	520	430	600	410	340	380	320	400	340	250
Nitrate (N)	mg/L	10.0*	<0.1	0.3	0.5	0.39	0.29	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.5	8.1	7.9	7.9	7.9	8.0	8.0	7.8	8.0	8.0	7.7	8.0	8.0
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.050
Total Dissolved Solids	mg/L	500	1020	1050	1010	1210	1200	1430.0	1170	1080	1100	935	1110	980	625
Total Kjeldahl Nitrogen (TKN)	mg/L		<4	1.3	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.1
Ion Percentage	%		7.2	5.7	8.8	5.2	7.8	8.7	9.0	13.0	0.0	3.7	7.2	6.0	14.4

Parameter	Units	ODWQS	OW79-5
Date			5-May-22
Laboratory			Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	460
Conductivity	umho/cm		1400
Dissolved Barium (Ba)	mg/L	1*	0.023
Dissolved Boron (B)	mg/L	5.0*	0.06
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		110
Dissolved Chloride (Cl)	mg/L	250**	26
Dissolved Iron (Fe)	mg/L	0.3**	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		93
Dissolved Organic Carbon	mg/L	5**	3.3
Dissolved Potassium (K)	mg/L		2.0
Dissolved Sodium (Na)	mg/L	200**	90
Dissolved Sulphate (SO4)	mg/L	500**	310
Nitrate (N)	mg/L	10.0*	<0.10
pH	(pH units)	6.5-8.5	8.04
Total Ammonia-N	mg/L		<0.15
Total Dissolved Solids	mg/L	500	830
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7
Ion Percentage	%		7.7

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7
Date			**14-May-09**	**17-May-10**	**22-Jun-10**	**23-Dec-10**	**12-May-11**	**28-Jun-11**	**16-May-12**	**8-May-13**	**5-May-14**	**13-May-15**	**27-May-16**	**17-May-17**	**8-May-18**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**
Alkalinity (Total as CaCO3)	mg/L	30-500***	516	550	520	525	500	545	560	540	550	530	560	550	
Conductivity	umho/cm		1490	1650	1600	1580	1650	1740	1700	1700	1700	1600	1600	1600	1700
Dissolved Barium (Ba)	mg/L	1*	0.023	0.033	0.031	0.030	0.028	0.028	0.026	0.025	0.026	0.025	0.025	0.025	0.024
Dissolved Boron (B)	mg/L	5.0*	0.26	0.21	0.23	0.25	0.22	0.23	0.23	0.22	0.25	0.21	0.25	0.24	0.25
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	140	140	140	150	150	140	140	150	130	130	130	140
Dissolved Chloride (Cl)	mg/L	250**	100	140	140	130	160	160	130	140	130	130	120	140	130
Dissolved Iron (Fe)	mg/L	0.3**	2.2	1.9	<0.1	2.0	1.2	0.8	1.0	0.49	0.21	<0.10	<0.10	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		100	110	110	110	110	100	110	100	110	100	100	98	110
Dissolved Organic Carbon	mg/L	5**	4.4	5.1	3.4	3.0	2.9	3.0	2.9	2.7	3.6	3.1	3.1	3.3	2.9
Dissolved Potassium (K)	mg/L		4.3	4.3	4.4	4.2	3.9	3.9	3.8	3.7	3.7	3.9	3.5	3.5	3.8
Dissolved Sodium (Na)	mg/L	200**	60	59	58	64	63	63	65	61	66	63	60	58	64
Dissolved Sulphate (SO4)	mg/L	500**	190	180	200	160	180	170	190	190	170	140	140	150	150
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.8	7.9	7.9	7.5	7.9	7.7	7.9	7.7	7.8	7.9	7.8	7.9	7.8
Total Ammonia-N	mg/L		0.28	0.34	0.28	0.25	<0.15	<0.15	<0.15	0.21	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	970	1030	1000	1040	1040	1050	1010	1040	976	932	954	982	930
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	13	3	1.0	2	<2	<0.7	1.1	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		7.2	6.2	6.2	10.2	8.6	4.9	6.5	4.0	9.7	7.5	6.5	3.8	47.1

Parameter	Units	ODWQS	OW79-7	OW79-7	OW79-7	OW79-7
Date			**15-May-19**	**6-May-20**	**21-May-21**	**5-May-22**
Laboratory			**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	520	550	530	540
Conductivity	umho/cm		1600	1600	1600	1700
Dissolved Barium (Ba)	mg/L	1*	0.024	0.025	0.023	0.027
Dissolved Boron (B)	mg/L	5.0*	0.24	0.22	0.22	0.21
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	130	130	150
Dissolved Chloride (Cl)	mg/L	250**	150	140	140	160
Dissolved Iron (Fe)	mg/L	0.3**	0.3	0.2	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		110	100	98	98
Dissolved Organic Carbon	mg/L	5**	3.0	3.4	2.8	2.9
Dissolved Potassium (K)	mg/L		3.6	3.6	3.5	3.5
Dissolved Sodium (Na)	mg/L	200**	68	62	62	59
Dissolved Sulphate (SO4)	mg/L	500**	140	140	140	130
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.7	7.7	7.7	8.0
Total Ammonia-N	mg/L		<0.15	<0.15	0.069	<0.15
Total Dissolved Solids	mg/L	500	975	905	965	900
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	0.1	<0.7
Ion Percentage	%		9.1	5.4	6.0	6.8

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26
Date			**20-May-09**	**18-May-10**	**12-May-11**	**16-May-12**	**8-May-13**	**5-May-14**	**13-May-15**	**27-May-16**	**17-May-17**	**8-May-18**	**15-May-19**	**6-May-20**	**21-May-21**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	261	270	263	280	270	270	260	260	270	280	260	270	270
Conductivity	umho/cm		747	713	789	770	810	830	830	820	840	870	850	860	840
Dissolved Barium (Ba)	mg/L	1*	0.025	0.018	0.026	0.025	0.022	0.027	0.023	0.021	0.020	0.022	0.021	0.023	0.022
Dissolved Boron (B)	mg/L	5.0*	1.6	1.5	1.6	1.6	1.5	1.6	1.5	1.6	1.5	1.6	1.5	1.5	1.7
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		22	19	24	26	26	28	27	28	25	28	28	32	31
Dissolved Chloride (Cl)	mg/L	250**	31	27	32	29	30	30	29	28	29	28	28	28	28
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	0.3	0.3	0.43	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		11	10	11	13	10	11	12	13	12	15	15	15	15
Dissolved Organic Carbon	mg/L	5**	3.6	1.8	1.8	2.6	2.9	2.0	1.5	1.7	1.7	1.5	1.6	1.8	1.4
Dissolved Potassium (K)	mg/L		6.0	4.4	6.3	6.9	5.7	5.6	6.4	6.1	5.6	5.7	6.1	5.7	6.6
Dissolved Sodium (Na)	mg/L	200**	220	130	140	150	130	140	140	140	130	140	140	130	140
Dissolved Sulphate (SO4)	mg/L	500**	72	57	86	83	86	98	100	110	110	110	120	120	120
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.1	8.3	8.1	8.2	8.1	8.2	8.3	8.1	8.1	8.2	8.1	8.1	8.2
Total Ammonia-N	mg/L		0.33	0.31	<0.15	<0.15	0.16	0.24	0.15	<0.15	<0.15	<0.15	0.18	<0.15	0.166
Total Dissolved Solids	mg/L	500	480	454	468	444	462	458	486	488	562	480	510	465	405
Total Kjeldahl Nitrogen (TKN)	mg/L		<4	4	2	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.3
Ion Percentage	%		27.9	8.7	9.1	12.2	6.0	8.0	9.3	8.7	3.4	7.5	8.3	5.8	8.1

Parameter	Units	ODWQS	OW79-26
Date			**5-May-22**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	260
Conductivity	umho/cm		860
Dissolved Barium (Ba)	mg/L	1*	0.022
Dissolved Boron (B)	mg/L	5.0*	1.6
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		29
Dissolved Chloride (Cl)	mg/L	250**	28
Dissolved Iron (Fe)	mg/L	0.3**	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		13
Dissolved Organic Carbon	mg/L	5**	1.5
Dissolved Potassium (K)	mg/L		5.4
Dissolved Sodium (Na)	mg/L	200**	130
Dissolved Sulphate (SO4)	mg/L	500**	130
Nitrate (N)	mg/L	10.0*	0.16
pH	(pH units)	6.5-8.5	8.1
Total Ammonia-N	mg/L		<0.15
Total Dissolved Solids	mg/L	500	470
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7
Ion Percentage	%		3.6

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3
Date			**19-May-09**	**11-Jun-09**	**16-Dec-09**	**17-May-10**	**29-Jun-10**	**12-May-11**	**16-May-12**	**9-May-13**	**5-May-14**	**14-May-15**	**27-May-16**	**16-May-17**	**8-May-18**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**
Alkalinity (Total as CaCO3)	mg/L	30-500***	333	327	358	338	353	339	370	320	460	430	340	400	410
Conductivity	umho/cm		3450	3470	3550	3540	3440	3530	3500	920	1900	1400	2000	2600	3000
Dissolved Barium (Ba)	mg/L	1*	0.12	0.11	0.12	0.13	0.13	0.11	0.11	0.031	0.068	0.05	0.073	0.09	0.1
Dissolved Boron (B)	mg/L	5.0*	0.09	0.12	0.11	0.09	0.09	0.09	0.09	0.05	0.06	0.06	0.07	0.07	0.08
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		220	210	200	200	200	190	180	92	140	110	150	150	170
Dissolved Chloride (Cl)	mg/L	250**	830	840	820	870	830	860	750	81	260	150	340	470	590
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	0.28	<0.10	0.17	<0.10	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		160	180	160	160	150	150	160	35	76	48	83	91	100
Dissolved Organic Carbon	mg/L	5**	4.0	5.3	3.3	3.2	3.1	3.0	3.3	8.9	7.5	8	5.7	5.3	4.3
Dissolved Potassium (K)	mg/L		2.9	3.6	2.9	2.6	2.5	2.2	2.1	2.8	2.5	2.7	2.8	2.5	2.5
Dissolved Sodium (Na)	mg/L	200**	240	300	270	280	260	310	310	76	180	110	180	220	240
Dissolved Sulphate (SO4)	mg/L	500**	150	160	160	160	180	180	180	39	96	55	110	160	160
Nitrate (N)	mg/L	10.0*	0.8	0.6	0.3	0.2	0.2	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.5	7.9	7.9	8.1	7.9	8.0	7.8	8.0	7.8	7.9	7.9	8.2	7.8
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	0.18	<0.15	<0.15	<0.15	0.32	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	2150	2110	2260	2200	2200	2030	2210	684	1010	832	1190	1500	1650
Total Kjeldahl Nitrogen (TKN)	mg/L		<1	<4	<7	5.1	1.5	<0.7	<0.7	0.9	0.7	<1	<0.7	<0.7	<0.7
Ion Percentage	%		4.2	8.7	4.1	3.1	1.3	2.8	7.3	13.7	11.6	7.6	12.3	3.3	1.2

Parameter	Units	ODWQS	OW80-3	OW80-3	OW80-3	OW80-3
Date			**15-May-19**	**6-May-20**	**21-May-21**	**5-May-22**
Laboratory			**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	450	380	320	320
Conductivity	umho/cm		2200	1200	1200	830
Dissolved Barium (Ba)	mg/L	1*	0.064	0.059	0.046	0.037
Dissolved Boron (B)	mg/L	5.0*	0.07	0.04	0.04	0.03
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	110	110	110
Dissolved Chloride (Cl)	mg/L	250**	360	140	160	67
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	2.3	0.3	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		83	49	47	24
Dissolved Organic Carbon	mg/L	5**	5.3	6.9	6.5	8.9
Dissolved Potassium (K)	mg/L		2.1	2.4	3.1	4.7
Dissolved Sodium (Na)	mg/L	200**	230	130	130	70
Dissolved Sulphate (SO4)	mg/L	500**	130	39	35	23
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	0.12	0.22
pH	(pH units)	6.5-8.5	7.7	7.8	7.9	8.1
Total Ammonia-N	mg/L		<0.15	<0.15	<0.050	<0.15
Total Dissolved Solids	mg/L	500	1260	650	555	445
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	0.4	<0.7
Ion Percentage	%		7.5	16.7	18.5	17.3

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6
Date			**19-May-09**	**11-Jun-09**	**16-Dec-09**	**18-May-10**	**29-Jun-10**	**12-May-11**	**16-May-12**	**9-May-13**	**5-May-14**	**14-May-15**	**27-May-16**	**16-May-17**	**8-May-18**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**
Alkalinity (Total as CaCO3)	mg/L	30-500***	399	410	421	411	409	395	410	410	410	410	410	410	
Conductivity	umho/cm		1330	1350	1360	1460	1400	1390	1400	1400	1400	1400	1400	1400	1500
Dissolved Barium (Ba)	mg/L	1*	0.049	0.054	0.052	0.061	0.067	0.062	0.061	0.063	0.064	0.064	0.061	0.057	0.058
Dissolved Boron (B)	mg/L	5.0*	0.22	0.22	0.24	0.20	0.20	0.21	0.21	0.20	0.20	0.22	0.23	0.20	0.22
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	130	130	120	130	130	120	130	140	130	130	120	130
Dissolved Chloride (Cl)	mg/L	250**	170	160	160	170	180	180	140	150	170	180	160	170	160
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	1.10	1.20	<0.1	0.1	<0.1	0.14	0.11	<0.10	<0.10	<0.10	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		77	82	78	76	76	78	79	75	84	75	81	71	84
Dissolved Organic Carbon	mg/L	5**	3.6	3.3	2.3	2.2	2.5	1.9	1.9	2.1	3.3	2.2	1.9	1.9	2
Dissolved Potassium (K)	mg/L		6.5	6.4	6.5	5.5	5.1	4.4	4.1	3.8	3.6	3.7	3.6	3.4	3.7
Dissolved Sodium (Na)	mg/L	200**	49	50	48	47	46	48	49	47	52	49	52	47	56
Dissolved Sulphate (SO4)	mg/L	500**	73	75	75	76	91	72	76	73	70	74	71	73	68
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.9	7.7	7.9	8.0	7.8	8.1	8.0	8.1	7.9	7.9	7.8	7.9	7.9
Total Ammonia-N	mg/L		0.20	0.20	0.22	0.24	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	850	840	851	900	900	832	822	866	868	784	794	810	850
Total Kjeldahl Nitrogen (TKN)	mg/L		<4	<1	<7	7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		8.7	10.4	8.4	5.4	4.8	7.9	9.8	9.2	11.8	6.1	10.5	4.0	45.8

Parameter	Units	ODWQS	OW80-6	OW80-6	OW80-6	OW80-6
Date			**15-May-19**	**6-May-20**	**20-May-21**	**5-May-22**
Laboratory			**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	410	410	410	240
Conductivity	umho/cm		1400	1500	1400	450
Dissolved Barium (Ba)	mg/L	1*	0.056	0.058	0.055	0.020
Dissolved Boron (B)	mg/L	5.0*	0.21	0.20	0.21	0.05
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	0.0017
Dissolved Calcium (Ca)	mg/L		130	130	130	59
Dissolved Chloride (Cl)	mg/L	250**	180	180	190	4.2
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	1.9	<0.1	0.2
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		81	76	76	17
Dissolved Organic Carbon	mg/L	5**	1.9	1.8	1.6	4.5
Dissolved Potassium (K)	mg/L		3.4	3.4	3.4	3.4
Dissolved Sodium (Na)	mg/L	200**	54	53	55	3.4
Dissolved Sulphate (SO4)	mg/L	500**	73	73	71	3.7
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	0.36
pH	(pH units)	6.5-8.5	7.8	7.8	7.8	8.3
Total Ammonia-N	mg/L		<0.15	<0.15	<0.050	<0.15
Total Dissolved Solids	mg/L	500	865	795	890	230
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.1	<0.7
Ion Percentage	%		8.4	7.0	6.4	6.3

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27
Date			**19-May-09**	**18-May-10**	**12-May-11**	**16-May-12**	**9-May-13**	**5-May-14**	**14-May-15**	**27-May-16**	**16-May-17**	**8-May-18**	**15-May-19**	**6-May-20**	**20-May-21**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	286	313	285	300	290	290	290	300	290	300	290	290	280
Conductivity	umho/cm		779	1050	832	790	790	770	780	750	780	810	770	770	760
Dissolved Barium (Ba)	mg/L	1*	0.044	0.059	0.035	0.032	0.032	0.032	0.033	0.039	0.040	0.042	0.042	0.043	0.046
Dissolved Boron (B)	mg/L	5.0*	2.0	1.6	1.6	1.7	1.7	1.7	1.9	1.8	1.7	2	1.8	1.9	1.8
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		13	38	25	21	15	18	15	18	14	15	15	14	14
Dissolved Chloride (Cl)	mg/L	250**	49	120	57	45	45	48	48	48	47	46	46	45	47
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	0.1	0.7	0.82	0.34	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		7.3	23	14	11	7.9	8.4	7.8	8.2	7.7	8.2	9	7.7	7.6
Dissolved Organic Carbon	mg/L	5**	2.0	1.3	1.9	2.1	1.3	9.0	1.9	1.8	1.9	1.3	2.1	1.4	1.4
Dissolved Potassium (K)	mg/L		2.1	2.8	2.5	2.6	2.3	2.3	2.2	2.5	2.2	2.3	2.3	2.2	2.3
Dissolved Sodium (Na)	mg/L	200**	160	150	140	160	150	160	140	150	140	160	150	150	150
Dissolved Sulphate (SO4)	mg/L	500**	49	50	44	36	30	30	31	30	32	30	31	28	30
Nitrate (N)	mg/L	10.0*	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.1	8.3	8.4	8.3	8.4	8.3	8.2	8.2	8.2	8.3	8.2	8.2	8.4
Total Ammonia-N	mg/L		0.27	0.19	<0.15	<0.15	0.24	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.087
Total Dissolved Solids	mg/L	500	520	660	504	424	462	392	434	430	426	415	465	410	325
Total Kjeldahl Nitrogen (TKN)	mg/L		<4	0.9	1	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	0.2
Ion Percentage	%		8.0	4.5	9.0	13.3	9.5	12.6	5.9	8.8	5.6	10.9	9.7	9.4	9.9

Parameter	Units	ODWQS	OW80-27
Date			**5-May-22**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	280
Conductivity	umho/cm		760
Dissolved Barium (Ba)	mg/L	1*	0.047
Dissolved Boron (B)	mg/L	5.0*	1.9
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		14
Dissolved Chloride (Cl)	mg/L	250**	47
Dissolved Iron (Fe)	mg/L	0.3**	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		7.0
Dissolved Organic Carbon	mg/L	5**	1.5
Dissolved Potassium (K)	mg/L		2.2
Dissolved Sodium (Na)	mg/L	200**	140
Dissolved Sulphate (SO4)	mg/L	500**	27
Nitrate (N)	mg/L	10.0*	<0.10
pH	(pH units)	6.5-8.5	8.2
Total Ammonia-N	mg/L		<0.15
Total Dissolved Solids	mg/L	500	415
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7
Ion Percentage	%		7.2

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW81-5	OW81-5	OW81-5
Date			11-May-20	21-May-21	5-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	420	400	400
Conductivity	umho/cm		2900	2900	2800
Dissolved Barium (Ba)	mg/L	1*	0.031	0.026	0.022
Dissolved Boron (B)	mg/L	5.0*	0.61	0.54	0.54
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		290	270	280
Dissolved Chloride (Cl)	mg/L	250**	20	20	20
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		190	190	190
Dissolved Organic Carbon	mg/L	5**	2.2	2.1	2.0
Dissolved Potassium (K)	mg/L		6.2	5.6	5.0
Dissolved Sodium (Na)	mg/L	200**	170	170	180
Dissolved Sulphate (SO4)	mg/L	500**	1300	1400	1300
Nitrate (N)	mg/L	10.0*	0.11	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.8	7.8	7.9
Total Ammonia-N	mg/L		<0.15	<0.050	<0.15
Total Dissolved Solids	mg/L	500	2420	2130	2270
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.1	<0.7
Ion Percentage	%		4.1	0.2	4.4

Parameter	Units	ODWQS	OW81-7	OW81-7	OW81-7	OW81-7	OW81-7	OW81-7	OW81-7	OW81-7
Date			11-May-20	22-Jul-20	3-Nov-20	20-May-21	9-Jun-21	2-Nov-21	5-May-22	2-Jun-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	360	350	370	360	350	360	340	350
Conductivity	umho/cm		2600	2800	2600	2600	2800	2500	2500	2207
Dissolved Barium (Ba)	mg/L	1*	0.026	0.024	0.026	0.026	0.023	0.023	0.022	0.019
Dissolved Boron (B)	mg/L	5.0*	0.56	0.58	0.61	0.53	0.56	0.55	0.54	0.58
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		240	260	240	220	240	250	220	230
Dissolved Chloride (Cl)	mg/L	250**	210	250	210	220	260	210	200	210
Dissolved Iron (Fe)	mg/L	0.3**	0.7	2.3	1.3	0.7	0.9	1.1	1.1	1.6
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		170	200	160	160	180	170	160	160
Dissolved Organic Carbon	mg/L	5**	2.8	3	3.4	2.8	3	2.8	3.0	2.9
Dissolved Potassium (K)	mg/L		5.5	5.8	5.3	5.1	5.3	4.8	5.1	5.1
Dissolved Sodium (Na)	mg/L	200**	110	120	110	120	120	120	120	110
Dissolved Sulphate (SO4)	mg/L	500**	780	840	790	810	880	810	760	840
Nitrate (N)	mg/L	10.0*	0.13	<0.10	<0.10	0.1	<0.10	<0.10	0.16	0.12
pH	(pH units)	6.5-8.5	7.9	7.7	7.7	7.7	7.6	8.0	8.1	7.2
Total Ammonia-N	mg/L		<0.15	0.29	0.65	0.129	0.34	0.23	<0.15	<0.15
Total Dissolved Solids	mg/L	500	1930	2240	1990	1730	2120	1770	1810	1880
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.2	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		4.7	6.9	2.7	0.8	1.1	5.1	4.3	0.6

Parameter	Units	ODWQS	OW81-27	OW81-27	OW81-27
Date			11-May-20	20-May-21	5-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Alkalinity (Total as CaCO3)	mg/L	30-500***	280	260	330
Conductivity	umho/cm		1500	1100	1400
Dissolved Barium (Ba)	mg/L	1*	0.1	0.062	0.072
Dissolved Boron (B)	mg/L	5.0*	1.8	1.9	1.9
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		47	48	30
Dissolved Chloride (Cl)	mg/L	250**	40	48	30
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		38	40	19
Dissolved Organic Carbon	mg/L	5**	2.1	2	1.9
Dissolved Potassium (K)	mg/L		2.7	2.4	2.6
Dissolved Sodium (Na)	mg/L	200**	190	190	180
Dissolved Sulphate (SO4)	mg/L	500**	370	280	370
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.2	8.3	7.8
Total Ammonia-N	mg/L		0.23	0.346	<0.15
Total Dissolved Solids	mg/L	500	965	615	895
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.5	<0.7
Ion Percentage	%		4.7	4.7	4.7

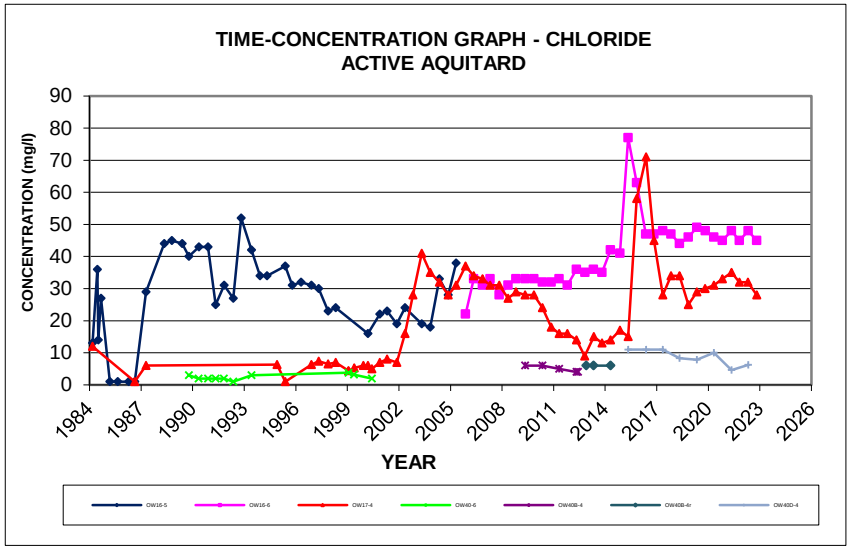
NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

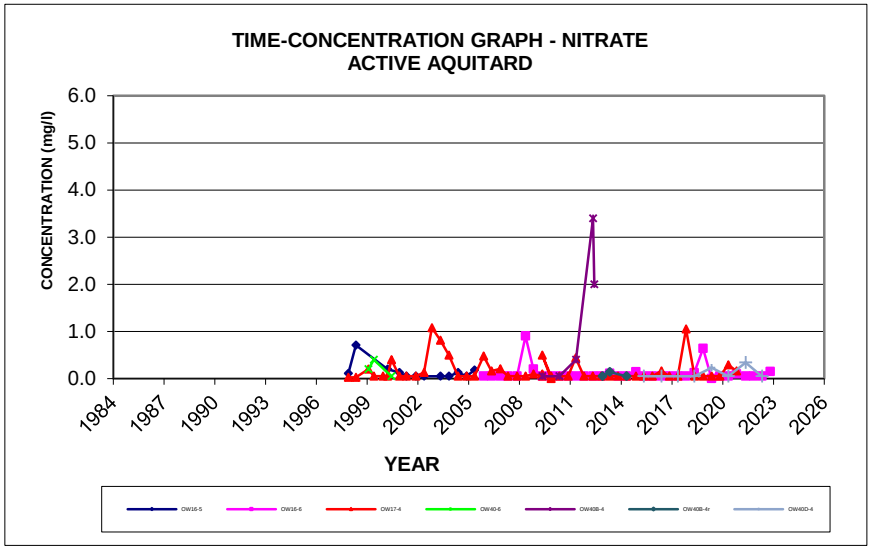
Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well
Date			**23-May-08**	**20-May-09**	**18-May-10**	**12-May-11**	**16-May-12**	**9-May-13**	**5-May-14**	**14-May-15**	**27-May-16**	**16-May-17**	**8-May-18**	**15-May-19**	**6-May-20**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	160	221	250	204	240	180	210	190	210	230	230	230	230
Conductivity	umho/cm		349	431	483	418	460	370	420	420	430	470	460	460	450
Total Barium (Ba)	mg/L	1*	0.015	0.022	0.023	0.019	0.021	0.017	0.020	0.020	0.022	0.023	0.02	0.022	0.02
Total Boron (B)	mg/L	5.0*	0.019	0.02	0.02	<0.02	0.03	0.02	0.024	0.034	0.03	0.03	0.03	0.03	0.03
Total Cadmium (Cd)	mg/L	0.005*	0.0001	0.0003	0.0002	0.0001	<0.0001	0.0002	0.00015	0.00023	0.00010	0.00030	0.0005	0.0002	0.0003
Total Calcium (Ca)	mg/L		45	60	66	57	64	51	63	59	60	64	59	70	59
Total Chloride (Cl)	mg/L	250**	5	6	6	6	4	4	5	15	8.4	6.2	5.2	4.3	2.9
Total Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	0.16	0.10	0.40	0.5	0.6	0.4
Total Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050	0.00051	<0.0005	0.0015	0.0019	0.0008	0.001
Total Magnesium (Mg)	mg/L		14	17	21	17	19	15	19	17	17	19	17	20	18
Dissolved Organic Carbon	mg/L	5**	2.6	4.6	2.5	3.2	3.5	4.1	3.7	3.6	12	4.4	3	3.6	3.1
Total Potassium (K)	mg/L		3.4	3.6	3.6	3.4	3.7	3.1	3.6	4.1	3.9	3.6	3.5	4.0	3.5
Total Sodium (Na)	mg/L	200**	3.3	3.7	4.3	3.5	3.7	3.1	3.9	6.5	4.1	4.1	3.5	3.7	3.3
Total Sulphate (SO4)	mg/L	500**	9	7	6	7	6	8	7	7	5.9	6.1	5.9	5.5	5.2
Nitrate (N)	mg/L	10.0*	0.5	0.6	0.3	0.9	0.38	0.77	0.83	0.92	<0.10	0.43	0.33	0.93	0.43
pH	(pH units)	6.5-8.5	7.9	8.5	8.3	8.3	8.2	8.2	8.1	8.1	8.1	8.1	8.2	8.1	8.2
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	226	285	320	254	254	250	240	244	238	250	235	255	245
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		11.3	9.4	10.5	11.2	10.3	11.7	15.3	13.5	11.4	11.6	7.5	16.0	9.2

Parameter	Units	ODWQS	Cemetery Well	Cemetery Well
Date			**21-May-21**	**6-May-22**
Laboratory			**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	230	230
Conductivity	umho/cm		450	450
Total Barium (Ba)	mg/L	1*	0.021	0.020
Total Boron (B)	mg/L	5.0*	0.03	0.03
Total Cadmium (Cd)	mg/L	0.005*	0.0001	0.0021
Total Calcium (Ca)	mg/L		61	61
Total Chloride (Cl)	mg/L	250**	4.4	3.8
Total Iron (Fe)	mg/L	0.3**	<0.1	1.0
Total Lead (Pb)	mg/L	0.01*	<0.0005	0.0060
Total Magnesium (Mg)	mg/L		19	18
Dissolved Organic Carbon	mg/L	5**	7.6	4.7
Total Potassium (K)	mg/L		4.4	3.3
Total Sodium (Na)	mg/L	200**	3.6	3.5
Total Sulphate (SO4)	mg/L	500**	7	4.4
Nitrate (N)	mg/L	10.0*	0.98	0.33
pH	(pH units)	6.5-8.5	8.0	8.14
Total Ammonia-N	mg/L		<0.050	<0.15
Total Dissolved Solids	mg/L	500	185	235
Total Kjeldahl Nitrogen (TKN)	mg/L		0.1	<0.7
Ion Percentage	%		10.5	10.2

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.
5) OW85-5 resampled for lead on June 22, 2010 due to elevated lead reportable detection limit for May 20, 2010.
6) Metals analysis for Cemetery Well is for Total Metals


TIME-CONCENTRATION GRAPH - CHLORIDE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
YEAR


TIME-CONCENTRATION GRAPH - NITRATE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
YEAR

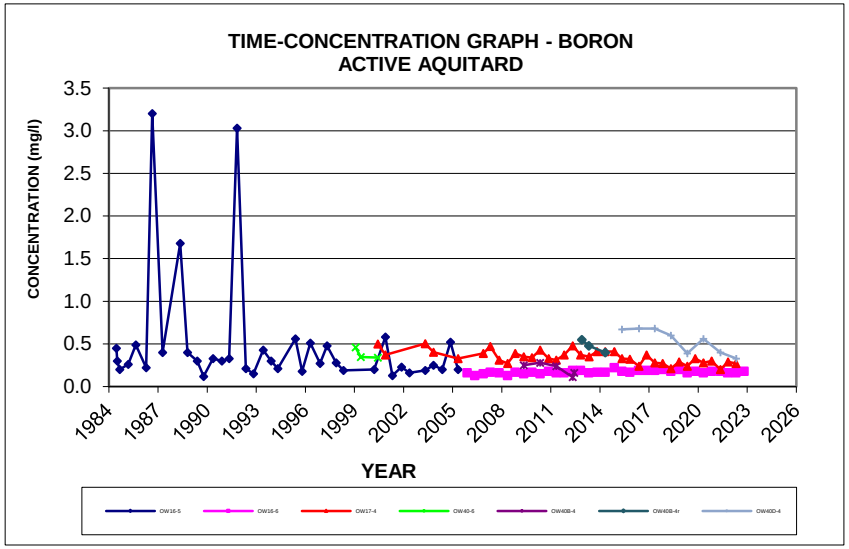
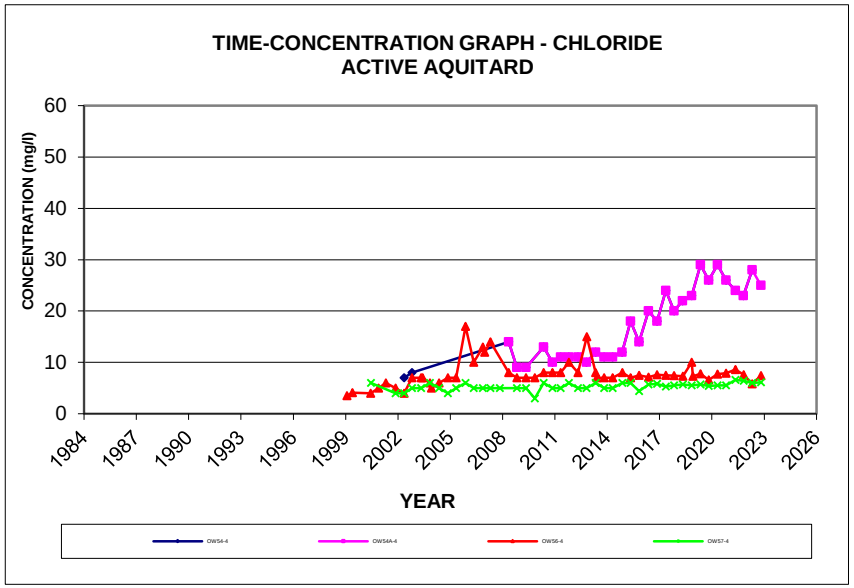
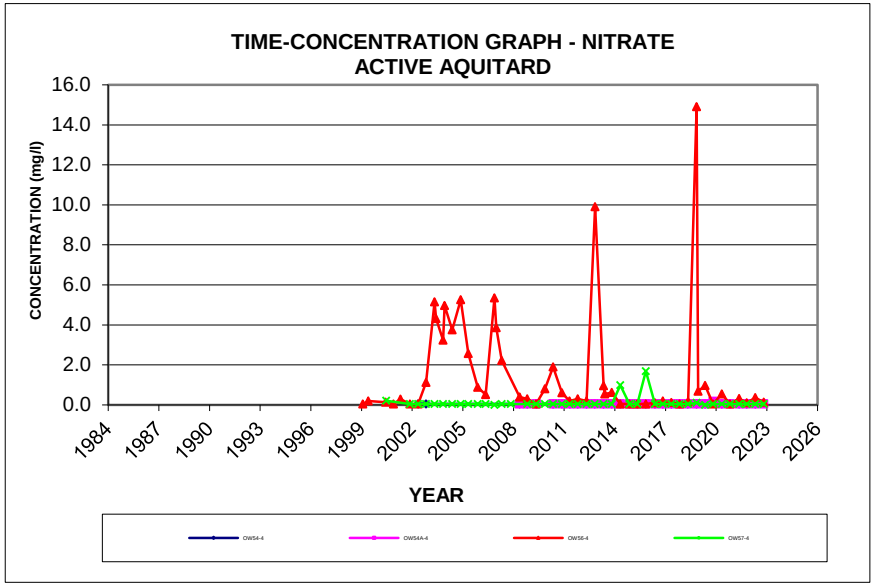

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
YEAR

FIGURE H-1


TIME-CONCENTRATION GRAPH - CHLORIDE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
60
50
40
30
20
10
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW54-4
OW54A-4
OW56-4
OW57-4


TIME-CONCENTRATION GRAPH - NITRATE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW54-4
OW54A-4
OW56-4
OW57-4

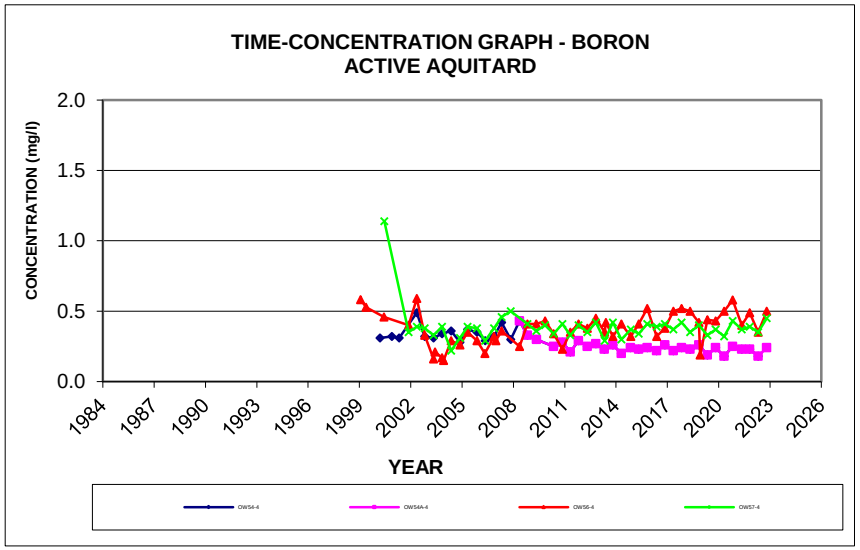
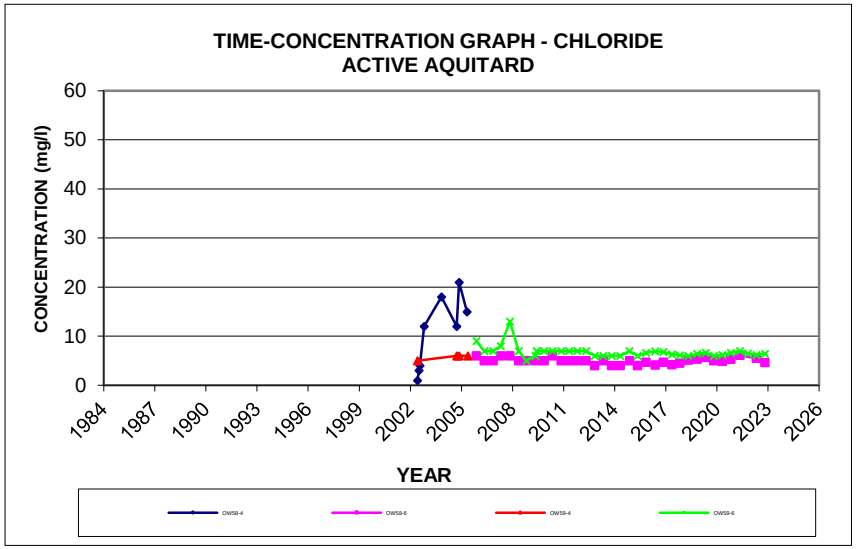
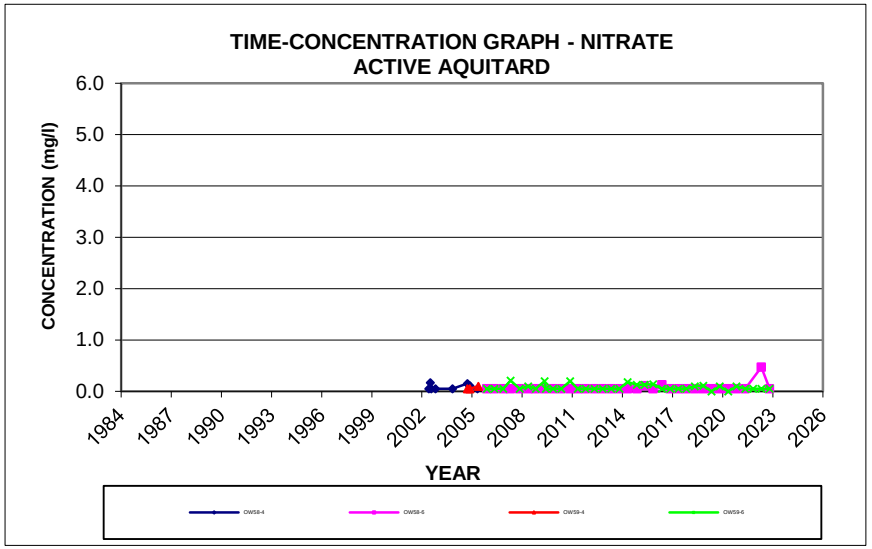

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW54-4
OW54A-4
OW56-4
OW57-4

FIGURE H-2


TIME-CONCENTRATION GRAPH - CHLORIDE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
60
50
40
30
20
10
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OWS8-4
OWS8-6
OWS9-4
OWS9-6


TIME-CONCENTRATION GRAPH - NITRATE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OWS8-4
OWS8-6
OWS9-4
OWS9-6

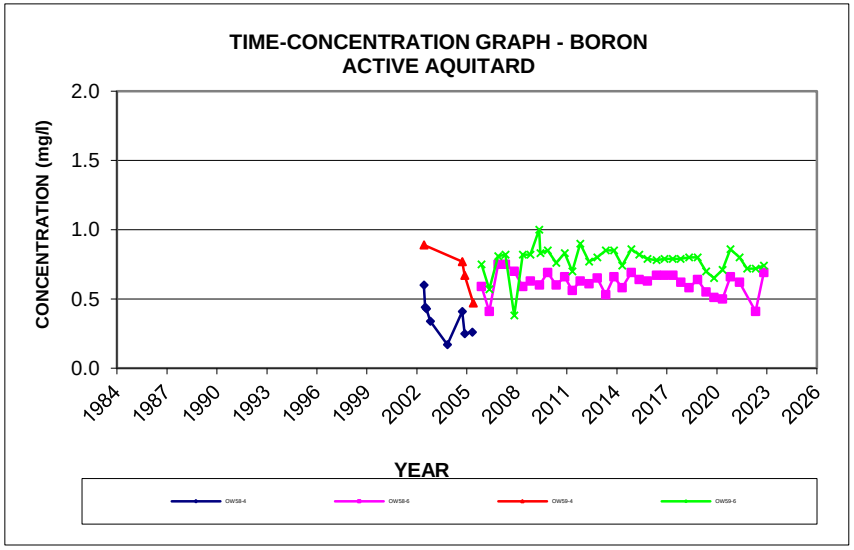
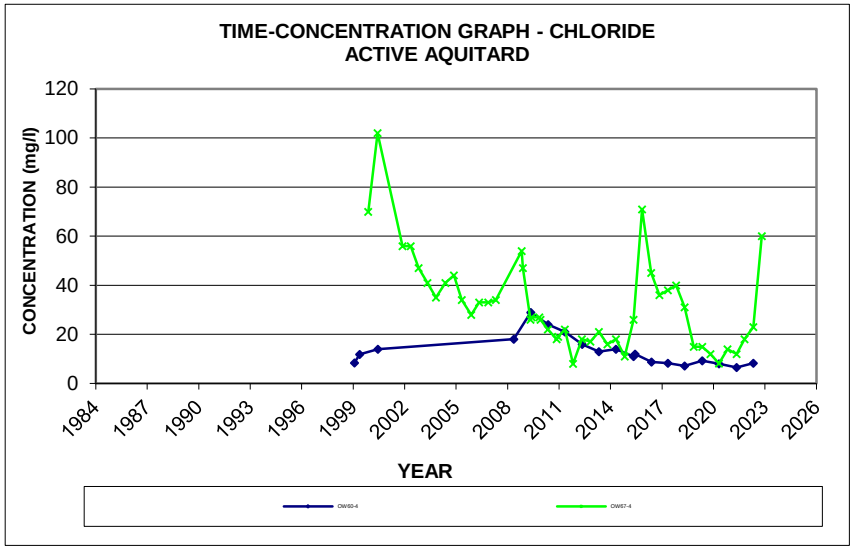
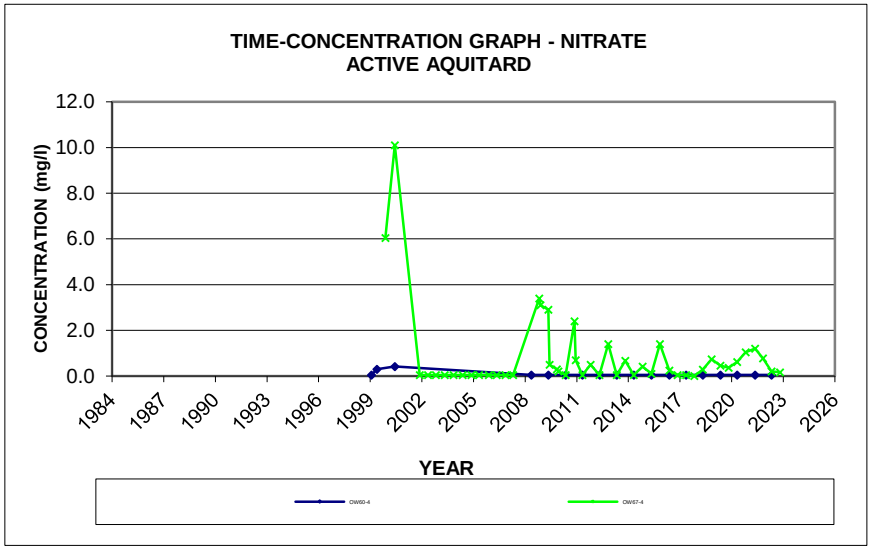

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OWS8-4
OWS8-6
OWS9-4
OWS9-6

FIGURE H-3


TIME-CONCENTRATION GRAPH - CHLORIDE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
120
100
80
60
40
20
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW60-4
OW67-4


TIME-CONCENTRATION GRAPH - NITRATE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW60-4
OW67-4

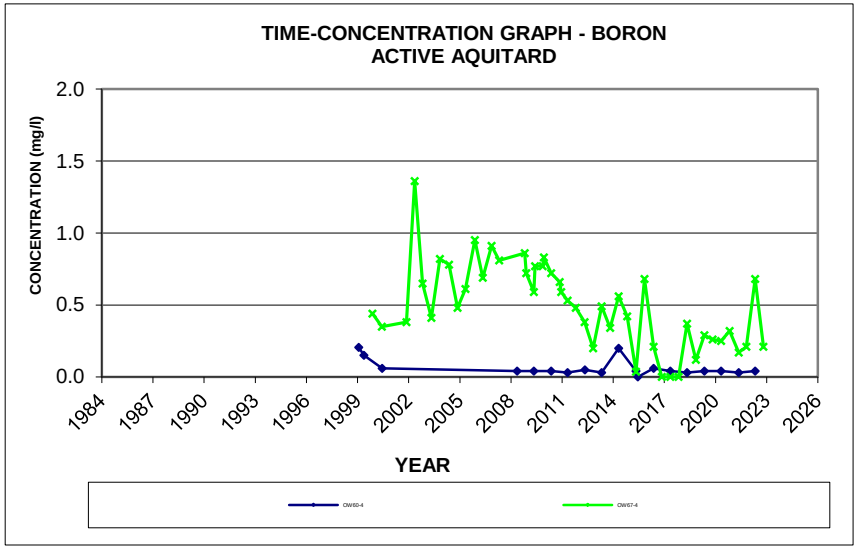
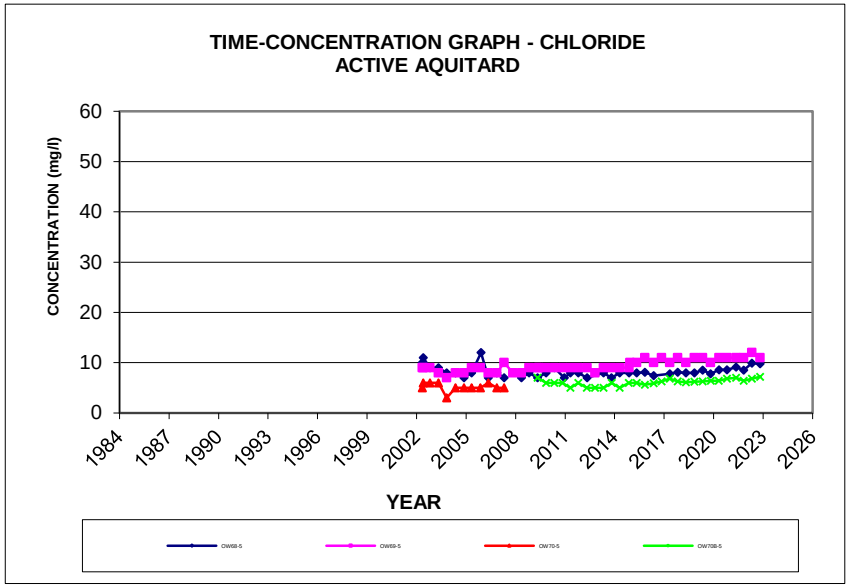
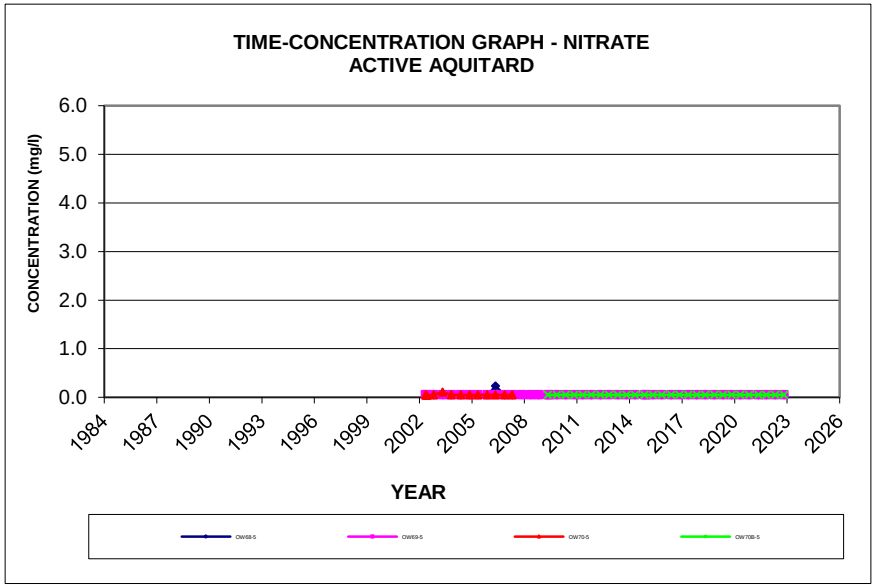

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW60-4
OW67-4

FIGURE H-4


TIME-CONCENTRATION GRAPH - CHLORIDE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
60
50
40
30
20
10
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR


TIME-CONCENTRATION GRAPH - NITRATE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR

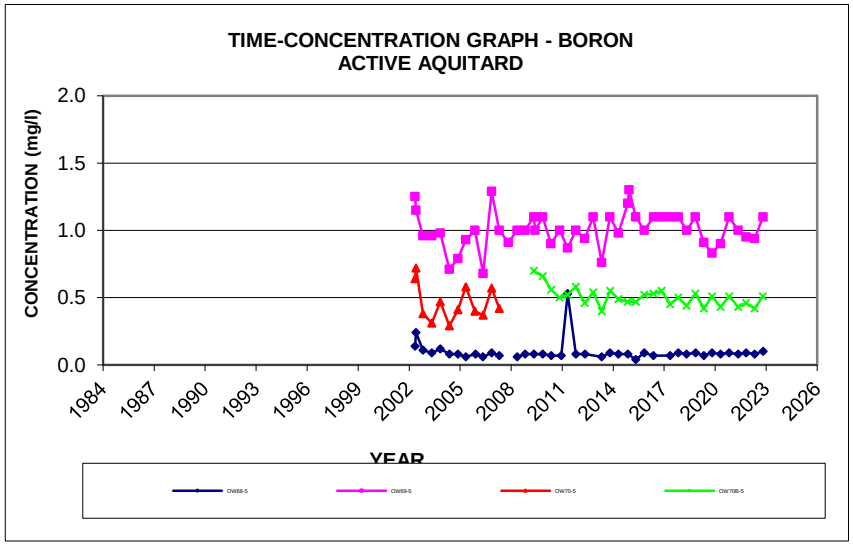
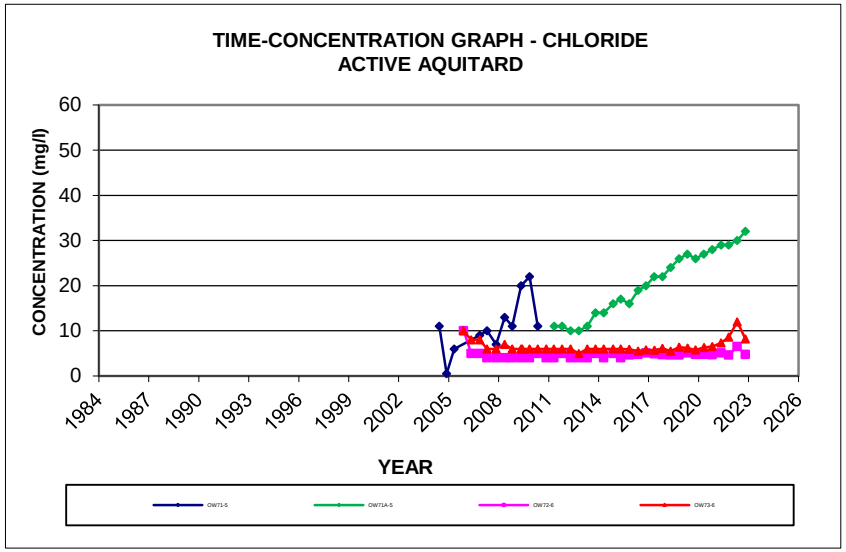
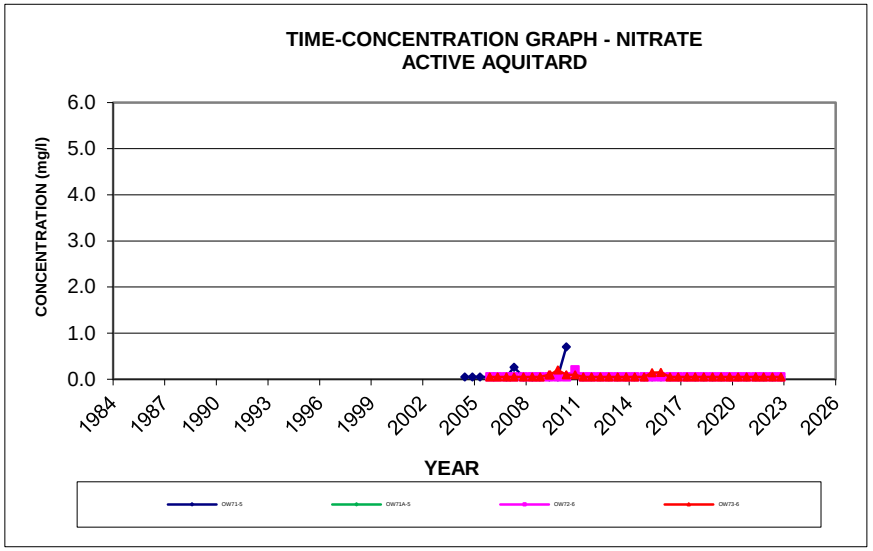

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR

FIGURE H-5


TIME-CONCENTRATION GRAPH - CHLORIDE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
60
50
40
30
20
10
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW71-5
OW71A-5
OW72-6
OW73-6


TIME-CONCENTRATION GRAPH - NITRATE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW71-5
OW71A-5
OW72-6
OW73-6

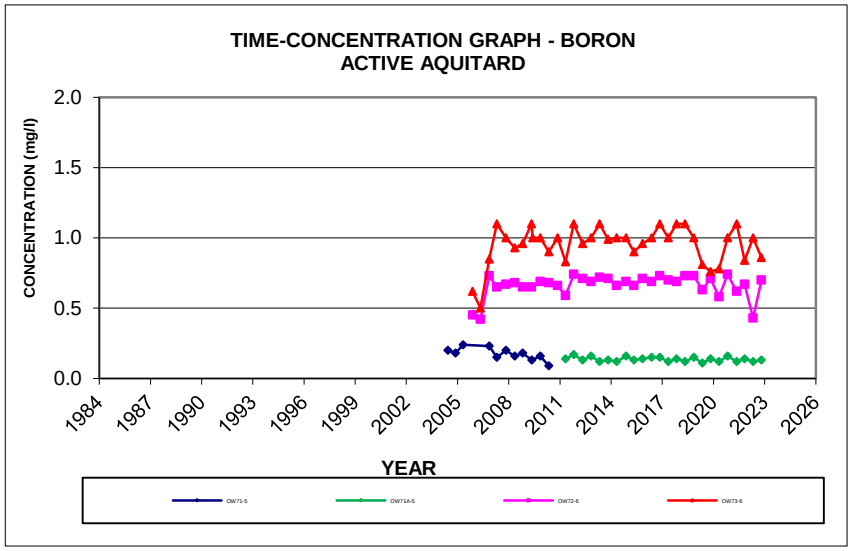
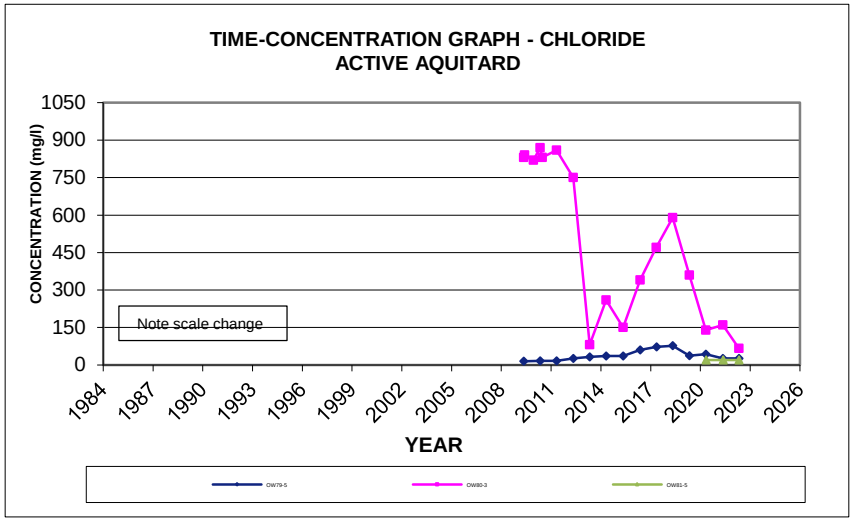
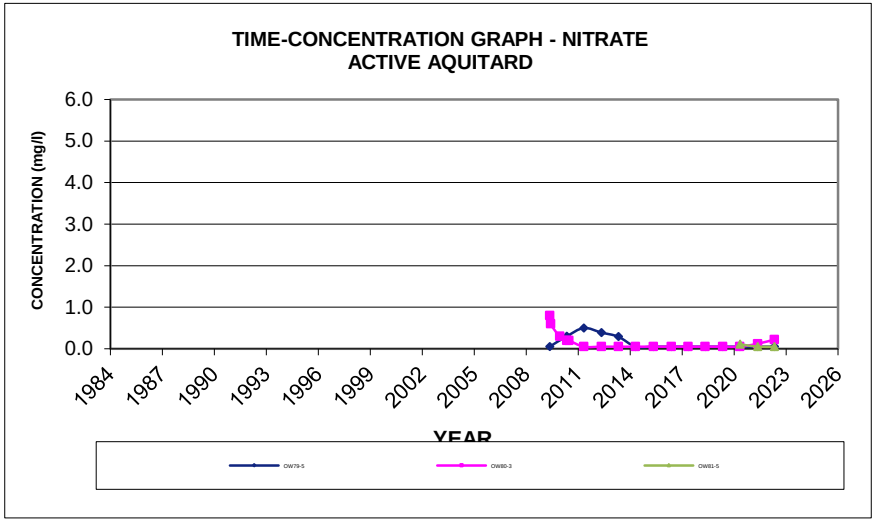

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW71-5
OW71A-5
OW72-6
OW73-6

FIGURE H-6


TIME-CONCENTRATION GRAPH - CHLORIDE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
1050
900
750
600
450
300
150
0
Note scale change
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-S
OW80-3
OW81-S


TIME-CONCENTRATION GRAPH - NITRATE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-S
OW80-3
OW81-S

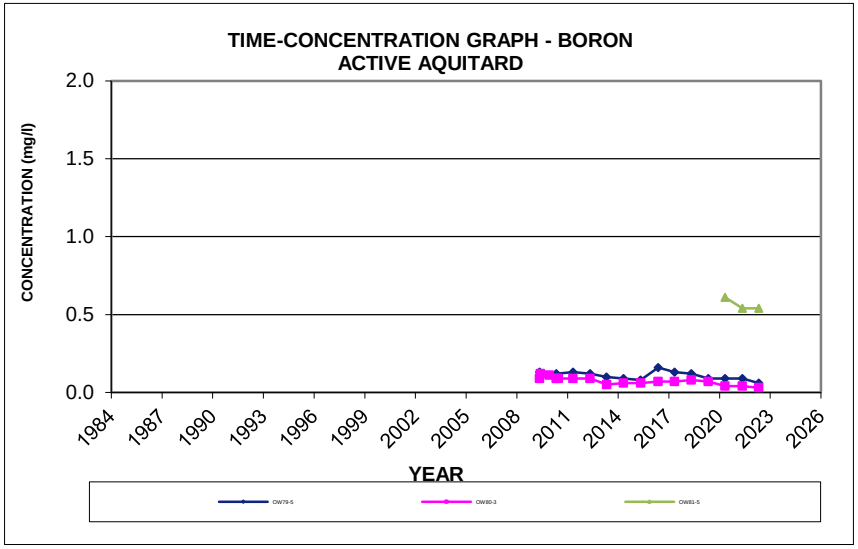
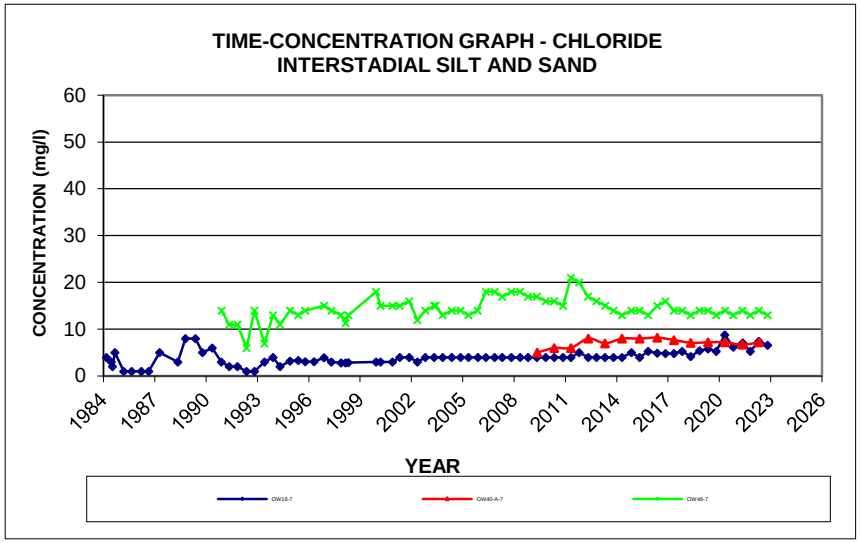
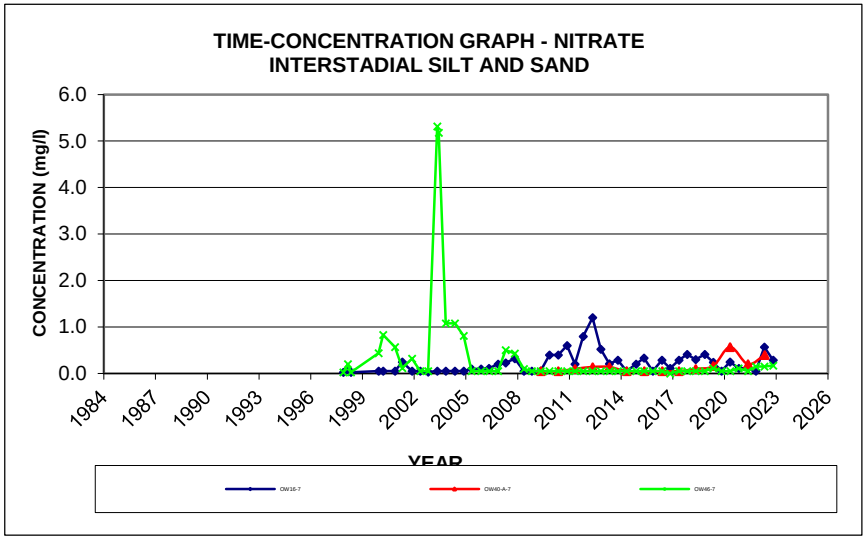

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-S
OW80-3
OW81-S

FIGURE H-7


TIME-CONCENTRATION GRAPH - CHLORIDE
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
60
50
40
30
20
10
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW16-7
OW40-A-7
OW46-7


TIME-CONCENTRATION GRAPH - NITRATE
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW16-7
OW40-A-7
OW46-7

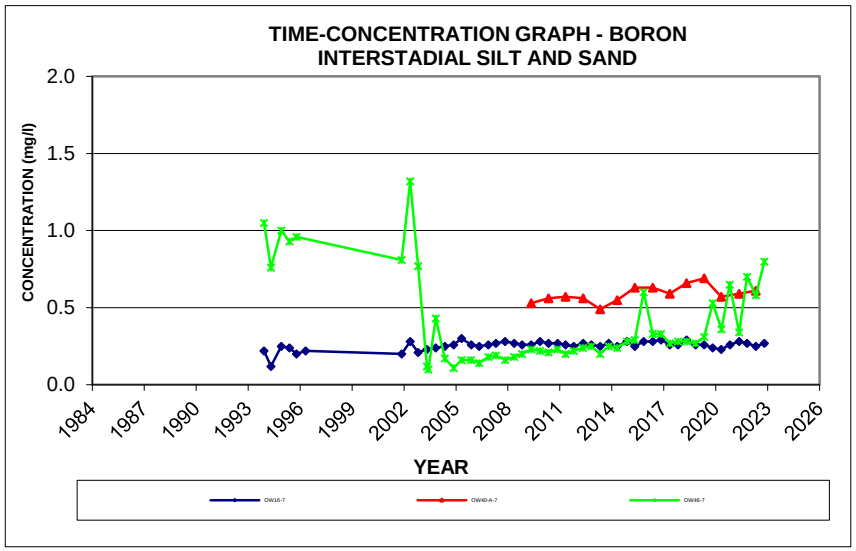
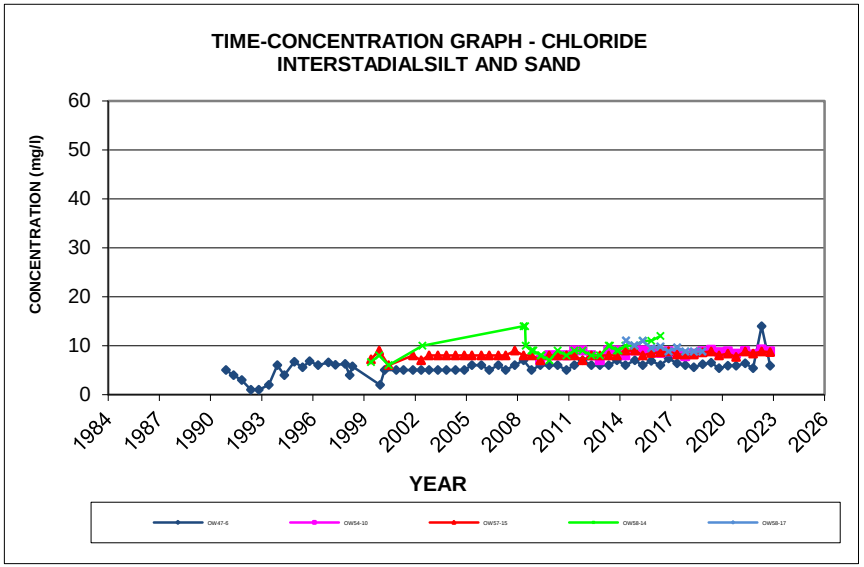
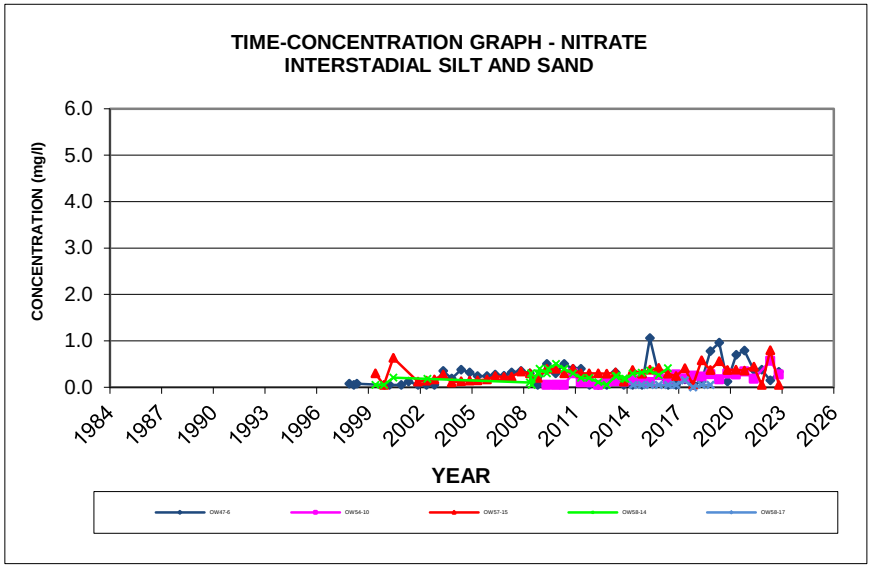

TIME-CONCENTRATION GRAPH - BORON
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW16-7
OW40-A-7
OW46-7

FIGURE H-8


TIME-CONCENTRATION GRAPH - CHLORIDE
INTERSTADIALSILT AND SAND
CONCENTRATION (mg/l)
60
50
40
30
20
10
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW47-6
OW54-10
OW57-15
OW58-14
OW58-17


TIME-CONCENTRATION GRAPH - NITRATE
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW47-6
OW54-10
OW57-15
OW58-14
OW58-17

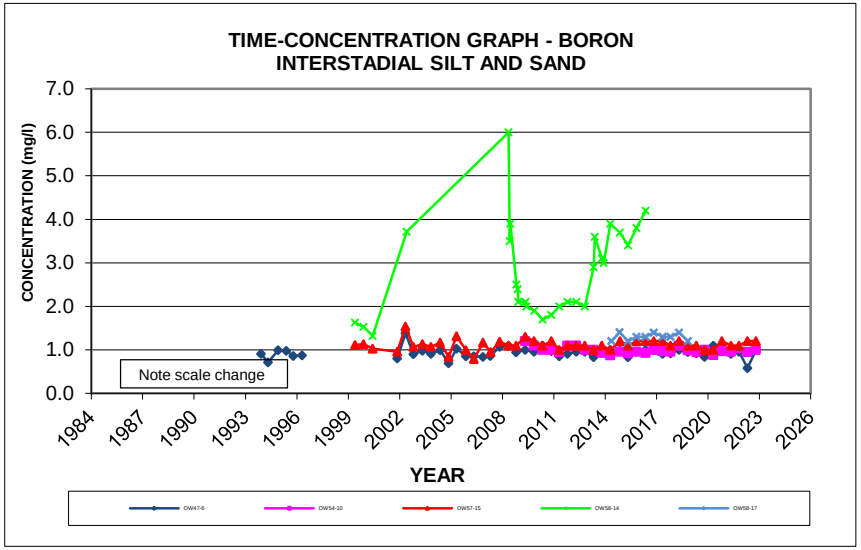
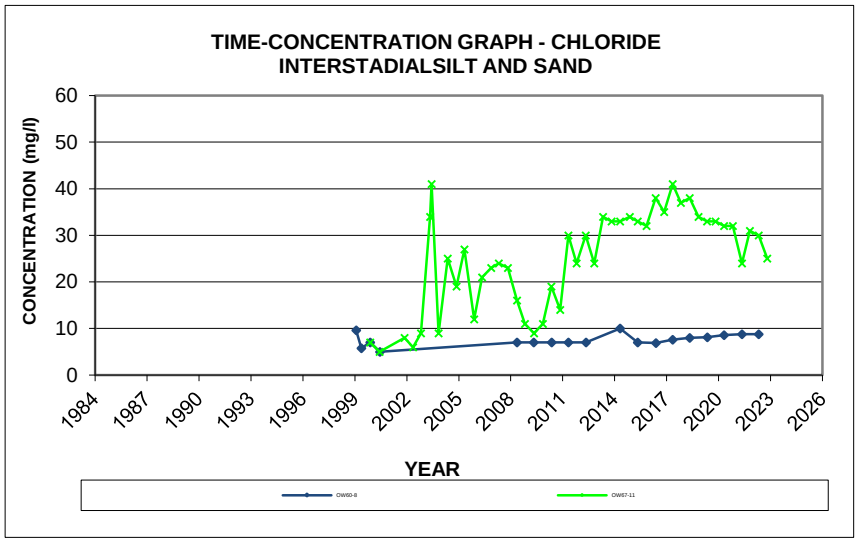
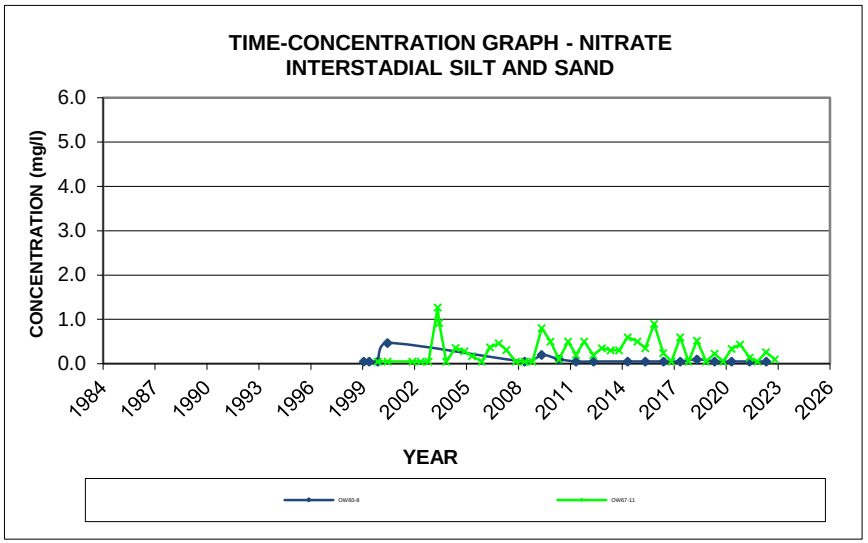

TIME-CONCENTRATION GRAPH - BORON
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Note scale change
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW47-6
OW54-10
OW57-15
OW58-14
OW58-17

FIGURE H-9


TIME-CONCENTRATION GRAPH - CHLORIDE
INTERSTADIALSILT AND SAND
CONCENTRATION (mg/l)
60
50
40
30
20
10
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW60-8
OW67-11


TIME-CONCENTRATION GRAPH - NITRATE
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW60-8
OW67-11

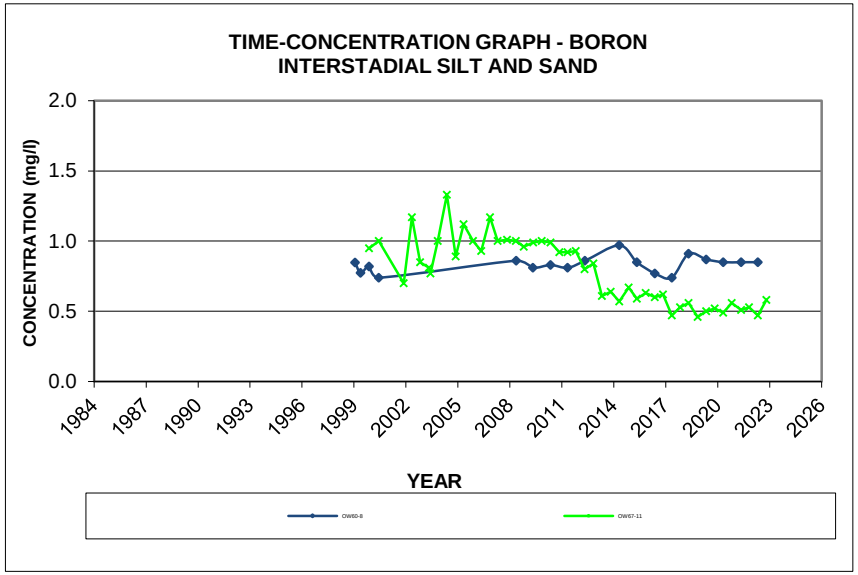
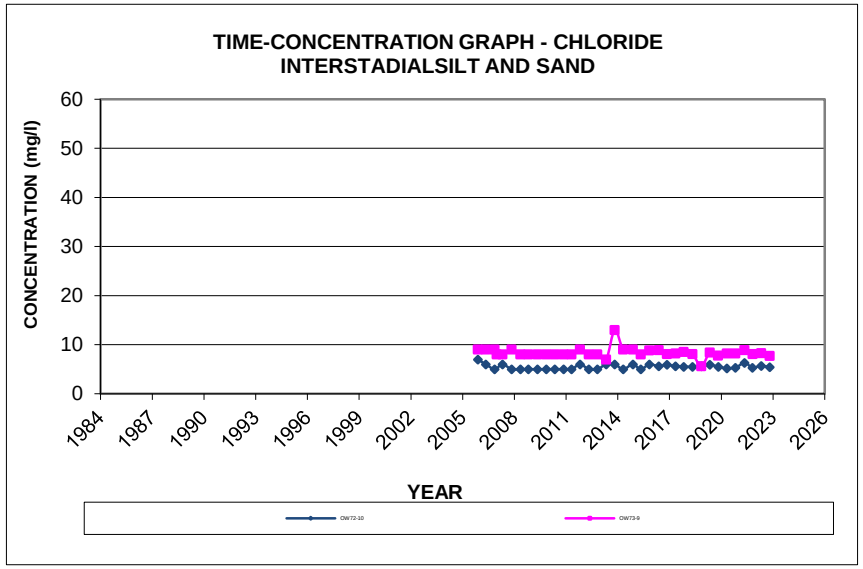
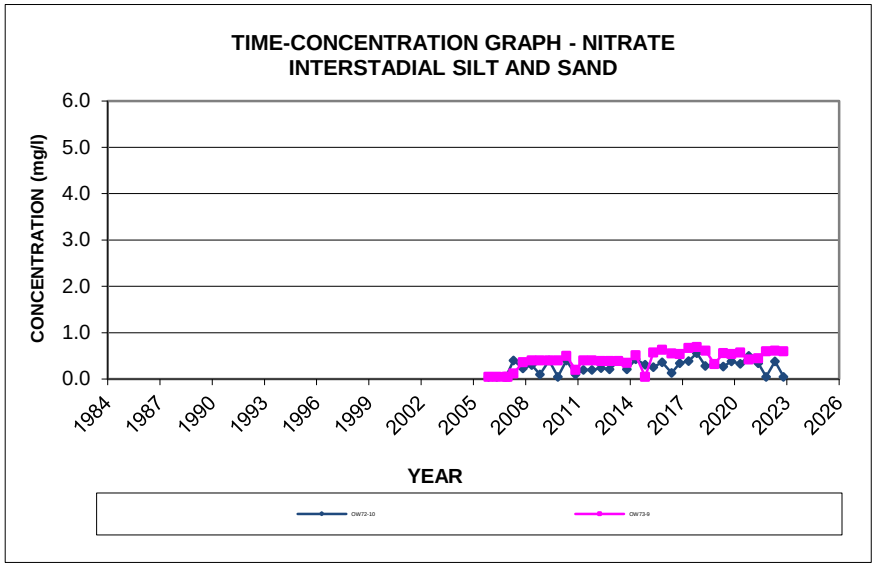

TIME-CONCENTRATION GRAPH - BORON
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW60-8
OW67-11

FIGURE H-10


TIME-CONCENTRATION GRAPH - CHLORIDE
INTERSTADIALSILT AND SAND
CONCENTRATION (mg/l)
60
50
40
30
20
10
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW72-10
OW73-9


TIME-CONCENTRATION GRAPH - NITRATE
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW72-10
OW73-9

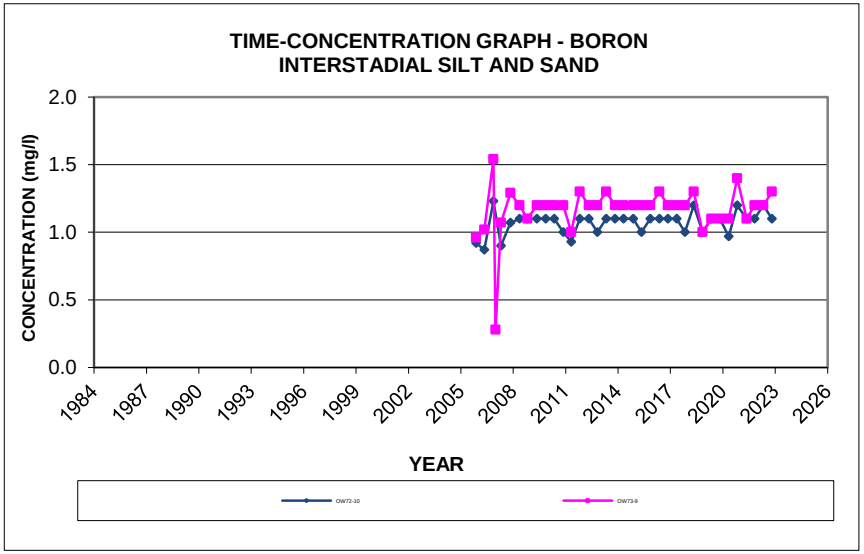
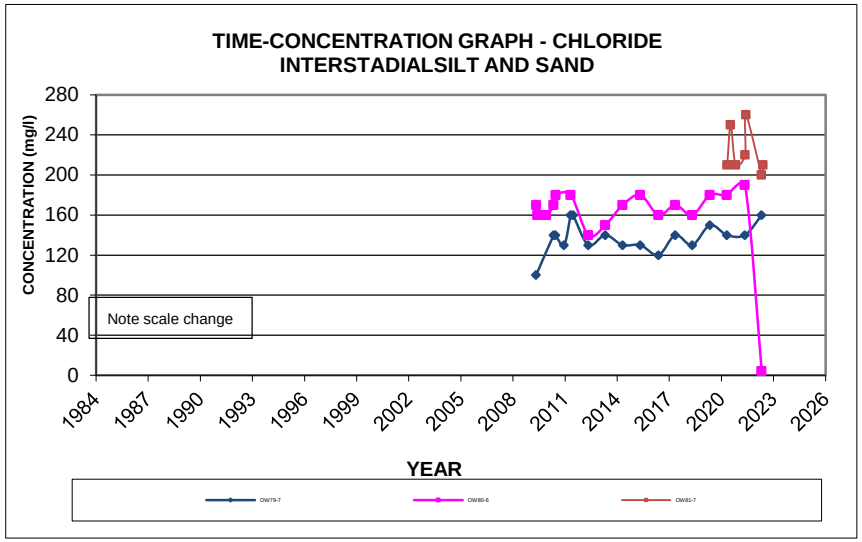
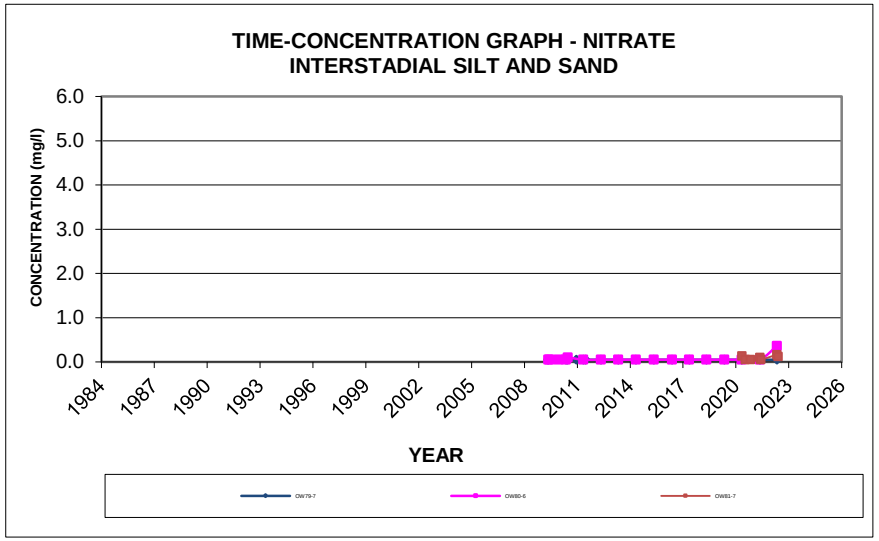

TIME-CONCENTRATION GRAPH - BORON
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW72-10
OW73-9

FIGURE H-11


TIME-CONCENTRATION GRAPH - CHLORIDE
INTERSTADIALSILT AND SAND
CONCENTRATION (mg/l)
280
240
200
160
120
80
40
0
Note scale change
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-7
OW80-6
OW81-7


TIME-CONCENTRATION GRAPH - NITRATE
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-7
OW80-6
OW81-7

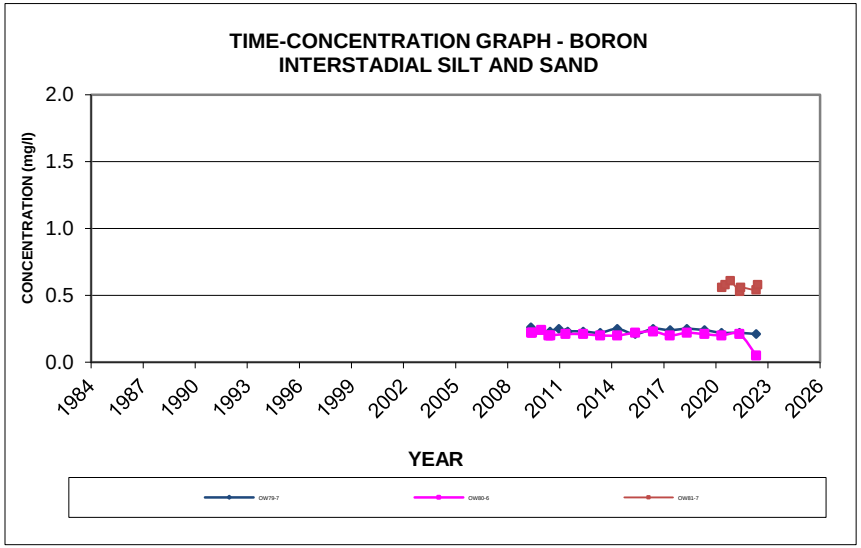
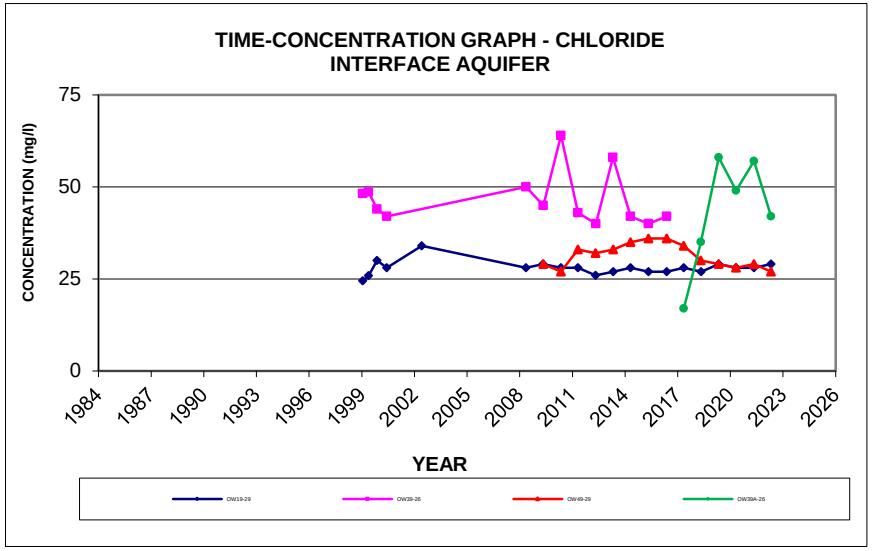
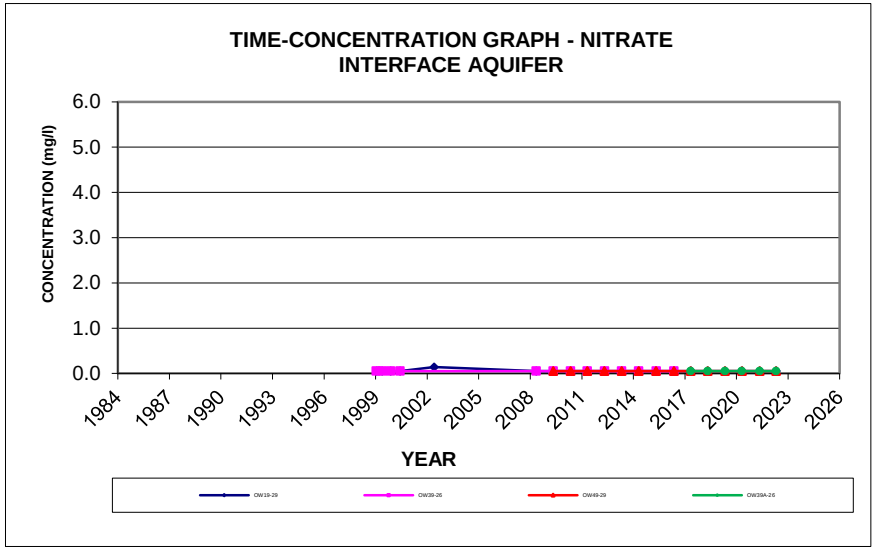

TIME-CONCENTRATION GRAPH - BORON
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-7
OW80-6
OW81-7

FIGURE H-12


TIME-CONCENTRATION GRAPH - CHLORIDE
INTERFACE AQUIFER
CONCENTRATION (mg/l)
75
50
25
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW19-29
OW39-26
OW49-29
OW39A-26


TIME-CONCENTRATION GRAPH - NITRATE
INTERFACE AQUIFER
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW19-29
OW39-26
OW49-29
OW39A-26

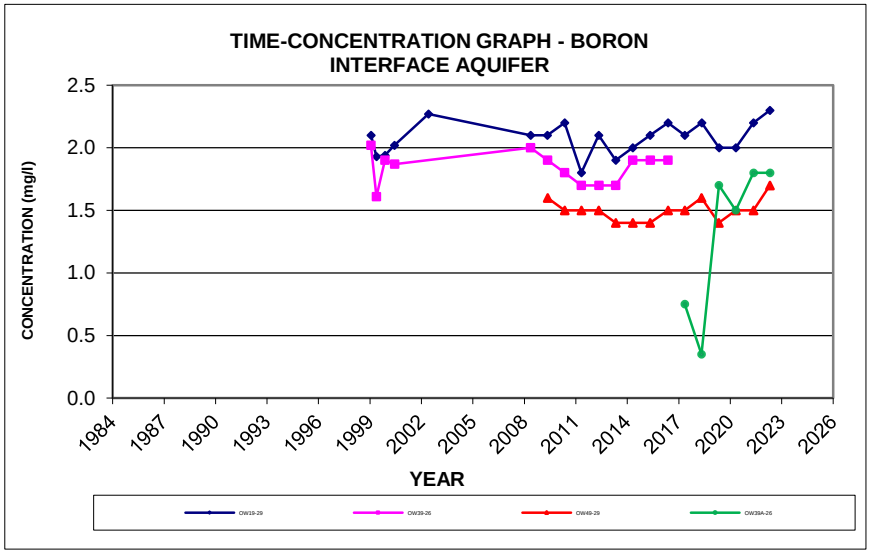
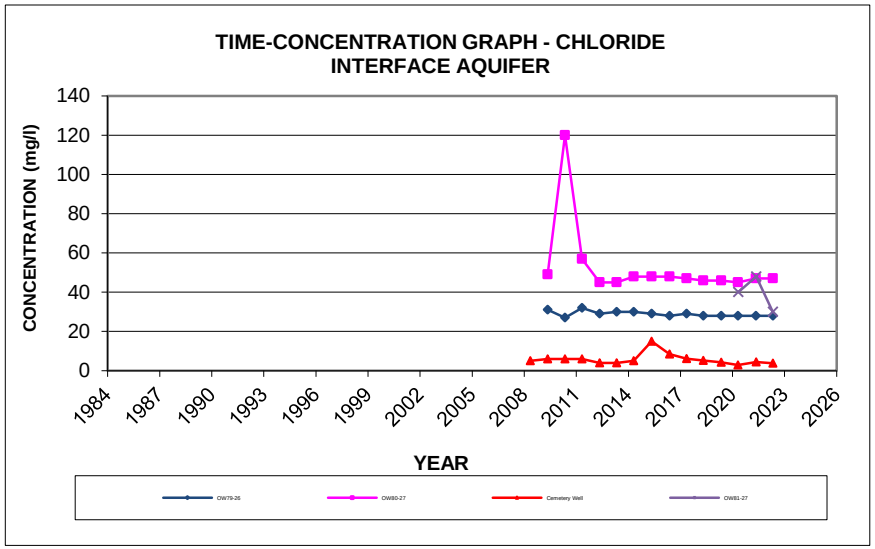
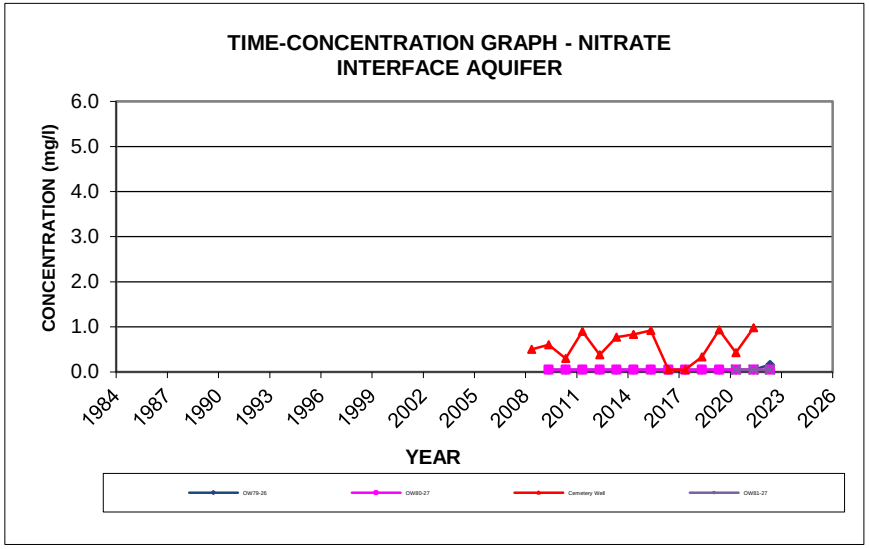

TIME-CONCENTRATION GRAPH - BORON
INTERFACE AQUIFER
CONCENTRATION (mg/l)
2.5
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW19-29
OW39-26
OW49-29
OW39A-26

FIGURE H-13


TIME-CONCENTRATION GRAPH - CHLORIDE
INTERFACE AQUIFER
CONCENTRATION (mg/l)
140
120
100
80
60
40
20
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-26
OW80-27
Cemetery Well
OW81-27


TIME-CONCENTRATION GRAPH - NITRATE
INTERFACE AQUIFER
CONCENTRATION (mg/l)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-26
OW80-27
Cemetery Well
OW81-27

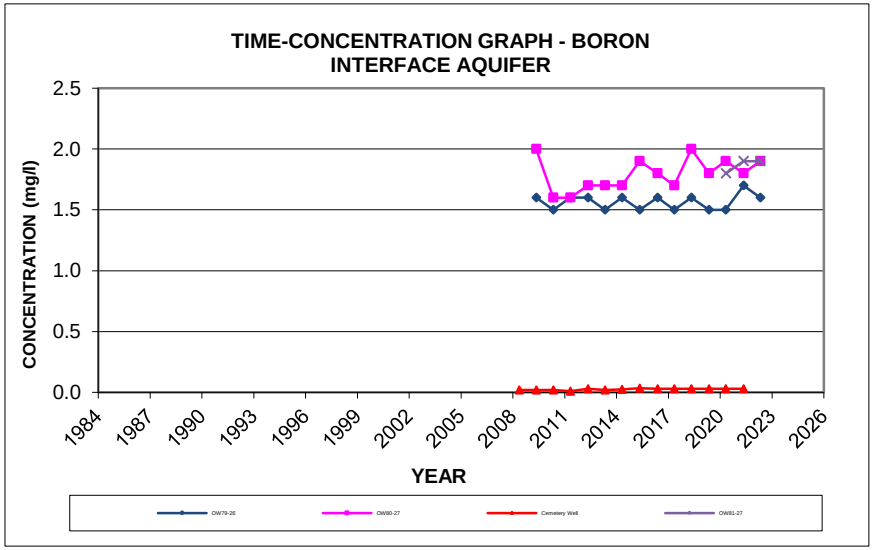

TIME-CONCENTRATION GRAPH - BORON
INTERFACE AQUIFER
CONCENTRATION (mg/l)
2.5
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-26
OW80-27
Cemetery Well
OW81-27

FIGURE H-14

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5	OW16-5
Date			29-May-92	17-Jun-93	6-Jun-95	22-May-02	11-Jun-02	14-May-03	25-May-04	13-May-05	19-May-06	5-May-07
Laboratory			Enviroclean	Enviroclean	Enviroclean	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Benzene	µg/L	1	<0.2	<0.2	<0.2	<1.3	<0.5	<1.3	<1.3	<1.3	<0.5	<0.5
Toluene	µg/L	60	<0.2	<0.2	<0.4	<1.5	<0.5	<1.5	<1.5	<1.6	<0.5	<0.5
Ethylbenzene	µg/L	140	<0.2	<0.2	<0.4	<1.6	<0.5	<1.6	<1.6	<1.5	<0.5	<0.5
m&p-Xylenes	µg/L	90	<0.2	<0.2	<0.5	<3.4	<1.0	<3.4	<3.4	<3.4	<1.0	<1.0
o-Xylene	µg/L	90	<0.2	<0.2		<2.7	<0.5	<2.7	<2.7	<2.7	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2								
Dichloromethane	µg/L	50	<1.0	<1.0								
Vinyl Chloride	µg/L	1	<0.5	<0.5								

Parameter	Units	ODWQS	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6
Date			22-May-08	5-Nov-08	16-May-09	18-Nov-09	20-May-10	23-Nov-10	11-May-11	3-Nov-11	15-May-12	8-Nov-12	9-May-13
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6
Date			6-May-14	24-Nov-14	13-May-15	12-Nov-15	25-May-16	16-Nov-16	16-May-17	7-Nov-17	8-May-18	14-Nov-18	14-May-19
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20		<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20		<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20		<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20		<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50		<0.50
Dichloromethane	µg/L	50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0		<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20

Parameter	Units	ODWQS	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6	OW16-6
Date			7-Nov-19	7-May-20	4-Nov-20	19-May-21	2-Nov-21	4-May-22	2-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7
Date			14-Nov-91	29-May-92	17-Jun-93	12-May-94	22-May-08	5-Nov-08	16-May-09	18-Nov-09	20-May-10	24-Nov-10	12-May-11
Laboratory			Enviroclean	Enviroclean	Enviroclean	Enviroclean	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	µg/L	140	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m&p-Xylenes	µg/L	90	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o-Xylene	µg/L	90	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dichloromethane	µg/L	50	<1.0	<1.0	<1.1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride	µg/L	1	<0.5	<0.5	<0.5		<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2

Parameter	Units	ODWQS	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7
Date			3-Nov-11	15-May-12	8-Nov-12	9-May-13	6-May-14	24-Nov-14	13-May-15	12-Nov-15	25-May-16	16-Nov-16	16-May-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1	0.3	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7	OW16-7
Date			7-Nov-17	8-May-18	14-Nov-18	14-May-19	5-Nov-19	7-May-20	4-Nov-20	19-May-21	2-Nov-21	4-May-22	2-Nov-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	0.22	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-5	OW17-4	OW17-4	OW17-4
Date			22-May-02	14-Jun-02	5-Nov-02	14-May-03	25-May-04	13-May-05	19-May-06	4-May-07	22-May-08	16-May-09
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM
Benzene	µg/L	1	<1.3	<0.5	<1.3	<1.3	<1.3	<1.3	<0.5	<0.5	<0.1	<0.1
Toluene	µg/L	60	<1.5	<0.5	<1.5	<1.5	<1.5	<1.6	<0.5	<0.5	<0.2	<0.2
Ethylbenzene	µg/L	140	<1.6	<0.5	<1.6	<1.6	<1.6	<1.5	<0.5	<0.5	<0.1	<0.1
m&p-Xylenes	µg/L	90	<3.4	<1.0	<3.4	<3.4	<3.4	<3.4	<1.0	<1.0	<0.1	<0.1
o-Xylene	µg/L	90	<2.7	<0.5	<2.7	<2.7	<2.7	<2.7	<0.5	<0.5	<0.1	<0.1
1,4-Dichlorobenzene	µg/L	5									<0.2	<0.2
Dichloromethane	µg/L	50									<0.5	<0.5
Vinyl Chloride	µg/L	1									<0.2	<0.2

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4	OW17-4
Date			20-May-10	10-May-11	10-May-12	13-May-13	6-May-14	13-May-15	27-May-16	19-May-17	10-May-18	14-May-19	11-May-20
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas
Benzene	µg/L	1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50	<0.40
Dichloromethane	µg/L	50	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW17-4	OW17-4
Date			20-May-21	3-May-22
Laboratory			Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20

Parameter	Units	ODWQS	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29	OW19-29
Date			2-Dec-99	11-Jun-02	22-May-08	19-May-10	10-May-11	9-May-12	6-May-14	12-May-15	26-May-16	10-May-18	8-May-20
Laboratory			Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas
Benzene	µg/L	1	<1.3	<0.5	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
Toluene	µg/L	60	<1.5	<0.5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<1.6	<0.5	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
m&p-Xylenes	µg/L	90	<3.4	<1.0	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
o-Xylene	µg/L	90	<2.7	<0.5	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5			<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.50	<0.40
Dichloromethane	µg/L	50			<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0
Vinyl Chloride	µg/L	1			<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW19-29
Date			4-May-22
Laboratory			Bureau Veritas
Benzene	µg/L	1	<0.20
Toluene	µg/L	60	<0.20
Ethylbenzene	µg/L	140	<0.20
m&p-Xylenes	µg/L	90	<0.20
o-Xylene	µg/L	90	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40
Dichloromethane	µg/L	50	<2.0
Vinyl Chloride	µg/L	1	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26	OW39-26
Date			20-Nov-99	10-Jun-02	22-May-08	18-May-10	11-May-11	16-May-12	5-May-14	14-May-15	27-May-16	8-May-18	6-May-20
Laboratory			Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas
Benzene	µg/L	1	<1.3	<0.5	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	0.33	<0.20
Toluene	µg/L	60	<1.5	<0.5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<1.6	<0.5	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
m&p-Xylenes	µg/L	90	<3.4	<1.0	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	0.21	<0.20
o-Xylene	µg/L	90	<2.7	<0.5	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5			<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.50	<0.40
Dichloromethane	µg/L	50			<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0
Vinyl Chloride	µg/L	1			<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW39-26
Date			5-May-22
Laboratory			Bureau Veritas
Benzene	µg/L	1	<0.20
Toluene	µg/L	60	<0.20
Ethylbenzene	µg/L	140	<0.20
m&p-Xylenes	µg/L	90	<0.20
o-Xylene	µg/L	90	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40
Dichloromethane	µg/L	50	<2.0
Vinyl Chloride	µg/L	1	<0.20

Parameter	Units	ODWQS	OW40B-4	OW40B-4	OW40B-4	OW40B-4	OW40B-4	OW40B-4r	OW40B-4r	OW40B-4r	OW40D-4	OW40D-4	OW40D-4
Date			19-May-09	21-May-10	12-May-11	15-May-12	12-Jun-12	3-Dec-12	8-May-13	6-May-14	14-May-15	27-May-16	17-May-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW40D-4	OW40D-4	OW40D-4	OW40D-4	OW40D-4
Date			**8-May-18**	**15-May-19**	**7-May-20**	**20-May-21**	**5-May-22**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7	OW40A-7
Date			**19-May-09**	**20-May-10**	**12-May-11**	**15-May-12**	**9-May-13**	**5-May-14**	**14-May-15**	**27-May-16**	**17-May-17**	**8-May-18**	**15-May-19**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<2.5	<0.50
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<1.0	<0.20

Parameter	Units	ODWQS	OW40A-7	OW40A-7	OW40A-7
Date			**7-May-20**	**20-May-21**	**5-May-22**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7
Date			6-Jun-95	22-May-08	16-May-09	19-May-10	10-May-11	10-May-12	13-May-13	6-May-14	13-May-15	27-May-16	19-May-17
Laboratory			Enviroclean	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.4	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.4	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.4	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5		<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50		<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1		<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW46-7	OW46-7	OW46-7	OW46-7	OW46-7
Date			10-May-18	14-May-19	11-May-20	18-May-21	4-May-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6
Date			6-Jun-95	22-May-08	16-May-09	19-May-10	10-May-11	10-May-12	13-May-13	6-May-14	13-May-15	27-May-16	19-May-17
Laboratory			Zenon	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.4	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.4	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.4	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5		<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50		<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1		<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW47-6	OW47-6	OW47-6	OW47-6	OW47-6
Date			10-May-18	14-May-19	11-May-20	18-May-21	4-May-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29	OW49-29
Date			19-May-09	18-May-10	11-May-11	9-May-12	6-May-14	12-May-15	25-May-16	8-May-18	7-May-20	3-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.50	<0.40	<0.40
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54-4	OW54A-4
Date			22-Dec-99	29-Mar-00	23-May-02	6-Nov-02	15-May-03	26-May-04	12-May-05	19-May-06	4-May-07	22-May-08
Laboratory					Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM
Benzene	µg/L	1	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<0.5	<0.5	<0.1
Toluene	µg/L	60	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.6	<0.5	<0.5	<0.2
Ethylbenzene	µg/L	140	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.5	<0.5	<0.5	<0.1
m&p-Xylenes	µg/L	90	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<1.0	<1.0	<0.1
o-Xylene	µg/L	90	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7	<0.5	<0.5	<0.1
1,4-Dichlorobenzene	µg/L	5										<0.2
Dichloromethane	µg/L	50										<0.5
Vinyl Chloride	µg/L	1										<0.2

Parameter	Units	ODWQS	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4	OW54A-4
Date			19-May-09	20-May-10	11-May-11	9-May-12	10-May-13	6-May-14	12-May-15	25-May-16	18-May-17	9-May-18	14-May-19
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
Toluene	µg/L	60	3.1	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW54A-4	OW54A-4	OW54A-4
Date			8-May-20	19-May-21	4-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10	OW54-10
Date			14-May-09	17-May-10	11-May-11	9-May-12	10-May-13	6-May-14	12-May-15	25-May-16	18-May-17	9-May-18	14-May-19
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW54-10	OW54-10	OW54-10
Date			8-May-20	18-May-21	3-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4
Date			22-May-02	10-Jun-02	6-Nov-02	15-May-03	16-Jun-03	25-May-04	12-May-05	18-May-06	5-May-07	22-May-08
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM
Benzene	µg/L	1	<1.3	<0.5	<1.3	<1.3	<1.3	<1.3	<1.3	<0.5	<0.5	<0.1
Toluene	µg/L	60	<1.5	<0.5	<1.5	<1.5	<1.5	<1.5	<1.6	<0.5	<0.5	<0.2
Ethylbenzene	µg/L	140	<1.6	<0.5	<1.6	<1.6	<1.6	<1.6	<1.5	<0.5	<0.5	<0.1
m&p-Xylenes	µg/L	90	<3.4	<1.0	<3.4	<3.4	<3.4	<3.4	<3.4	<1.0	<1.0	<0.1
o-Xylene	µg/L	90	<2.7	<0.5	<2.7	<2.7	<2.7	<2.7	<2.7	<0.5	<0.5	<0.1
1,4-Dichlorobenzene	µg/L	5										<0.2
Dichloromethane	µg/L	50										<0.5
Vinyl Chloride	µg/L	1										<0.2

Parameter	Units	ODWQS	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4	OW56-4
Date			16-May-09	19-May-10	10-May-11	10-May-12	13-May-13	6-May-14	13-May-15	27-May-16	19-May-17	10-May-18	14-May-19
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW56-4	OW56-4	OW56-4
Date			11-May-20	19-May-21	4-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-5	OW57-4	OW57-4	OW57-4
Date			22-May-02	10-Jun-02	6-Nov-02	15-May-03	26-May-04	12-May-05	19-May-06	5-May-07	22-May-08	16-May-09
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM
Benzene	µg/L	1	<1.3	<0.5	<1.3	<1.3	<1.3	<1.3	<0.5	<0.5	DRY	<0.1
Toluene	µg/L	60	<1.5	<0.5	<1.5	<1.5	<1.5	<1.6	<0.5	<0.5		<0.2
Ethylbenzene	µg/L	140	<1.6	<0.5	<1.6	<1.6	<1.6	<1.5	<0.5	<0.5		<0.1
m&p-Xylenes	µg/L	90	<3.4	<1.0	<3.4	<3.4	<3.4	<3.4	<1.0	<1.0		<0.1
o-Xylene	µg/L	90	<2.7	<0.5	<2.7	<2.7	<2.7	<2.7	<0.5	<0.5		<0.1
1,4-Dichlorobenzene	µg/L	5										<0.2
Dichloromethane	µg/L	50										<0.5
Vinyl Chloride	µg/L	1										<0.2

Parameter	Units	ODWQS	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4	OW57-4
Date			19-May-10	10-May-11	9-May-12	13-May-13	6-May-14	12-May-15	26-May-16	19-May-17	10-May-18	14-May-19	8-May-20
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas
Benzene	µg/L	1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50	<0.40
Dichloromethane	µg/L	50	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW57-4	OW57-4
Date			19-May-21	3-May-22
Laboratory			Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

PARAMETER	UNITS	ODWQS	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15
Date			**22-May-08**	**16-May-09**	**19-May-10**	**10-May-11**	**9-May-12**	**13-May-13**	**6-May-14**	**12-May-15**	**26-May-16**	**19-May-17**	**10-May-18**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

PARAMETER	UNITS	ODWQS	OW57-15	OW57-15	OW57-15	OW57-15	OW57-15
Date			**22-May-08**	**16-May-19**	**8-May-20**	**18-May-21**	**3-May-22**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.1	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.5	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.20	<0.20	<0.20	<0.20

PARAMETER	UNITS	ODWQS	OW58-4	OW58-4	OW58-4	OW58-4
Date			**15-Jun-02**	**22-Jul-02**	**6-Aug-02**	**12-May-05**
Laboratory			**Accutest**	**Accutest**	**Accutest**	**Accutest**
Benzene	µg/L	1	<0.5	<1.3	<1.3	<1.3
Toluene	µg/L	60	<0.5	<1.5	<1.5	<1.6
Ethylbenzene	µg/L	140	<0.5	<1.6	<1.6	<1.5
m&p-Xylenes	µg/L	90	<1.0	<3.4	<3.4	<3.4
o-Xylene	µg/L	90	<0.5	<2.7	<2.7	<2.7

PARAMETER	UNITS	ODWQS	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6
Date			**19-May-06**	**5-May-07**	**22-May-08**	**19-May-09**	**19-May-10**	**10-May-11**	**9-May-12**	**13-May-13**	**6-May-14**	**12-May-15**
Laboratory			**Accutest**	**Accutest**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**
Benzene	µg/L	1	<0.5	<0.5	<0.1	<0.1	<0.2	<0.1	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.5	<0.5	<0.2	<0.2	<0.4	<0.2	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.5	<0.5	<0.1	<0.1	<0.2	<0.1	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<1.0	<1.0	<0.1	<0.1	<0.2	<0.1	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.5	<0.5	<0.1	<0.1	<0.2	<0.1	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5			<0.2	<0.2	<0.4	<0.2	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50			<0.5	<0.5	<1	<0.5	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1			<0.2	<0.2	<0.4	<0.2	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

PARAMETER	UNITS	ODWQS	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6	OW58-6
Date			26-May-16	19-May-17	10-May-18	14-May-19	8-May-20	19-May-21	4-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.20	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

PARAMETER	UNITS	ODWQS	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14	OW58-14
Date			22-May-08	19-May-09	11-Jun-09	20-May-10	10-May-11	9-May-12	13-May-13	6-May-14	12-May-15	26-May-16
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20

PARAMETER	UNITS	ODWQS	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17	OW58-17
Date			27-May-14	12-May-15	27-May-16	19-May-17	10-May-18	14-May-19	8-May-20	18-May-21	3-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	0.13	0.11	<0.10	0.12	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6
Date			19-May-06	5-May-07	22-May-08	16-May-09	11-Jun-09	19-May-10	10-May-11	9-May-12	10-May-13	6-May-14
Laboratory			Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5			<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50			<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1			<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6	OW59-6
Date			12-May-15	26-May-16	18-May-17	10-May-18	14-May-19	8-May-20	19-May-21	4-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.20	<0.20	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4
Date			23-May-08	19-May-09	21-May-10	12-May-11	15-May-12	9-May-13	6-May-14	13-May-15	27-May-16	16-May-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW60-4	OW60-4	OW60-4	OW60-4	OW60-4
Date			8-May-18	15-May-19	7-May-20	19-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8
Date			23-May-08	14-May-09	21-May-10	12-May-11	15-May-12	9-May-13	6-May-14	13-May-15	27-May-16	16-May-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW60-8	OW60-8	OW60-8	OW60-8	OW60-8
Date			8-May-18	15-May-19	7-May-20	19-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	13	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4
Date			22-May-02	12-Jun-02	6-Nov-02	15-May-03	25-May-04	12-May-05	19-May-06	4-May-07	22-May-08	16-May-09
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM
Benzene	µg/L	1	<1.3	<0.5	<1.3	<1.3	<1.3	<1.3	<0.5	<0.5	DRY	<0.1
Toluene	µg/L	60	<1.5	<0.5	<1.5	<1.5	<1.5	<1.5	<0.5	<0.5		<0.2
Ethylbenzene	µg/L	140	<1.6	<0.5	<1.6	<1.6	<1.6	<1.6	<0.5	<0.5		<0.1
m&p-Xylenes	µg/L	90	<3.4	<1.0	<3.4	<3.4	<3.4	<3.4	<1.0	<1.0		<0.1
o-Xylene	µg/L	90	<2.7	<0.5	<2.7	<2.7	<2.7	<2.7	<0.5	<0.5		<0.1
1,4-Dichlorobenzene	µg/L	5										<0.2
Dichloromethane	µg/L	50										<0.5
Vinyl Chloride	µg/L	1										<0.2

Parameter	Units	ODWQS	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4
Date			11-Jun-09	15-Dec-09	20-May-10	11-May-11	9-May-12	9-May-13	6-May-14	12-May-15	25-May-16	17-May-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW67-4	OW67-4	OW67-4	OW67-4	OW67-4
Date			8-May-18	13-May-19	6-May-20	20-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11
Date			22-May-08	19-May-09	20-May-10	11-May-11	9-May-12	9-May-13	6-May-14	12-May-15	25-May-16	17-May-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11	OW67-11
Date			14-Nov-18	8-May-18	13-May-19	6-May-20	18-May-21	3-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	0.21	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	0.58	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW68-5	OW68-5	OW68-5	OW68-5	OW68-4	OW68-4	OW68-4	OW68-5	OW68-5	OW68-5
Date			22-May-02	12-Jun-02	5-Nov-02	15-May-03	25-May-04	25-May-04	13-May-05	18-May-06	4-May-07	22-May-08
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM
Benzene	µg/L	1	<1.3	<0.5	<1.3	<1.3	<1.3	<1.3	<1.3	<0.5	<0.5	<0.1
Toluene	µg/L	60	<1.5	<0.5	<1.5	<1.5	<1.5	<1.5	<1.6	<0.5	<0.5	<0.2
Ethylbenzene	µg/L	140	<1.6	<0.5	<1.6	<1.6	<1.6	<1.6	<1.5	<0.5	<0.5	<0.1
m&p-Xylenes	µg/L	90	<3.4	<1.0	<3.4	<3.4	<3.4	<3.4	<3.4	<1.0	<1.0	<0.1
o-Xylene	µg/L	90	<2.7	<0.5	<2.7	<2.7	<2.7	<2.7	<2.7	<0.5	<0.5	<0.1
1,4-Dichlorobenzene	µg/L	5										<0.2
Dichloromethane	µg/L	50										<0.5
Vinyl Chloride	µg/L	1										<0.2

Parameter	Units	ODWQS	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5	OW68-5
Date			16-May-09	20-May-10	11-May-11	15-May-12	13-May-13	6-May-14	13-May-15	25-May-16	16-May-17	8-May-18	14-May-19
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW68-5	OW68-5	OW68-5
Date			7-May-20	20-May-21	4-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-6	OW69-5	OW69-5	OW69-5
Date			22-May-02	12-Jun-02	5-Nov-02	15-May-03	26-May-04	13-May-05	19-May-06	5-May-07	22-May-08	16-May-09
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	MAXXAM	MAXXAM
Benzene	µg/L	1	<1.3	<0.5	<1.3	<1.3	<1.3	<1.3	<0.5	<0.5	<0.1	<0.1
Toluene	µg/L	60	<1.5	<0.5	<1.5	<1.5	<1.5	<1.6	<0.5	<0.5	<0.2	<0.2
Ethylbenzene	µg/L	140	<1.6	<0.5	<1.6	<1.6	<1.6	<1.5	<0.5	<0.5	<0.1	<0.1
m&p-Xylenes	µg/L	90	<3.4	<1.0	<3.4	<3.4	<3.4	<3.4	<1.0	<1.0	<0.1	<0.1
o-Xylene	µg/L	90	<2.7	<0.5	<2.7	<2.7	<2.7	<2.7	<0.5	<0.5	<0.1	<0.1
1,4-Dichlorobenzene	µg/L	5									<0.2	<0.2
Dichloromethane	µg/L	50									<0.5	<0.5
Vinyl Chloride	µg/L	1									<0.2	<0.2

Parameter	Units	ODWQS	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5	OW69-5
Date			11-Jun-09	19-May-10	10-May-11	10-May-12	13-May-13	6-May-14	12-May-15	27-May-16	19-May-17	10-May-18	14-May-19
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW69-5	OW69-5	OW69-5
Date			11-May-20	20-May-21	5-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW70-5	OW70-5	OW70-5	OW70-5	OW70-5	OW70-5	OW70-6	OW70-5	OWB70-5	OW70B-5
Date			22-May-02	12-Jun-02	5-Nov-02	14-May-03	26-May-04	13-May-05	19-May-06	4-May-07	17-Jul-08	14-May-09
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest		MAXXAM
Benzene	µg/L	1	<1.3	<0.5	<1.3	<1.3	<1.3	<1.3	<0.5	<0.5	DRY	<0.1
Toluene	µg/L	60	<1.5	<0.5	<1.5	<1.5	<1.5	<1.6	<0.5	<0.5		<0.2
Ethylbenzene	µg/L	140	<1.6	<0.5	<1.6	<1.6	<1.6	<1.5	<0.5	<0.5		<0.1
m&p-Xylenes	µg/L	90	<3.4	<1.0	<3.4	<3.4	<3.4	<3.4	<1.0	<1.0		<0.1
o-Xylene	µg/L	90										<0.1
1,4-Dichlorobenzene	µg/L	5										<0.2
Dichloromethane	µg/L	50										<0.5
Vinyl Chloride	µg/L	1	<2.7	<0.5	<2.7	<2.7	<2.7	<2.7	<0.5	<0.5		<0.2

Parameter	Units	ODWQS	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5	OW70B-5
Date			20-May-10	11-May-11	9-May-12	9-May-13	6-May-14	12-May-15	25-May-16	17-May-17	8-May-18	13-May-19	6-May-20
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas
Benzene	µg/L	1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50	<0.40
Dichloromethane	µg/L	50	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW70B-5	OW70B-5	OW70B-5
Date			18-May-21	5-May-22	1-Nov-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW71-5	OW71-5	OW71-5	OW71-5	OW71-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5
Date			21-Jun-04	5-May-07	22-May-08	19-May-09	17-May-10	11-May-11	9-May-12	9-May-13	6-May-14	12-May-15
Laboratory			Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<1.3	<0.5	<0.1	<0.1	<0.3	<0.1	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<1.5	<0.5	<0.2	<0.2	<0.5	<0.2	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<1.6	<0.5	<0.1	<0.1	<0.3	<0.1	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<3.4	<1.0	<0.1	<0.1	<0.3	<0.1	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<2.7	<0.5	<0.1	<0.1	<0.3	<0.1	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5			<0.2	<0.2	<0.5	<0.2	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50			<0.5	<5	<1	<0.5	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1			<0.2	<0.2	<0.5	<0.2	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5	OW71A-5
Date			25-May-16	17-May-17	9-May-18	13-May-19	6-May-20	19-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<1.0	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<1.0	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.10	<1.0	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<1.0	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.20	<2.5	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<10	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6
Date			19-May-06	5-May-07	22-May-08	16-May-09	20-May-10	10-May-11	9-May-12	10-May-13	6-May-14	12-May-15
Laboratory			Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5			<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50			<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	1.2
Vinyl Chloride	µg/L	1			<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6	OW72-6
Date			26-May-16	18-May-17	9-May-18	14-May-19	8-May-20	21-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.20	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10
Date			22-May-08	19-May-09	19-May-10	10-May-11	9-May-12	10-May-13	6-May-14	12-May-15	26-May-16	18-May-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	1.1	<0.50	<0.50
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW72-10	OW72-10	OW72-10	OW72-10	OW72-10
Date			9-May-18	14-May-19	8-May-20	18-May-21	3-May-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6
Date			19-May-06	5-May-07	22-May-08	16-May-09	11-Jun-09	19-May-10	10-May-11	9-May-12	10-May-13	6-May-14
Laboratory			Accutest	Accutest	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.5	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<1.0	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5			<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50			<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1			<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6	OW73-6
Date			12-May-15	26-May-16	18-May-17	10-May-18	14-May-19	8-May-20	21-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.20	<0.20	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	1.4	<0.50	<0.50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9
Date			22-May-08	19-May-09	19-May-10	10-May-11	9-May-12	10-May-13	6-May-14	12-May-15	26-May-16	18-May-17
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	1.1	<0.50	<0.50
Vinyl Chloride	µg/L	1	0.2	0.3	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW73-9	OW73-9	OW73-9	OW73-9	OW73-9
Date			10-May-18	14-May-19	8-May-20	18-May-21	3-May-22
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW74-6	OW74-6
Date			19-May-06	5-May-07
Laboratory			Accutest	Accutest
Benzene	µg/L	1	<0.5	<0.5
Toluene	µg/L	60	<0.5	<1.0
Ethylbenzene	µg/L	140	<0.5	<0.5
m&p-Xylenes	µg/L	90	<1.0	<0.5
o-Xylene	µg/L	90	<0.5	<0.5

Parameter	Units	ODWQS	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5	OW79-5
Date			15-May-09	17-May-10	12-May-11	16-May-12	8-May-13	5-May-14	13-May-15	27-May-16	17-May-17	8-May-18	15-May-19
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	1.5	<0.50	<0.50	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW79-5	OW79-5	OW79-5
Date			6-May-20	21-May-21	5-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7
Date			14-May-09	17-May-10	22-Jun-10	23-Dec-10	12-May-11	28-Jun-11	16-May-12	8-May-13	5-May-14	13-May-15
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	1.1
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7	OW79-7
Date			27-May-16	17-May-17	8-May-18	15-May-19	6-May-20	21-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.20	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26	OW79-26
Date			20-May-09	18-May-10	12-May-11	16-May-12	5-May-14	13-May-15	27-May-16	27-May-16	8-May-18	6-May-20	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.40	<0.40
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3
Date			19-May-09	11-Jun-09	16-Dec-09	17-May-10	29-Jun-10	11-May-11	16-May-12	9-May-13	5-May-14	14-May-15
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3	OW80-3
Date			27-May-16	16-May-17	8-May-18	15-May-19	6-May-20	21-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.20	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6
Date			19-May-09	11-Jun-09	16-Dec-09	18-May-10	29-Jun-10	11-May-11	16-May-12	9-May-13	5-May-14	14-May-15
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6	OW80-6
Date			27-May-16	16-May-17	8-May-18	15-May-19	6-May-20	20-May-21	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.20	<0.20	<0.50	<0.50	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<2.0	<2.0	<2.0	6.3	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27	OW80-27
Date			14-May-09	18-May-10	11-May-11	16-May-12	5-May-14	14-May-15	27-May-16	8-May-18	6-May-20	5-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.50	<0.40	<0.40
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

Table H-5
Groundwater - Organic Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	OW81-5	OW81-5	OW81-5
Date			11-May-20	20-May-21	5-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW81-7	OW81-7	OW81-7	OW81-7	OW81-7	OW81-7	OW81-7	OW81-7
Date			11-May-20	22-Jul-20	3-Nov-20	20-May-21	9-Jun-21	2-Nov-21	5-May-22	2-Jun-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	9	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	OW81-27	OW81-27	OW81-27
Date			11-May-20	20-May-21	5-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20

Parameter	Units	ODWQS	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well	Cemetery Well
Date			23-May-08	18-May-10	11-May-11	16-May-12	5-May-14	14-May-15	27-May-16	8-May-18	15-May-19	6-May-20	6-May-22
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50	<0.40	<0.40
Dichloromethane	µg/L	50	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) All units are in µg/L.
4) µg/L denotes micrograms per litre.

APPENDIX H6:

Laboratory Reports

Your P.O. #: 11082034
Your Project #: TWIN CREEKS LF GW
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/13
Report #: R7123197
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C2515
Received: 2022/05/06, 09:24

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2022/05/09	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	2	N/A	2022/05/09	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	2	N/A	2022/05/12		
Conductivity	2	N/A	2022/05/09	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2022/05/11	CAM SOP-00446	SM 23 5310 B m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2022/05/12	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	2	N/A	2022/05/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2022/05/11	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	2	N/A	2022/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2022/05/07	2022/05/09	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	2	N/A	2022/05/06		Field pH Meter
Sulphate by Automated Colourimetry	2	N/A	2022/05/11	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	2	2022/05/07	2022/05/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	2	N/A	2022/05/06		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2022/05/10	2022/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	2	N/A	2022/05/12		
Volatile Organic Compounds in Water	2	N/A	2022/05/11	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the

Your P.O. #: 11082034
Your Project #: TWIN CREEKS LF GW
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/13
Report #: R7123197
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C2515
Received: 2022/05/06, 09:24
customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
13 May 2022 10:54:09

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C2C2515
Report Date: 2022/05/13

RWDI Inc.
Client Project #: TWIN CREEKS LF GW
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOB924			SOB925		
Sampling Date		2022/05/03			2022/05/04		
COC Number		n/a			n/a		
	UNITS	OW49-29	RDL	QC Batch	OW19-29	RDL	QC Batch
Field Measurements							
Field Conductivity	uS/cm	1370	N/A	ONSITE	1250	N/A	ONSITE
Field Temperature	Celsius	14.8	N/A	ONSITE	9.5	N/A	ONSITE
Field Turbidity	NTU	5.44	N/A	ONSITE	23.1	N/A	ONSITE
Field Measured pH	pH	7.1		ONSITE	7.3		ONSITE
Inorganics							
Total Ammonia-N	mg/L	0.63	0.15	7986943	0.45	0.15	7986953
Conductivity	umho/cm	2100	1.0	7982802	2500	1.0	7982802
Total Dissolved Solids	mg/L	1370	10	7981609	1810	10	7981609
Total Kjeldahl Nitrogen (TKN)	mg/L	0.7	0.7	7986246	<0.7	0.7	7986246
Dissolved Organic Carbon	mg/L	1.5	0.4	7984466	1.6	0.4	7984495
pH	pH	7.85		7982808	7.95		7982808
Dissolved Sulphate (SO4)	mg/L	950	6.0	7982775	1100	5.0	7982775
Alkalinity (Total as CaCO3)	mg/L	100	1.0	7982809	190	1.0	7982809
Dissolved Chloride (Cl-)	mg/L	27	1.0	7982774	29	1.0	7982774
Nitrate (N)	mg/L	<0.10	0.10	7982773	<0.10	0.10	7982773

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2515
Report Date: 2022/05/13

RWDI Inc.
Client Project #: TWIN CREEKS LF GW
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOB924	SOB925		
Sampling Date		2022/05/03	2022/05/04		
COC Number		n/a	n/a		
	UNITS	OW49-29	OW19-29	RDL	QC Batch
Metals					
Dissolved Barium (Ba)	mg/L	0.010	0.006	0.005	7982326
Dissolved Boron (B)	mg/L	1.7	2.3	0.02	7982326
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	7982326
Dissolved Calcium (Ca)	mg/L	140	200	0.4	7982326
Dissolved Iron (Fe)	mg/L	0.2	<0.1	0.1	7982326
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	0.0005	7982326
Dissolved Magnesium (Mg)	mg/L	66	93	0.05	7982326
Dissolved Potassium (K)	mg/L	6.6	7.1	0.2	7982326
Dissolved Sodium (Na)	mg/L	250	270	0.1	7982326

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

RWDI Inc.
Client Project #: TWIN CREEKS LF GW
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SOB924	SOB925		
Sampling Date		2022/05/03	2022/05/04		
COC Number		n/a	n/a		
	UNITS	OW49-29	OW19-29	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	7982605
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	7982605
Ethylbenzene	ug/L	<0.20	<0.20	0.20	7982605
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	7982605
Toluene	ug/L	<0.20	<0.20	0.20	7982605
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	7982605
p+m-Xylene	ug/L	<0.20	<0.20	0.20	7982605
o-Xylene	ug/L	<0.20	<0.20	0.20	7982605
Total Xylenes	ug/L	<0.20	<0.20	0.20	7982605
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	99	99		7982605
D4-1,2-Dichloroethane	%	103	104		7982605
D8-Toluene	%	96	95		7982605

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7982605	4-Bromofluorobenzene	2022/05/11	102	70 - 130	102	70 - 130	99	%				
7982605	D4-1,2-Dichloroethane	2022/05/11	100	70 - 130	98	70 - 130	100	%				
7982605	D8-Toluene	2022/05/11	99	70 - 130	102	70 - 130	96	%				
7981609	Total Dissolved Solids	2022/05/09					<10	mg/L	2.0 (1)	25	95	90 - 110
7982326	Dissolved Barium (Ba)	2022/05/09	94	80 - 120	94	80 - 120	<0.005	mg/L	0.33 (1)	20		
7982326	Dissolved Boron (B)	2022/05/09	95	80 - 120	90	80 - 120	<0.02	mg/L	0.43 (1)	20		
7982326	Dissolved Cadmium (Cd)	2022/05/09	102	80 - 120	96	80 - 120	<0.0001	mg/L	NC (1)	20		
7982326	Dissolved Calcium (Ca)	2022/05/09	NC	80 - 120	100	80 - 120	<0.2	mg/L	1.2 (1)	20		
7982326	Dissolved Iron (Fe)	2022/05/09	100	80 - 120	101	80 - 120	<0.1	mg/L	NC (1)	20		
7982326	Dissolved Lead (Pb)	2022/05/09	93	80 - 120	96	80 - 120	<0.0005	mg/L	NC (1)	20		
7982326	Dissolved Magnesium (Mg)	2022/05/09	NC	80 - 120	99	80 - 120	<0.05	mg/L	1.8 (1)	20		
7982326	Dissolved Potassium (K)	2022/05/09	104	80 - 120	104	80 - 120	<0.2	mg/L	0.75 (1)	20		
7982326	Dissolved Sodium (Na)	2022/05/09	NC	80 - 120	101	80 - 120	<0.1	mg/L	0.86 (1)	20		
7982605	1,4-Dichlorobenzene	2022/05/11	107	70 - 130	108	70 - 130	<0.40	ug/L	NC (1)	30		
7982605	Benzene	2022/05/11	94	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
7982605	Ethylbenzene	2022/05/11	92	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
7982605	Methylene Chloride(Dichloromethane)	2022/05/11	102	70 - 130	100	70 - 130	<2.0	ug/L	NC (1)	30		
7982605	o-Xylene	2022/05/11	90	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
7982605	p+m-Xylene	2022/05/11	95	70 - 130	96	70 - 130	<0.20	ug/L	NC (1)	30		
7982605	Toluene	2022/05/11	91	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
7982605	Total Xylenes	2022/05/11					<0.20	ug/L	NC (1)	30		
7982605	Vinyl Chloride	2022/05/11	99	70 - 130	100	70 - 130	<0.20	ug/L	3.4 (1)	30		
7982773	Nitrate (N)	2022/05/10	100	80 - 120	105	80 - 120	<0.10	mg/L	0.023 (1)	20		
7982774	Dissolved Chloride (Cl-)	2022/05/09	NC	80 - 120	100	80 - 120	<1.0	mg/L	0.38 (1)	20		
7982775	Dissolved Sulphate (SO4)	2022/05/11	NC	75 - 125	100	80 - 120	<1.0	mg/L	1.8 (1)	20		
7982802	Conductivity	2022/05/09			98	85 - 115	<1.0	umho/cm	0 (2)	25		
7982808	pH	2022/05/09			102	98 - 103			1.0 (2)	N/A		
7982809	Alkalinity (Total as CaCO3)	2022/05/09			92	85 - 115	<1.0	mg/L	1.5 (2)	20		
7984466	Dissolved Organic Carbon	2022/05/12	99	80 - 120	97	80 - 120	<0.4	mg/L	0.69 (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7984495	Dissolved Organic Carbon	2022/05/11	99	80 - 120	99	80 - 120	<0.4	mg/L	3.8 (1)	20		
7986246	Total Kjeldahl Nitrogen (TKN)	2022/05/11	120	80 - 120	94	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
7986943	Total Ammonia-N	2022/05/11	99	75 - 125	102	80 - 120	<0.15	mg/L	7.0 (1)	20		
7986953	Total Ammonia-N	2022/05/11	99 (3)	75 - 125	102	80 - 120	<0.15	mg/L	2.8 (4)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Duplicate Parent ID [SOB924-02]

(3) Matrix Spike Parent ID [SOB925-06]

(4) Duplicate Parent ID [SOB925-06]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

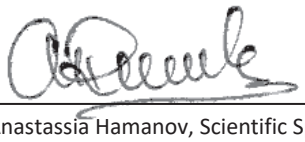
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2515
Report Date: 2022/05/13

RWDI Inc.
Client Project #: TWIN CREEKS LF GW
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/13
Report #: R7124313
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C3444
Received: 2022/05/07, 14:54

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	5	N/A	2022/05/11	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	5	N/A	2022/05/11	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	5	N/A	2022/05/13		
Conductivity	5	N/A	2022/05/11	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	5	N/A	2022/05/11	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	2	N/A	2022/05/10	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	3	N/A	2022/05/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	5	N/A	2022/05/12	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	5	N/A	2022/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2022/05/09	2022/05/11	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	5	N/A	2022/05/07		Field pH Meter
Sulphate by Automated Colourimetry	5	N/A	2022/05/12	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	5	2022/05/11	2022/05/12	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	5	N/A	2022/05/07		Field Thermometer
Total Kjeldahl Nitrogen in Water	5	2022/05/11	2022/05/12	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	5	N/A	2022/05/13		
Volatile Organic Compounds in Water	5	N/A	2022/05/13	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/13
Report #: R7124313
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C3444
Received: 2022/05/07, 14:54
customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
13 May 2022 19:19:33

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C2C3444
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOH408			SOH409			SOH410		
Sampling Date		2022/05/05			2022/05/05			2022/05/05		
COC Number		TCEC-GWCM-MAY			TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	OW40A-7	RDL	QC Batch	OW60-8	RDL	QC Batch	OW79-7	RDL	QC Batch
Field Measurements										
Field Conductivity	uS/cm	2600	N/A	ONSITE	920	N/A	ONSITE	1560	N/A	ONSITE
Field Temperature	Celsius	10.0	N/A	ONSITE	11.9	N/A	ONSITE	11.1	N/A	ONSITE
Field Turbidity	NTU	17.2	N/A	ONSITE	145	N/A	ONSITE	12.3	N/A	ONSITE
Field Measured pH	pH	7.6		ONSITE	7.8		ONSITE	7.2		ONSITE
Inorganics										
Total Ammonia-N	mg/L	<0.15	0.15	7989400	<0.15	0.15	7989400	<0.15	0.15	7989350
Conductivity	umho/cm	3000	1.0	7983627	780	1.0	7983627	1700	1.0	7983627
Total Dissolved Solids	mg/L	2510	10	7989093	415	10	7989399	900	10	7989399
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	7988695	<0.7	0.7	7988695	<0.7	0.7	7988704
Dissolved Organic Carbon	mg/L	2.2	0.4	7984495	1.5	0.4	7984495	2.9	0.4	7984495
pH	pH	8.07		7983626	8.32		7983626	7.96		7983626
Dissolved Sulphate (SO4)	mg/L	1500	5.0	7983652	150	1.0	7983652	130	1.0	7983652
Alkalinity (Total as CaCO3)	mg/L	370	1.0	7983614	240	1.0	7983614	540	1.0	7983614
Dissolved Chloride (Cl-)	mg/L	7.2	1.0	7983647	8.8	1.0	7983647	160	2.0	7983647
Nitrate (N)	mg/L	0.40	0.10	7983643	<0.10	0.10	7983643	<0.10	0.10	7983643

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3444
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOH411		SOH412		
Sampling Date		2022/05/05		2022/05/05		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	OW81-7	RDL	GWDUP4	RDL	QC Batch
Field Measurements						
Field Conductivity	uS/cm	1070	N/A	2600	N/A	ONSITE
Field Temperature	Celsius	11.9	N/A	10.0	N/A	ONSITE
Field Turbidity	NTU	72.3	N/A	17.2	N/A	ONSITE
Field Measured pH	pH	7.1		7.6		ONSITE
Inorganics						
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	0.15	7989350
Conductivity	umho/cm	2500	1.0	3000	1.0	7983627
Total Dissolved Solids	mg/L	1810	10	2530	10	7989093
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	0.7	0.7	7988704
Dissolved Organic Carbon	mg/L	3.0	0.4	1.6	0.4	7984495
pH	pH	8.05		8.06		7983626
Dissolved Sulphate (SO4)	mg/L	760	5.0	1500	5.0	7983652
Alkalinity (Total as CaCO3)	mg/L	340	1.0	380	1.0	7983614
Dissolved Chloride (Cl-)	mg/L	200	2.0	7.2	1.0	7983647
Nitrate (N)	mg/L	0.16	0.10	0.37	0.10	7983643

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3444
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOH408		SOH409	SOH410		SOH411		
Sampling Date		2022/05/05		2022/05/05	2022/05/05		2022/05/05		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY	TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	OW40A-7	RDL	OW60-8	OW79-7	RDL	OW81-7	RDL	QC Batch
Metals									
Dissolved Barium (Ba)	mg/L	0.007	0.005	0.018	0.027	0.005	0.022	0.005	7984348
Dissolved Boron (B)	mg/L	0.61	0.02	0.85	0.21	0.02	0.54	0.02	7984348
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	7984348
Dissolved Calcium (Ca)	mg/L	280	0.4	43	150	0.2	220	0.4	7984348
Dissolved Iron (Fe)	mg/L	1.0	0.1	<0.1	<0.1	0.1	1.1	0.1	7984348
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.0005	7984348
Dissolved Magnesium (Mg)	mg/L	250	0.05	26	98	0.05	160	0.05	7984348
Dissolved Potassium (K)	mg/L	5.9	0.2	2.0	3.5	0.2	5.1	0.2	7984348
Dissolved Sodium (Na)	mg/L	120	0.1	82	59	0.1	120	0.1	7984348

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOH412		
Sampling Date		2022/05/05		
COC Number		TCEC-GWCM-MAY		
	UNITS	GWDUP4	RDL	QC Batch
Metals				
Dissolved Barium (Ba)	mg/L	0.007	0.005	7984348
Dissolved Boron (B)	mg/L	0.63	0.02	7984348
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	7984348
Dissolved Calcium (Ca)	mg/L	290	0.4	7984348
Dissolved Iron (Fe)	mg/L	0.6	0.1	7984348
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	7984348
Dissolved Magnesium (Mg)	mg/L	250	0.05	7984348
Dissolved Potassium (K)	mg/L	6.1	0.2	7984348
Dissolved Sodium (Na)	mg/L	130	0.1	7984348

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3444
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SOH408	SOH409	SOH410	SOH411		
Sampling Date		2022/05/05	2022/05/05	2022/05/05	2022/05/05		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	OW40A-7	OW60-8	OW79-7	OW81-7	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7983795
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	7983795
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	100	98	99	98		7983795
D4-1,2-Dichloroethane	%	108	107	110	111		7983795
D8-Toluene	%	99	98	98	98		7983795

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOH412		
Sampling Date		2022/05/05		
COC Number		TCEC-GWCM-MAY		
	UNITS	GWDUP4	RDL	QC Batch
Volatile Organics				
Benzene	ug/L	<0.20	0.20	7983795
1,4-Dichlorobenzene	ug/L	<0.40	0.40	7983795
Ethylbenzene	ug/L	<0.20	0.20	7983795
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	7983795
Toluene	ug/L	<0.20	0.20	7983795
Vinyl Chloride	ug/L	<0.20	0.20	7983795
p+m-Xylene	ug/L	<0.20	0.20	7983795
o-Xylene	ug/L	<0.20	0.20	7983795
Total Xylenes	ug/L	<0.20	0.20	7983795
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	97		7983795
D4-1,2-Dichloroethane	%	112		7983795
D8-Toluene	%	98		7983795

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7983795	4-Bromofluorobenzene	2022/05/13	99 (2)	70 - 130	101	70 - 130	99	%				
7983795	D4-1,2-Dichloroethane	2022/05/13	109 (2)	70 - 130	107	70 - 130	104	%				
7983795	D8-Toluene	2022/05/13	99 (2)	70 - 130	100	70 - 130	99	%				
7983614	Alkalinity (Total as CaCO3)	2022/05/11			95	85 - 115	<1.0	mg/L	0.58 (1)	20		
7983626	pH	2022/05/11			102	98 - 103			0.37 (1)	N/A		
7983627	Conductivity	2022/05/11			102	85 - 115	<1.0	umho/cm	0.96 (1)	25		
7983643	Nitrate (N)	2022/05/10	100	80 - 120	104	80 - 120	<0.10	mg/L	NC (1)	20		
7983647	Dissolved Chloride (Cl-)	2022/05/11	113	80 - 120	104	80 - 120	<1.0	mg/L	2.4 (1)	20		
7983652	Dissolved Sulphate (SO4)	2022/05/12	NC	75 - 125	101	80 - 120	<1.0	mg/L	0.90 (1)	20		
7983795	1,4-Dichlorobenzene	2022/05/13	113 (2)	70 - 130	112	70 - 130	<0.40	ug/L	NC (3)	30		
7983795	Benzene	2022/05/13	96 (2)	70 - 130	95	70 - 130	<0.20	ug/L	NC (3)	30		
7983795	Ethylbenzene	2022/05/13	91 (2)	70 - 130	92	70 - 130	<0.20	ug/L	NC (3)	30		
7983795	Methylene Chloride(Dichloromethane)	2022/05/13	113 (2)	70 - 130	110	70 - 130	<2.0	ug/L	NC (3)	30		
7983795	o-Xylene	2022/05/13	90 (2)	70 - 130	91	70 - 130	<0.20	ug/L	NC (3)	30		
7983795	p+m-Xylene	2022/05/13	93 (2)	70 - 130	94	70 - 130	<0.20	ug/L	NC (3)	30		
7983795	Toluene	2022/05/13	94 (2)	70 - 130	95	70 - 130	<0.20	ug/L	NC (3)	30		
7983795	Total Xylenes	2022/05/13					<0.20	ug/L	NC (3)	30		
7983795	Vinyl Chloride	2022/05/13	101 (2)	70 - 130	100	70 - 130	<0.20	ug/L	NC (3)	30		
7984348	Dissolved Barium (Ba)	2022/05/11	104	80 - 120	103	80 - 120	<0.005	mg/L	NC (1)	20		
7984348	Dissolved Boron (B)	2022/05/11	NC	80 - 120	100	80 - 120	<0.02	mg/L	0.27 (1)	20		
7984348	Dissolved Cadmium (Cd)	2022/05/11	101	80 - 120	101	80 - 120	<0.0001	mg/L	NC (1)	20		
7984348	Dissolved Calcium (Ca)	2022/05/11	NC	80 - 120	99	80 - 120	<0.2	mg/L	4.9 (1)	20		
7984348	Dissolved Iron (Fe)	2022/05/11	100	80 - 120	99	80 - 120	<0.1	mg/L	1.6 (1)	20		
7984348	Dissolved Lead (Pb)	2022/05/11	95	80 - 120	100	80 - 120	<0.0005	mg/L	NC (1)	20		
7984348	Dissolved Magnesium (Mg)	2022/05/11	NC	80 - 120	98	80 - 120	<0.05	mg/L	3.3 (1)	20		
7984348	Dissolved Potassium (K)	2022/05/11	104	80 - 120	101	80 - 120	<0.2	mg/L	3.0 (1)	20		
7984348	Dissolved Sodium (Na)	2022/05/11	NC	80 - 120	98	80 - 120	<0.1	mg/L	1.0 (1)	20		
7984495	Dissolved Organic Carbon	2022/05/11	99	80 - 120	99	80 - 120	<0.4	mg/L	3.8 (1)	20		
7988695	Total Kjeldahl Nitrogen (TKN)	2022/05/12	98 (4)	80 - 120	101	80 - 120	<0.7	mg/L	NC (5)	20	105	80 - 120

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7988704	Total Kjeldahl Nitrogen (TKN)	2022/05/12	105	80 - 120	105	80 - 120	<0.7	mg/L	NC (1)	20	103	80 - 120
7989093	Total Dissolved Solids	2022/05/12					<10	mg/L	7.0 (1)	25	97	90 - 110
7989350	Total Ammonia-N	2022/05/12	94	75 - 125	102	80 - 120	<0.15	mg/L	NC (1)	20		
7989399	Total Dissolved Solids	2022/05/12					<10	mg/L	1.4 (1)	25	98	90 - 110
7989400	Total Ammonia-N	2022/05/12	91	75 - 125	98	80 - 120	<0.15	mg/L	NC (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [SOH408-08]

(3) Duplicate Parent ID [SOH408-08]

(4) Matrix Spike Parent ID [SOH409-05]

(5) Duplicate Parent ID [SOH409-05]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3444
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/13
Report #: R7124262
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C2474
Received: 2022/05/06, 09:24

Sample Matrix: Water
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	10	N/A	2022/05/09	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	10	N/A	2022/05/09	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	10	N/A	2022/05/12		
Conductivity	10	N/A	2022/05/09	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	10	N/A	2022/05/12	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	8	N/A	2022/05/10	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	2	N/A	2022/05/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	10	N/A	2022/05/11	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	10	N/A	2022/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	10	2022/05/07	2022/05/09	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	10	N/A	2022/05/06		Field pH Meter
Sulphate by Automated Colourimetry	10	N/A	2022/05/11	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	3	2022/05/10	2022/05/11	CAM SOP-00428	SM 23 2540C m
Total Dissolved Solids	7	2022/05/09	2022/05/10	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	10	N/A	2022/05/06		Field Thermometer
Total Kjeldahl Nitrogen in Water	10	2022/05/10	2022/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	10	N/A	2022/05/12		
Volatile Organic Compounds in Water	10	N/A	2022/05/12	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/13
Report #: R7124262
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C2474
Received: 2022/05/06, 09:24

otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
13 May 2022 18:47:35

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2474
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOB574	SOB575		SOB576		SOB577		SOB578		
Sampling Date		2022/05/03	2022/05/03		2022/05/03		2022/05/03		2022/05/03		
COC Number		n/a	n/a		n/a		n/a		n/a		
	UNITS	OW54-10	OW57-15	RDL	OW58-17	RDL	OW67-11	RDL	OW72-10	RDL	QC Batch
Field Measurements											
Field Conductivity	uS/cm	1480	1350	N/A	1170	N/A	1280	N/A	1320	N/A	ONSITE
Field Temperature	Celsius	15.3	15.1	N/A	15.9	N/A	16.1	N/A	15.5	N/A	ONSITE
Field Turbidity	NTU	32.6	15.3	N/A	2.47	N/A	8.68	N/A	14.9	N/A	ONSITE
Field Measured pH	pH	7.3	7.0		7.1		7.2		7.1		ONSITE
Inorganics											
Total Ammonia-N	mg/L	<0.15	<0.15	0.15	0.31	0.15	0.43	0.15	0.46	0.15	7986941
Conductivity	umho/cm	2400	3000	1.0	3800	1.0	1500	1.0	2700	1.0	7982802
Total Dissolved Solids	mg/L	1920	2570	10	3660	10	1070	10	2210	10	7984684
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	<0.7	0.7	0.9	0.7	<0.7	0.7	0.9	0.7	7986878
Dissolved Organic Carbon	mg/L	2.0	2.0	0.4	1.5	0.4	2.8	0.4	1.5	0.4	7984466
pH	pH	8.02	7.90		7.65		7.85		7.84		7982808
Dissolved Sulphate (SO4)	mg/L	1100	1700	5.0	2400	7.0	430	2.0	1300	5.0	7982775
Alkalinity (Total as CaCO3)	mg/L	330	150	1.0	64	1.0	410	1.0	340	1.0	7982809
Dissolved Chloride (Cl-)	mg/L	9.2	8.8	1.0	8.4	1.0	30	1.0	5.7	1.0	7982774
Nitrate (N)	mg/L	0.57	0.80	0.10	0.25	0.10	0.26	0.10	0.38	0.10	7982773

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2474
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOB579		SOB580			SOB581			SOB582		
Sampling Date		2022/05/03		2022/05/03			2022/05/04			2022/05/04		
COC Number		n/a		n/a			n/a			n/a		
	UNITS	OW73-9	RDL	GWDUP1	RDL	QC Batch	OW16-7	RDL	QC Batch	OW46-7	RDL	QC Batch
Field Measurements												
Field Conductivity	uS/cm	1140	N/A	1280	N/A	ONSITE	1150	N/A	ONSITE	1020	N/A	ONSITE
Field Temperature	Celsius	15.2	N/A	16.1	N/A	ONSITE	8.9	N/A	ONSITE	10.1	N/A	ONSITE
Field Turbidity	NTU	7.84	N/A	8.68	N/A	ONSITE	35.6	N/A	ONSITE	36.4	N/A	ONSITE
Field Measured pH	pH	7.1		7.2		ONSITE	7.1		ONSITE	7.3		ONSITE
Inorganics												
Total Ammonia-N	mg/L	<0.15	0.15	0.63	0.15	7986941	<0.15	0.15	7986941	<0.15	0.15	7986941
Conductivity	umho/cm	3900	1.0	1500	1.0	7982802	1200	1.0	7982802	4500	1.0	7982802
Total Dissolved Solids	mg/L	3680	10	1030	10	7984684	730	10	7986080	3960	10	7986646
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	0.9	0.7	7986878	<0.7	0.7	7986878	<0.7	0.7	7986878
Dissolved Organic Carbon	mg/L	1.8	0.4	2.6	0.4	7984466	2.3	0.4	7984466	2.7	0.4	7984466
pH	pH	7.93		7.94		7982808	8.04		7982808	8.05		7982808
Dissolved Sulphate (SO4)	mg/L	2400	10	430	2.0	7982775	250	1.0	7982775	2800	10	7982775
Alkalinity (Total as CaCO3)	mg/L	270	1.0	400	1.0	7982809	440	1.0	7982809	340	1.0	7982809
Dissolved Chloride (Cl-)	mg/L	8.3	1.0	26	1.0	7982774	7.4	1.0	7982774	14	1.0	7982774
Nitrate (N)	mg/L	0.61	0.10	0.25	0.10	7982773	0.57	0.10	7982773	0.15	0.10	7982773

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2474
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOB583		
Sampling Date		2022/05/04		
COC Number		n/a		
	UNITS	OW47-6	RDL	QC Batch
Field Measurements				
Field Conductivity	uS/cm	860	N/A	ONSITE
Field Temperature	Celsius	9.6	N/A	ONSITE
Field Turbidity	NTU	43.7	N/A	ONSITE
Field Measured pH	pH	7.1		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	7986941
Conductivity	umho/cm	4400	1.0	7982802
Total Dissolved Solids	mg/L	4140	10	7986646
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	7986878
Dissolved Organic Carbon	mg/L	3.3	0.4	7984466
pH	pH	8.11		7982808
Dissolved Sulphate (SO4)	mg/L	2800	10	7982775
Alkalinity (Total as CaCO3)	mg/L	340	1.0	7982809
Dissolved Chloride (Cl-)	mg/L	14	1.0	7982774
Nitrate (N)	mg/L	0.15	0.10	7982773

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2474
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOB574	SOB575		SOB576		SOB577		SOB578		
Sampling Date		2022/05/03	2022/05/03		2022/05/03		2022/05/03		2022/05/03		
COC Number		n/a	n/a		n/a		n/a		n/a		
	UNITS	OW54-10	OW57-15	RDL	OW58-17	RDL	OW67-11	RDL	OW72-10	RDL	QC Batch
Metals											
Dissolved Barium (Ba)	mg/L	0.011	0.009	0.005	0.014	0.005	0.019	0.005	0.010	0.005	7984341
Dissolved Boron (B)	mg/L	0.95	1.2	0.02	1.4	0.02	0.47	0.02	1.2	0.02	7984341
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	7984341
Dissolved Calcium (Ca)	mg/L	170	290	0.4	480	1	150	0.2	240	0.4	7984341
Dissolved Iron (Fe)	mg/L	2.3	1.8	0.1	0.9	0.1	0.8	0.1	5.1	0.1	7984341
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	0.0005	<0.0005	0.0005	<0.0005	0.0005	<0.0005	0.0005	7984341
Dissolved Magnesium (Mg)	mg/L	180	210	0.05	270	0.05	110	0.05	240	0.05	7984341
Dissolved Potassium (K)	mg/L	4.5	4.4	0.2	4.3	0.2	4.3	0.2	5.1	0.2	7984341
Dissolved Sodium (Na)	mg/L	160	190	0.1	200	0.1	53	0.1	150	0.1	7984341

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOB579		SOB580	SOB581		SOB582	SOB583		
Sampling Date		2022/05/03		2022/05/03	2022/05/04		2022/05/04	2022/05/04		
COC Number		n/a		n/a	n/a		n/a	n/a		
	UNITS	OW73-9	RDL	GWDUP1	OW16-7	RDL	OW46-7	OW47-6	RDL	QC Batch
Metals										
Dissolved Barium (Ba)	mg/L	0.006	0.005	0.020	0.017	0.005	0.017	0.017	0.005	7984341
Dissolved Boron (B)	mg/L	1.2	0.02	0.57	0.25	0.02	0.58	0.58	0.02	7984341
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	7984341
Dissolved Calcium (Ca)	mg/L	420	1	150	100	0.2	410	400	0.4	7984341
Dissolved Iron (Fe)	mg/L	3.1	0.1	1.4	0.7	0.1	<0.1	<0.1	0.1	7984341
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	0.0005	7984341
Dissolved Magnesium (Mg)	mg/L	340	0.05	110	78	0.05	420	420	0.3	7984341
Dissolved Potassium (K)	mg/L	6.1	0.2	4.5	3.6	0.2	6.9	6.9	0.2	7984341
Dissolved Sodium (Na)	mg/L	240	0.1	60	61	0.1	250	240	0.1	7984341

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SOB574	SOB575	SOB576	SOB577	SOB578	SOB579		
Sampling Date		2022/05/03	2022/05/03	2022/05/03	2022/05/03	2022/05/03	2022/05/03		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	OW54-10	OW57-15	OW58-17	OW67-11	OW72-10	OW73-9	RDL	QC Batch
Volatile Organics									
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7982683
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7982683
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7982683
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7982683
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7982683
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7982683
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7982683
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7982683
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7982683
Surrogate Recovery (%)									
4-Bromofluorobenzene	%	101	99	100	100	100	99		7982683
D4-1,2-Dichloroethane	%	106	104	104	105	107	108		7982683
D8-Toluene	%	93	92	94	93	93	93		7982683

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOB580	SOB581	SOB582	SOB583		
Sampling Date		2022/05/03	2022/05/04	2022/05/04	2022/05/04		
COC Number		n/a	n/a	n/a	n/a		
	UNITS	GWDUP1	OW16-7	OW46-7	OW47-6	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982683
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7982683
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982683
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	7982683
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982683
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982683
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982683
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982683
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982683
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	100	100	100	100		7982683
D4-1,2-Dichloroethane	%	105	108	109	107		7982683
D8-Toluene	%	93	93	93	93		7982683

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7982683	4-Bromofluorobenzene	2022/05/12	105 (1)	70 - 130	104	70 - 130	101	%				
7982683	D4-1,2-Dichloroethane	2022/05/12	104 (1)	70 - 130	100	70 - 130	104	%				
7982683	D8-Toluene	2022/05/12	97 (1)	70 - 130	99	70 - 130	94	%				
7982683	1,4-Dichlorobenzene	2022/05/12	101 (1)	70 - 130	102	70 - 130	<0.40	ug/L	NC (2)	30		
7982683	Benzene	2022/05/12	92 (1)	70 - 130	93	70 - 130	<0.20	ug/L	NC (2)	30		
7982683	Ethylbenzene	2022/05/12	86 (1)	70 - 130	88	70 - 130	<0.20	ug/L	NC (2)	30		
7982683	Methylene Chloride(Dichloromethane)	2022/05/12	102 (1)	70 - 130	100	70 - 130	<2.0	ug/L	NC (2)	30		
7982683	o-Xylene	2022/05/12	86 (1)	70 - 130	89	70 - 130	<0.20	ug/L	NC (2)	30		
7982683	p+m-Xylene	2022/05/12	90 (1)	70 - 130	92	70 - 130	<0.20	ug/L	NC (2)	30		
7982683	Toluene	2022/05/12	87 (1)	70 - 130	89	70 - 130	<0.20	ug/L	NC (2)	30		
7982683	Total Xylenes	2022/05/12					<0.20	ug/L	NC (2)	30		
7982683	Vinyl Chloride	2022/05/12	94 (1)	70 - 130	97	70 - 130	<0.20	ug/L	NC (2)	30		
7982773	Nitrate (N)	2022/05/10	100	80 - 120	105	80 - 120	<0.10	mg/L	0.023 (3)	20		
7982774	Dissolved Chloride (Cl-)	2022/05/09	NC	80 - 120	100	80 - 120	<1.0	mg/L	0.38 (3)	20		
7982775	Dissolved Sulphate (SO4)	2022/05/11	NC	75 - 125	100	80 - 120	<1.0	mg/L	1.8 (3)	20		
7982802	Conductivity	2022/05/09			98	85 - 115	<1.0	umho/cm	0 (3)	25		
7982808	pH	2022/05/09			102	98 - 103			1.0 (3)	N/A		
7982809	Alkalinity (Total as CaCO3)	2022/05/09			92	85 - 115	<1.0	mg/L	1.5 (3)	20		
7984341	Dissolved Barium (Ba)	2022/05/10	94 (4)	80 - 120	98	80 - 120	<0.005	mg/L	2.5 (5)	20		
7984341	Dissolved Boron (B)	2022/05/10	NC (4)	80 - 120	91	80 - 120	<0.02	mg/L	1.1 (5)	20		
7984341	Dissolved Cadmium (Cd)	2022/05/10	100 (4)	80 - 120	98	80 - 120	<0.0001	mg/L	NC (5)	20		
7984341	Dissolved Calcium (Ca)	2022/05/10	NC (4)	80 - 120	104	80 - 120	<0.2	mg/L	0.35 (5)	20		
7984341	Dissolved Iron (Fe)	2022/05/10	104 (4)	80 - 120	103	80 - 120	<0.1	mg/L	3.6 (5)	20		
7984341	Dissolved Lead (Pb)	2022/05/10	95 (4)	80 - 120	98	80 - 120	<0.0005	mg/L	NC (5)	20		
7984341	Dissolved Magnesium (Mg)	2022/05/10	NC (4)	80 - 120	102	80 - 120	<0.05	mg/L	3.6 (5)	20		
7984341	Dissolved Potassium (K)	2022/05/10	105 (4)	80 - 120	103	80 - 120	<0.2	mg/L	1.9 (5)	20		
7984341	Dissolved Sodium (Na)	2022/05/10	NC (4)	80 - 120	102	80 - 120	<0.1	mg/L	3.6 (5)	20		
7984466	Dissolved Organic Carbon	2022/05/12	99 (6)	80 - 120	97	80 - 120	<0.4	mg/L	0.69 (7)	20		
7984684	Total Dissolved Solids	2022/05/10					<10	mg/L	0.55 (8)	25	98	90 - 110

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7986080	Total Dissolved Solids	2022/05/11					<10	mg/L	0 (3)	25	98	90 - 110
7986646	Total Dissolved Solids	2022/05/11					<10	mg/L	0.45 (3)	25	102	90 - 110
7986878	Total Kjeldahl Nitrogen (TKN)	2022/05/11	108 (9)	80 - 120	99	80 - 120	<0.7	mg/L	NC (10)	20	98	80 - 120
7986941	Total Ammonia-N	2022/05/11	98	75 - 125	103	80 - 120	<0.15	mg/L	NC (3)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [SOB574-08]

(2) Duplicate Parent ID [SOB574-08]

(3) Duplicate Parent ID

(4) Matrix Spike Parent ID [SOB574-05]

(5) Duplicate Parent ID [SOB574-05]

(6) Matrix Spike Parent ID [SOB580-01]

(7) Duplicate Parent ID [SOB580-01]

(8) Duplicate Parent ID [SOB579-04]

(9) Matrix Spike Parent ID [SOB583-06]

(10) Duplicate Parent ID [SOB583-06]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

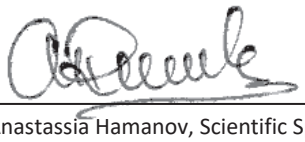
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2474
Report Date: 2022/05/13

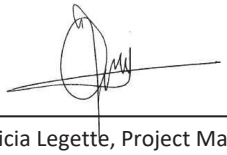
RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist



Patricia Legette, Project Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/13
Report #: R7124184
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C2432
Received: 2022/05/06, 09:24

Sample Matrix: Water
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	9	N/A	2022/05/10	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	9	N/A	2022/05/09	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	9	N/A	2022/05/12		
Conductivity	9	N/A	2022/05/10	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	9	N/A	2022/05/11	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2022/05/13	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	8	N/A	2022/05/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	9	N/A	2022/05/11	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	6	N/A	2022/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate & Nitrite as Nitrogen in Water (2)	3	N/A	2022/05/09	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	9	2022/05/07	2022/05/10	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	9	N/A	2022/05/06		Field pH Meter
Sulphate by Automated Colourimetry	9	N/A	2022/05/12	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	9	2022/05/10	2022/05/11	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	9	N/A	2022/05/06		Field Thermometer
Total Kjeldahl Nitrogen in Water	9	2022/05/10	2022/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	9	N/A	2022/05/12		
Volatile Organic Compounds in Water	6	N/A	2022/05/10	CAM SOP-00228	EPA 8260C m
Volatile Organic Compounds in Water	4	N/A	2022/05/11	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/13
Report #: R7124184
Version: 1 - Final

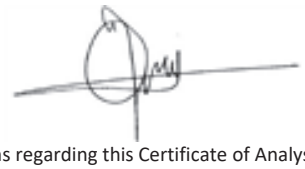
CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C2432
Received: 2022/05/06, 09:24

Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key



Patricia Legette
Project Manager
13 May 2022 18:26:50

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2432
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOB406			SOB408			SOB409		
Sampling Date		2022/05/03			2022/05/03			2022/05/04		
COC Number		n/a			n/a			n/a		
	UNITS	OW17-4	RDL	QC Batch	OW57-4	RDL	QC Batch	OW16-6	RDL	QC Batch
Field Measurements										
Field Conductivity	uS/cm	1410	N/A	ONSITE	1320	N/A	ONSITE	1010	N/A	ONSITE
Field Temperature	Celsius	16.0	N/A	ONSITE	16.2	N/A	ONSITE	9.6	N/A	ONSITE
Field Turbidity	NTU	19.0	N/A	ONSITE	1.34	N/A	ONSITE	14.2	N/A	ONSITE
Field Measured pH	pH	7.1		ONSITE	7.2		ONSITE	7.1		ONSITE
Inorganics										
Total Ammonia-N	mg/L	<0.15	0.15	7986941	<0.15	0.15	7986953	0.32	0.15	7986941
Conductivity	umho/cm	1600	1.0	7982589	3500	1.0	7982589	1900	1.0	7982589
Total Dissolved Solids	mg/L	1140	10	7986080	3160	10	7986080	1130	10	7986646
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	7986246	<0.7	0.7	7986246	0.8	0.7	7986246
Dissolved Organic Carbon	mg/L	3.1	0.4	7986877	3.1	0.4	7986874	3.0	0.4	7986874
pH	pH	8.06		7982587	8.01		7982587	7.97		7982587
Dissolved Sulphate (SO4)	mg/L	450	2.0	7982690	1800	5.0	7982690	410	2.0	7982690
Alkalinity (Total as CaCO3)	mg/L	470	1.0	7982588	580	1.0	7982588	630	1.0	7982588
Dissolved Chloride (Cl-)	mg/L	32	1.0	7982689	6.0	1.0	7982689	48	1.0	7982689
Nitrate (N)	mg/L	0.16	0.10	7982664	<0.10	0.10	7982668	<0.10	0.10	7982664

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2432
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOB410			SOB412		SOB413		SOB414		
Sampling Date		2022/05/04			2022/05/04		2022/05/04		2022/05/04		
COC Number		n/a			n/a		n/a		n/a		
	UNITS	OW54A4	RDL	QC Batch	OW56-4	QC Batch	OW58-6	QC Batch	OW59-6	RDL	QC Batch
Field Measurements											
Field Conductivity	uS/cm	1020	N/A	ONSITE	980	ONSITE	1030	ONSITE	1220	N/A	ONSITE
Field Temperature	Celsius	9.8	N/A	ONSITE	11.0	ONSITE	10.4	ONSITE	10.2	N/A	ONSITE
Field Turbidity	NTU	64.3	N/A	ONSITE	98.2	ONSITE	75.2	ONSITE	18.7	N/A	ONSITE
Field Measured pH	pH	7.2		ONSITE	7.2	ONSITE	7.0	ONSITE	7.3		ONSITE
Inorganics											
Total Ammonia-N	mg/L	<0.15	0.15	7986941	<0.15	7986941	<0.15	7986953	<0.15	0.15	7986953
Conductivity	umho/cm	2300	1.0	7982589	4800	7982589	4900	7982589	4900	1.0	7982589
Total Dissolved Solids	mg/L	1620	10	7986080	4340	7986080	3310	7986646	4830	10	7986080
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	7986246	<0.7	7986246	0.9	7986246	<0.7	0.7	7986246
Dissolved Organic Carbon	mg/L	4.0	0.4	7986877	3.1	7986874	3.3	7986874	2.4	0.4	7986874
pH	pH	8.00		7982587	7.98	7982587	7.96	7982587	7.77		7982587
Dissolved Sulphate (SO4)	mg/L	760	5.0	7982690	3000	7982690	3000	7982690	3100	10	7982690
Alkalinity (Total as CaCO3)	mg/L	600	1.0	7982588	390	7982588	400	7982588	420	1.0	7982588
Dissolved Chloride (Cl-)	mg/L	28	1.0	7982689	5.8	7982689	5.5	7982689	6.2	1.0	7982689
Nitrate (N)	mg/L	<0.10	0.10	7982664	0.36	7982664	0.47	7982668	<0.10	0.10	7982664

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2432
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOB416			SOB417		
Sampling Date		2022/05/04			2022/05/04		
COC Number		n/a			n/a		
	UNITS	OW68-5	RDL	QC Batch	GW DUP2	RDL	QC Batch
Field Measurements							
Field Conductivity	uS/cm	1010	N/A	ONSITE	1010	N/A	ONSITE
Field Temperature	Celsius	9.4	N/A	ONSITE	9.4	N/A	ONSITE
Field Turbidity	NTU	14.6	N/A	ONSITE	14.6	N/A	ONSITE
Field Measured pH	pH	7.1		ONSITE	7.1		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	0.15	7986953	<0.15	0.15	7986953
Conductivity	umho/cm	1100	1.0	7982589	4100	1.0	7982589
Total Dissolved Solids	mg/L	590	10	7986646	3900	10	7986080
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	7986878	<0.7	0.7	7986246
Dissolved Organic Carbon	mg/L	2.6	0.4	7986877	2.8	0.4	7986874
pH	pH	8.02		7982587	7.82		7982587
Dissolved Sulphate (SO4)	mg/L	180	1.0	7982690	2500	10	7982690
Alkalinity (Total as CaCO3)	mg/L	480	1.0	7982588	350	1.0	7982588
Dissolved Chloride (Cl-)	mg/L	9.9	1.0	7982689	7.8	1.0	7982689
Nitrate (N)	mg/L	<0.10	0.10	7982668	0.77	0.10	7982664

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2432
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOB406		SOB408	SOB409	SOB410		SOB412		
Sampling Date		2022/05/03		2022/05/03	2022/05/04	2022/05/04		2022/05/04		
COC Number		n/a		n/a	n/a	n/a		n/a		
	UNITS	OW17-4	QC Batch	OW57-4	OW16-6	OW54A4	RDL	OW56-4	RDL	QC Batch
Metals										
Dissolved Barium (Ba)	mg/L	0.014	7993420	0.007	0.013	0.014	0.005	0.011	0.005	7983466
Dissolved Boron (B)	mg/L	0.24	7993420	0.35	0.16	0.18	0.02	0.35	0.02	7983466
Dissolved Cadmium (Cd)	mg/L	<0.0001	7993420	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	7983466
Dissolved Calcium (Ca)	mg/L	230	7993420	360	130	140	0.2	470	1	7983466
Dissolved Iron (Fe)	mg/L	<0.1	7993420	1.6	0.4	<0.1	0.1	0.3	0.1	7983466
Dissolved Lead (Pb)	mg/L	<0.0005	7993420	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.0005	7983466
Dissolved Magnesium (Mg)	mg/L	220	7993420	360	110	200	0.05	420	0.3	7983466
Dissolved Potassium (K)	mg/L	2.0	7993420	4.1	4.7	2.9	0.2	2.9	0.2	7983466
Dissolved Sodium (Na)	mg/L	93	7993420	140	190	140	0.1	99	0.1	7983466

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOB413	SOB414		SOB416		SOB417		
Sampling Date		2022/05/04	2022/05/04		2022/05/04		2022/05/04		
COC Number		n/a	n/a		n/a		n/a		
	UNITS	OW58-6	OW59-6	RDL	OW68-5	RDL	GW DUP2	RDL	QC Batch
Metals									
Dissolved Barium (Ba)	mg/L	0.010	0.007	0.005	0.035	0.005	0.011	0.005	7983466
Dissolved Boron (B)	mg/L	0.41	0.72	0.02	0.08	0.02	0.32	0.02	7983466
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	7983466
Dissolved Calcium (Ca)	mg/L	470	450	1	110	0.2	470	1	7983466
Dissolved Iron (Fe)	mg/L	1.4	<0.1	0.1	<0.1	0.1	<0.1	0.1	7983466
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	0.0005	<0.0005	0.0005	<0.0005	0.0005	7983466
Dissolved Magnesium (Mg)	mg/L	460	460	0.3	85	0.05	410	0.3	7983466
Dissolved Potassium (K)	mg/L	3.2	6.6	0.2	1.9	0.2	2.8	0.2	7983466
Dissolved Sodium (Na)	mg/L	100	290	0.1	39	0.1	98	0.1	7983466

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SOB406	SOB408	SOB409	SOB410	SOB412	SOB413		
Sampling Date		2022/05/03	2022/05/03	2022/05/04	2022/05/04	2022/05/04	2022/05/04		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	OW17-4	OW57-4	OW16-6	OW54A4	OW56-4	OW58-6	RDL	QC Batch
Volatile Organics									
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7981964
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7981964
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7981964
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7981964
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7981964
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Surrogate Recovery (%)									
4-Bromofluorobenzene	%	92	93	93	92	91	93		7981964
D4-1,2-Dichloroethane	%	108	109	111	113	110	111		7981964
D8-Toluene	%	91	91	91	91	91	92		7981964

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOB414	SOB416	SOB417	SOB418		
Sampling Date		2022/05/04	2022/05/04	2022/05/04	2022/05/04		
COC Number		n/a	n/a	n/a	n/a		
	UNITS	OW59-6	OW68-5	GW DUP2	TRIP BLANK	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7981964
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	7981964
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	95	91	93	90		7981964
D4-1,2-Dichloroethane	%	108	108	112	111		7981964
D8-Toluene	%	92	92	91	93		7981964

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7981964	4-Bromofluorobenzene	2022/05/10	104 (1)	70 - 130	103	70 - 130	94	%				
7981964	D4-1,2-Dichloroethane	2022/05/10	105 (1)	70 - 130	100	70 - 130	103	%				
7981964	D8-Toluene	2022/05/10	99 (1)	70 - 130	101	70 - 130	95	%				
7981964	1,4-Dichlorobenzene	2022/05/10	105 (1)	70 - 130	109	70 - 130	<0.40	ug/L	NC (2)	30		
7981964	Benzene	2022/05/10	94 (1)	70 - 130	94	70 - 130	<0.20	ug/L	NC (2)	30		
7981964	Ethylbenzene	2022/05/10	89 (1)	70 - 130	91	70 - 130	<0.20	ug/L	NC (2)	30		
7981964	Methylene Chloride(Dichloromethane)	2022/05/10	117 (1)	70 - 130	115	70 - 130	<2.0	ug/L	NC (2)	30		
7981964	o-Xylene	2022/05/10	89 (1)	70 - 130	93	70 - 130	<0.20	ug/L	NC (2)	30		
7981964	p+m-Xylene	2022/05/10	92 (1)	70 - 130	95	70 - 130	<0.20	ug/L	NC (2)	30		
7981964	Toluene	2022/05/10	95 (1)	70 - 130	98	70 - 130	<0.20	ug/L	NC (2)	30		
7981964	Total Xylenes	2022/05/10					<0.20	ug/L	NC (2)	30		
7981964	Vinyl Chloride	2022/05/10	99 (1)	70 - 130	101	70 - 130	<0.20	ug/L	NC (2)	30		
7982587	pH	2022/05/10			102	98 - 103			1.1 (3)	N/A		
7982588	Alkalinity (Total as CaCO3)	2022/05/10			94	85 - 115	<1.0	mg/L	1.6 (3)	20		
7982589	Conductivity	2022/05/10			99	85 - 115	<1.0	umho/cm	0.28 (3)	25		
7982664	Nitrate (N)	2022/05/10	96	80 - 120	103	80 - 120	<0.10	mg/L	1.3 (3)	20		
7982668	Nitrate (N)	2022/05/09	114	80 - 120	111	80 - 120	<0.10	mg/L	0.017 (3)	20		
7982689	Dissolved Chloride (Cl-)	2022/05/09	NC (4)	80 - 120	101	80 - 120	<1.0	mg/L	0.51 (5)	20		
7982690	Dissolved Sulphate (SO4)	2022/05/12	NC (4)	75 - 125	101	80 - 120	<1.0	mg/L	4.2 (5)	20		
7983466	Dissolved Barium (Ba)	2022/05/09	103 (6)	80 - 120	101	80 - 120	<0.005	mg/L	0.17 (7)	20		
7983466	Dissolved Boron (B)	2022/05/09	NC (6)	80 - 120	97	80 - 120	<0.02	mg/L	3.8 (7)	20		
7983466	Dissolved Cadmium (Cd)	2022/05/09	98 (6)	80 - 120	99	80 - 120	<0.0001	mg/L	NC (7)	20		
7983466	Dissolved Calcium (Ca)	2022/05/09	NC (6)	80 - 120	100	80 - 120	<0.2	mg/L	0.78 (7)	20		
7983466	Dissolved Iron (Fe)	2022/05/09	103 (6)	80 - 120	99	80 - 120	<0.1	mg/L	NC (7)	20		
7983466	Dissolved Lead (Pb)	2022/05/09	94 (6)	80 - 120	96	80 - 120	<0.0005	mg/L	NC (7)	20		
7983466	Dissolved Magnesium (Mg)	2022/05/09	NC (6)	80 - 120	101	80 - 120	<0.05	mg/L	1.3 (7)	20		
7983466	Dissolved Potassium (K)	2022/05/09	108 (6)	80 - 120	98	80 - 120	<0.2	mg/L	0.58 (7)	20		
7983466	Dissolved Sodium (Na)	2022/05/09	NC (6)	80 - 120	97	80 - 120	<0.1	mg/L	2.1 (7)	20		
7986080	Total Dissolved Solids	2022/05/11					<10	mg/L	0 (3)	25	98	90 - 110

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7986246	Total Kjeldahl Nitrogen (TKN)	2022/05/11	120 (8)	80 - 120	94	80 - 120	<0.7	mg/L	NC (9)	20	98	80 - 120
7986646	Total Dissolved Solids	2022/05/11					<10	mg/L	0.45 (10)	25	102	90 - 110
7986874	Dissolved Organic Carbon	2022/05/11	99	80 - 120	97	80 - 120	<0.4	mg/L	1.7 (3)	20		
7986877	Dissolved Organic Carbon	2022/05/11	NC	80 - 120	96	80 - 120	<0.4	mg/L	0.60 (3)	20		
7986878	Total Kjeldahl Nitrogen (TKN)	2022/05/11	108	80 - 120	99	80 - 120	<0.7	mg/L	NC (3)	20	98	80 - 120
7986941	Total Ammonia-N	2022/05/11	98 (11)	75 - 125	103	80 - 120	<0.15	mg/L	NC (12)	20		
7986953	Total Ammonia-N	2022/05/11	99	75 - 125	102	80 - 120	<0.15	mg/L	2.8 (3)	20		
7993420	Dissolved Barium (Ba)	2022/05/13	97 (13)	80 - 120	101	80 - 120	<0.005	mg/L	2.9 (14)	20		
7993420	Dissolved Boron (B)	2022/05/13	104 (13)	80 - 120	93	80 - 120	<0.02	mg/L	2.5 (14)	20		
7993420	Dissolved Cadmium (Cd)	2022/05/13	99 (13)	80 - 120	100	80 - 120	<0.0001	mg/L	NC (14)	20		
7993420	Dissolved Calcium (Ca)	2022/05/13	89 (13)	80 - 120	103	80 - 120	<0.2	mg/L	0.012 (14)	20		
7993420	Dissolved Iron (Fe)	2022/05/13	98 (13)	80 - 120	102	80 - 120	<0.1	mg/L	NC (14)	20		
7993420	Dissolved Lead (Pb)	2022/05/13	92 (13)	80 - 120	97	80 - 120	<0.0005	mg/L	NC (14)	20		
7993420	Dissolved Magnesium (Mg)	2022/05/13	NC (13)	80 - 120	104	80 - 120	<0.05	mg/L	1.1 (14)	20		
7993420	Dissolved Potassium (K)	2022/05/13	98 (13)	80 - 120	101	80 - 120	<0.2	mg/L	0.74 (14)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7993420	Dissolved Sodium (Na)	2022/05/13	93 (13)	80 - 120	102	80 - 120	<0.1	mg/L	1.1 (14)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [SOB414-08]

(2) Duplicate Parent ID [SOB414-08]

(3) Duplicate Parent ID

(4) Matrix Spike Parent ID [SOB410-02]

(5) Duplicate Parent ID [SOB410-02]

(6) Matrix Spike Parent ID [SOB414-05]

(7) Duplicate Parent ID [SOB414-05]

(8) Matrix Spike Parent ID [SOB417-06]

(9) Duplicate Parent ID [SOB417-06]

(10) Duplicate Parent ID [SOB413-04]

(11) Matrix Spike Parent ID [SOB406-07]

(12) Duplicate Parent ID [SOB406-07]

(13) Matrix Spike Parent ID [SOB406-05]

(14) Duplicate Parent ID [SOB406-05]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

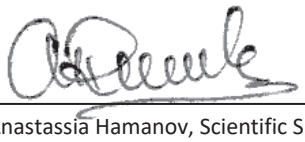
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2432
Report Date: 2022/05/13

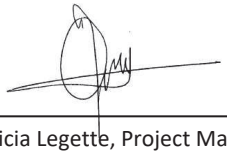
RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist



Patricia Legette, Project Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/16
Report #: R7127146
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C3446
Received: 2022/05/07, 14:54

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2022/05/11	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	2	N/A	2022/05/10	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2022/05/16		
Conductivity	2	N/A	2022/05/11	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	2	N/A	2022/05/12	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	2	N/A	2022/05/10	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2022/05/12	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	2	N/A	2022/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2022/05/09	2022/05/11	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	1	N/A	2022/05/07		Field pH Meter
Sulphate by Automated Colourimetry	2	N/A	2022/05/12	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	2	2022/05/11	2022/05/12	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	1	N/A	2022/05/07		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2022/05/10	2022/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	1	N/A	2022/05/16		
Volatile Organic Compounds in Water	2	N/A	2022/05/13	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/16
Report #: R7127146
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C3446

Received: 2022/05/07, 14:54

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Christine Gripton
Senior Project Manager
16 May 2022 16:48:14

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C2C3446
Report Date: 2022/05/16

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOH425			SOH426		
Sampling Date		2022/05/05			2022/05/05		
COC Number		TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	FIELD BLANK	RDL	QC Batch	OW80-6	RDL	QC Batch
Field Measurements							
Field Conductivity	uS/cm				920	N/A	ONSITE
Field Temperature	Celsius				11.6	N/A	ONSITE
Field Turbidity	NTU				35.8	N/A	ONSITE
Field Measured pH	pH				7.0		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	0.15	7989400	<0.15	0.15	7989400
Conductivity	umho/cm	1.0	1.0	7985276	450	1.0	7985276
Total Dissolved Solids	mg/L	<10	10	7989391	230	10	7989399
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	7986878	<0.7	0.7	7986878
Dissolved Organic Carbon	mg/L	<0.4	0.4	7988741	4.5	0.4	7988741
pH	pH	6.21		7985277	8.31		7985277
Dissolved Sulphate (SO4)	mg/L	<1.0	1.0	7985228	3.7	1.0	7985228
Alkalinity (Total as CaCO3)	mg/L	<1.0	1.0	7985268	240	1.0	7985268
Dissolved Chloride (Cl-)	mg/L	<1.0	1.0	7985217	4.2	1.0	7985217
Nitrate (N)	mg/L	<0.10	0.10	7985250	0.36	0.10	7985250

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3446
Report Date: 2022/05/16

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOH425	SOH426		
Sampling Date		2022/05/05	2022/05/05		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	FIELD BLANK	OW80-6	RDL	QC Batch
Metals					
Dissolved Barium (Ba)	mg/L	<0.005	0.020	0.005	7984348
Dissolved Boron (B)	mg/L	<0.02	0.05	0.02	7984348
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0017	0.0001	7984348
Dissolved Calcium (Ca)	mg/L	<0.2	59	0.2	7984348
Dissolved Iron (Fe)	mg/L	<0.1	0.2	0.1	7984348
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	0.0005	7984348
Dissolved Magnesium (Mg)	mg/L	<0.05	17	0.05	7984348
Dissolved Potassium (K)	mg/L	<0.2	3.4	0.2	7984348
Dissolved Sodium (Na)	mg/L	<0.1	3.4	0.1	7984348

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3446
Report Date: 2022/05/16

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SOH425	SOH426		
Sampling Date		2022/05/05	2022/05/05		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	FIELD BLANK	OW80-6	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	7984603
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	7984603
Ethylbenzene	ug/L	<0.20	<0.20	0.20	7984603
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	7984603
Toluene	ug/L	<0.20	<0.20	0.20	7984603
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	7984603
p+m-Xylene	ug/L	<0.20	<0.20	0.20	7984603
o-Xylene	ug/L	<0.20	<0.20	0.20	7984603
Total Xylenes	ug/L	<0.20	<0.20	0.20	7984603
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	89	90		7984603
D4-1,2-Dichloroethane	%	107	108		7984603
D8-Toluene	%	95	94		7984603

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7984603	4-Bromofluorobenzene	2022/05/13	100	70 - 130	102	70 - 130	93	%				
7984603	D4-1,2-Dichloroethane	2022/05/13	98	70 - 130	97	70 - 130	104	%				
7984603	D8-Toluene	2022/05/13	108	70 - 130	108	70 - 130	95	%				
7984348	Dissolved Barium (Ba)	2022/05/11	104	80 - 120	103	80 - 120	<0.005	mg/L	NC (1)	20		
7984348	Dissolved Boron (B)	2022/05/11	NC	80 - 120	100	80 - 120	<0.02	mg/L	0.27 (1)	20		
7984348	Dissolved Cadmium (Cd)	2022/05/11	101	80 - 120	101	80 - 120	<0.0001	mg/L	NC (1)	20		
7984348	Dissolved Calcium (Ca)	2022/05/11	NC	80 - 120	99	80 - 120	<0.2	mg/L	4.9 (1)	20		
7984348	Dissolved Iron (Fe)	2022/05/11	100	80 - 120	99	80 - 120	<0.1	mg/L	1.6 (1)	20		
7984348	Dissolved Lead (Pb)	2022/05/11	95	80 - 120	100	80 - 120	<0.0005	mg/L	NC (1)	20		
7984348	Dissolved Magnesium (Mg)	2022/05/11	NC	80 - 120	98	80 - 120	<0.05	mg/L	3.3 (1)	20		
7984348	Dissolved Potassium (K)	2022/05/11	104	80 - 120	101	80 - 120	<0.2	mg/L	3.0 (1)	20		
7984348	Dissolved Sodium (Na)	2022/05/11	NC	80 - 120	98	80 - 120	<0.1	mg/L	1.0 (1)	20		
7984603	1,4-Dichlorobenzene	2022/05/13	114	70 - 130	102	70 - 130	<0.40	ug/L	NC (1)	30		
7984603	Benzene	2022/05/13	92	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
7984603	Ethylbenzene	2022/05/13	92	70 - 130	98	70 - 130	<0.20	ug/L	NC (1)	30		
7984603	Methylene Chloride(Dichloromethane)	2022/05/13	112	70 - 130	103	70 - 130	<2.0	ug/L	NC (1)	30		
7984603	o-Xylene	2022/05/13	90	70 - 130	101	70 - 130	<0.20	ug/L	NC (1)	30		
7984603	p+m-Xylene	2022/05/13	99	70 - 130	103	70 - 130	<0.20	ug/L	NC (1)	30		
7984603	Toluene	2022/05/13	100	70 - 130	102	70 - 130	<0.20	ug/L	NC (1)	30		
7984603	Total Xylenes	2022/05/13					<0.20	ug/L	NC (1)	30		
7984603	Vinyl Chloride	2022/05/13	109	70 - 130	100	70 - 130	<0.20	ug/L				
7985217	Dissolved Chloride (Cl-)	2022/05/10	116	80 - 120	104	80 - 120	<1.0	mg/L	0.42 (1)	20		
7985228	Dissolved Sulphate (SO4)	2022/05/12	NC	75 - 125	99	80 - 120	<1.0	mg/L	0.58 (1)	20		
7985250	Nitrate (N)	2022/05/10	NC	80 - 120	104	80 - 120	<0.10	mg/L	0.90 (1)	20		
7985268	Alkalinity (Total as CaCO3)	2022/05/11			95	85 - 115	<1.0	mg/L	0.97 (1)	20		
7985276	Conductivity	2022/05/11			100	85 - 115	<1.0	umho/cm	0.20 (1)	25		
7985277	pH	2022/05/11			102	98 - 103			1.0 (1)	N/A		
7986878	Total Kjeldahl Nitrogen (TKN)	2022/05/11	108	80 - 120	99	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
7988741	Dissolved Organic Carbon	2022/05/12	98	80 - 120	97	80 - 120	<0.4	mg/L	2.0 (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7989391	Total Dissolved Solids	2022/05/12					<10	mg/L	13 (1)	25	97	90 - 110
7989399	Total Dissolved Solids	2022/05/12					<10	mg/L	1.4 (1)	25	98	90 - 110
7989400	Total Ammonia-N	2022/05/12	91	75 - 125	98	80 - 120	<0.15	mg/L	NC (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3446
Report Date: 2022/05/16

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/17
Report #: R7127954
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C3445
Received: 2022/05/07, 14:54

Sample Matrix: Water
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	12	N/A	2022/05/11	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	12	N/A	2022/05/11	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	12	N/A	2022/05/16		
Conductivity	12	N/A	2022/05/11	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2022/05/11	CAM SOP-00446	SM 23 5310 B m
Dissolved Organic Carbon (DOC) (1)	11	N/A	2022/05/12	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	8	N/A	2022/05/10	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	3	N/A	2022/05/11	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2022/05/16	CAM SOP-00447	EPA 6020B m
Ammonia-N	12	N/A	2022/05/12	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	12	N/A	2022/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	12	2022/05/09	2022/05/11	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	12	N/A	2022/05/07		Field pH Meter
Sulphate by Automated Colourimetry	12	N/A	2022/05/12	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	12	2022/05/11	2022/05/12	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	12	N/A	2022/05/07		Field Thermometer
Total Kjeldahl Nitrogen in Water	9	2022/05/11	2022/05/12	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	3	2022/05/11	2022/05/13	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	12	N/A	2022/05/16		
Volatile Organic Compounds in Water	12	N/A	2022/05/11	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/17
Report #: R7127954
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C3445
Received: 2022/05/07, 14:54

implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
17 May 2022 16:09:33

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C2C3445
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOH413		SOH414			SOH415		
Sampling Date		2022/05/05		2022/05/05			2022/05/05		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	OW40D-4	RDL	OW60-4	RDL	QC Batch	OW67-4	RDL	QC Batch
Field Measurements									
Field Conductivity	uS/cm	2310	N/A	1150	N/A	ONSITE	1140	N/A	ONSITE
Field Temperature	Celsius	11.5	N/A	12.2	N/A	ONSITE	11.9	N/A	ONSITE
Field Turbidity	NTU	35.7	N/A	86.7	N/A	ONSITE	48.3	N/A	ONSITE
Field Measured pH	pH	7.0		7.2		ONSITE	7.2		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	0.15	7989400	0.63	0.15	7989400
Conductivity	umho/cm	2000	1.0	730	1.0	7983627	1500	1.0	7983627
Total Dissolved Solids	mg/L	1830	10	415	10	7989399	1010	10	7989093
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	<0.7	0.7	7988704	1.0	0.7	7988704
Dissolved Organic Carbon	mg/L	3.9	0.4	3.4	0.4	7984532	2.4	0.4	7984532
pH	pH	7.98		8.09		7983626	7.99		7983626
Dissolved Sulphate (SO4)	mg/L	770	5.0	99	1.0	7983652	430	2.0	7983652
Alkalinity (Total as CaCO3)	mg/L	390	1.0	280	1.0	7983614	400	1.0	7983614
Dissolved Chloride (Cl-)	mg/L	6.2	1.0	8.3	1.0	7983647	23	1.0	7983647
Nitrate (N)	mg/L	<0.10	0.10	<0.10	0.10	7983643	0.20	0.10	7983643

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3445
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOH416			SOH417			SOH418		
Sampling Date		2022/05/05			2022/05/05			2022/05/05		
COC Number		TCEC-GWCM-MAY			TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	OW69-5	RDL	QC Batch	OW70B-5	RDL	QC Batch	OW71A-5	RDL	QC Batch
Field Measurements										
Field Conductivity	uS/cm	1080	N/A	ONSITE	1040	N/A	ONSITE	1230	N/A	ONSITE
Field Temperature	Celsius	11.9	N/A	ONSITE	11.3	N/A	ONSITE	11.3	N/A	ONSITE
Field Turbidity	NTU	64.3	N/A	ONSITE	22.1	N/A	ONSITE	67.3	N/A	ONSITE
Field Measured pH	pH	7.1		ONSITE	7.2		ONSITE	7.1		ONSITE
Inorganics										
Total Ammonia-N	mg/L	<0.15	0.15	7989400	<0.15	0.15	7989400	<0.15	0.15	7989400
Conductivity	umho/cm	5800	1.0	7983627	2100	1.0	7983627	1300	1.0	7983627
Total Dissolved Solids	mg/L	5780	10	7989093	1390	10	7989399	810	10	7989093
Total Kjeldahl Nitrogen (TKN)	mg/L	0.9	0.7	7988704	<0.7	0.7	7988704	<0.7	0.7	7988704
Dissolved Organic Carbon	mg/L	2.8	0.4	7984532	2.7	0.4	7984532	3.6	0.4	7984532
pH	pH	7.68		7983626	7.99		7983626	8.06		7983626
Dissolved Sulphate (SO4)	mg/L	3500	10	7983652	630	5.0	7983652	300	1.0	7983652
Alkalinity (Total as CaCO3)	mg/L	710	1.0	7983614	610	1.0	7983614	430	1.0	7983614
Dissolved Chloride (Cl-)	mg/L	12	1.0	7983647	6.8	1.0	7983647	30	1.0	7983647
Nitrate (N)	mg/L	<0.10	0.10	7983643	<0.10	0.10	7983643	<0.10	0.10	7983643

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3445
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOH419		SOH420		SOH421	SOH422		
Sampling Date		2022/05/05		2022/05/05		2022/05/05	2022/05/05		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW72-6**	**RDL**	**OW73-6**	**RDL**	**OW79-5**	**OW80-3**	**RDL**	**QC Batch**
Field Measurements									
Field Conductivity	uS/cm	1130	N/A	980	N/A	1330	1320	N/A	ONSITE
Field Temperature	Celsius	11.8	N/A	11.8	N/A	11.1	11.0	N/A	ONSITE
Field Turbidity	NTU	46.7	N/A	7.49	N/A	46.7	38.9	N/A	ONSITE
Field Measured pH	pH	7.2		7.2		7.3	7.4		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	0.15	<0.15	<0.15	0.15	7989400
Conductivity	umho/cm	2100	1.0	5800	1.0	1400	830	1.0	7983627
Total Dissolved Solids	mg/L	1400	10	5720	10	830	445	10	7989399
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	<0.7	0.7	<0.7	<0.7	0.7	7988704
Dissolved Organic Carbon	mg/L	3.0	0.4	2.8	0.4	3.3	8.9	0.4	7984532
pH	pH	8.07		7.71		8.04	8.06		7983626
Dissolved Sulphate (SO4)	mg/L	620	5.0	3600	10	310	23	1.0	7983652
Alkalinity (Total as CaCO3)	mg/L	620	1.0	710	1.0	460	320	1.0	7983614
Dissolved Chloride (Cl-)	mg/L	6.5	1.0	12	1.0	26	67	1.0	7983647
Nitrate (N)	mg/L	<0.10	0.10	<0.10	0.10	<0.10	0.22	0.10	7983643

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3445
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOH423			SOH424		
Sampling Date		2022/05/05			2022/05/05		
COC Number		TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	OW81-5	RDL	QC Batch	GWDUP3	RDL	QC Batch
Field Measurements							
Field Conductivity	uS/cm	1080	N/A	ONSITE	1320	N/A	ONSITE
Field Temperature	Celsius	12.1	N/A	ONSITE	11.0	N/A	ONSITE
Field Turbidity	NTU	86.3	N/A	ONSITE	38.9	N/A	ONSITE
Field Measured pH	pH	7.2		ONSITE	7.4		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	0.15	7989400	<0.15	0.15	7989400
Conductivity	umho/cm	2800	1.0	7983627	830	1.0	7983627
Total Dissolved Solids	mg/L	2270	10	7989399	455	10	7989093
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	7988704	<0.7	0.7	7988704
Dissolved Organic Carbon	mg/L	2.0	0.4	7984532	8.3	0.4	7984532
pH	pH	7.91		7983626	8.09		7983626
Dissolved Sulphate (SO4)	mg/L	1300	5.0	7983652	23	1.0	7983652
Alkalinity (Total as CaCO3)	mg/L	400	1.0	7983614	320	1.0	7983614
Dissolved Chloride (Cl-)	mg/L	20	1.0	7983647	66	1.0	7983647
Nitrate (N)	mg/L	<0.10	0.10	7983643	0.25	0.10	7983643

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3445
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOH413		SOH414	SOH415		
Sampling Date		2022/05/05		2022/05/05	2022/05/05		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	OW40D-4	QC Batch	OW60-4	OW67-4	RDL	QC Batch
Metals							
Dissolved Barium (Ba)	mg/L	0.012	7994666	0.046	0.019	0.005	7984341
Dissolved Boron (B)	mg/L	0.33	7994666	0.04	0.68	0.02	7984341
Dissolved Cadmium (Cd)	mg/L	<0.0001	7994666	<0.0001	<0.0001	0.0001	7984341
Dissolved Calcium (Ca)	mg/L	210	7994666	97	150	0.2	7984341
Dissolved Iron (Fe)	mg/L	0.5	7994666	<0.1	0.5	0.1	7984341
Dissolved Lead (Pb)	mg/L	<0.0005	7994666	0.012	<0.0005	0.0005	7984341
Dissolved Magnesium (Mg)	mg/L	180	7994666	29	110	0.05	7984341
Dissolved Potassium (K)	mg/L	4.2	7994666	1.5	4.3	0.2	7984341
Dissolved Sodium (Na)	mg/L	120	7994666	13	64	0.1	7984341

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOH416		SOH417	SOH418		
Sampling Date		2022/05/05		2022/05/05	2022/05/05		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	OW69-5	RDL	OW70B-5	OW71A-5	RDL	QC Batch
Metals							
Dissolved Barium (Ba)	mg/L	0.007	0.005	0.011	0.073	0.005	7984341
Dissolved Boron (B)	mg/L	0.94	0.02	0.42	0.12	0.02	7984341
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	<0.0001	0.0001	7984341
Dissolved Calcium (Ca)	mg/L	500	0.4	120	130	0.2	7984341
Dissolved Iron (Fe)	mg/L	3.3	0.1	0.1	1.7	0.1	7984341
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	<0.0005	0.0005	7984341
Dissolved Magnesium (Mg)	mg/L	640	0.3	210	95	0.05	7984341
Dissolved Potassium (K)	mg/L	5.9	0.2	4.1	2.7	0.2	7984341
Dissolved Sodium (Na)	mg/L	300	0.1	92	41	0.1	7984341

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3445
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOH419		SOH420			SOH421		
Sampling Date		2022/05/05		2022/05/05			2022/05/05		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	OW72-6	RDL	OW73-6	RDL	QC Batch	OW79-5	RDL	QC Batch
Metals									
Dissolved Barium (Ba)	mg/L	0.011	0.005	<0.03	0.03	7984348	0.023	0.005	7984341
Dissolved Boron (B)	mg/L	0.43	0.02	1.0	0.1	7984348	0.06	0.02	7984341
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0005	0.0005	7984348	<0.0001	0.0001	7984341
Dissolved Calcium (Ca)	mg/L	110	0.2	450	1	7984348	110	0.2	7984341
Dissolved Iron (Fe)	mg/L	<0.1	0.1	2.9	0.5	7984348	<0.1	0.1	7984341
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.003	0.003	7984348	<0.0005	0.0005	7984341
Dissolved Magnesium (Mg)	mg/L	200	0.05	650	0.3	7984348	93	0.05	7984341
Dissolved Potassium (K)	mg/L	4.4	0.2	6	1	7984348	2.0	0.2	7984341
Dissolved Sodium (Na)	mg/L	87	0.1	280	0.5	7984348	90	0.1	7984341

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOH422		SOH423		SOH424		
Sampling Date		2022/05/05		2022/05/05		2022/05/05		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	OW80-3	RDL	OW81-5	RDL	GWDUP3	RDL	QC Batch
Metals								
Dissolved Barium (Ba)	mg/L	0.037	0.005	0.022	0.005	0.034	0.005	7984341
Dissolved Boron (B)	mg/L	0.03	0.02	0.54	0.02	0.03	0.02	7984341
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	7984341
Dissolved Calcium (Ca)	mg/L	110	0.2	280	0.4	110	0.2	7984341
Dissolved Iron (Fe)	mg/L	<0.1	0.1	<0.1	0.1	<0.1	0.1	7984341
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	0.0005	<0.0005	0.0005	7984341
Dissolved Magnesium (Mg)	mg/L	24	0.05	190	0.05	20	0.05	7984341
Dissolved Potassium (K)	mg/L	4.7	0.2	5.0	0.2	5.8	0.2	7984341
Dissolved Sodium (Na)	mg/L	70	0.1	180	0.1	54	0.1	7984341

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3445
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SOH413	SOH414	SOH415	SOH416		
Sampling Date		2022/05/05	2022/05/05	2022/05/05	2022/05/05		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	OW40D-4	OW60-4	OW67-4	OW69-5	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7982641
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	7982641
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	90	90	90	90		7982641
D4-1,2-Dichloroethane	%	109	110	110	111		7982641
D8-Toluene	%	90	91	91	91		7982641

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOH417	SOH418	SOH419	SOH420		
Sampling Date		2022/05/05	2022/05/05	2022/05/05	2022/05/05		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	OW70B-5	OW71A-5	OW72-6	OW73-6	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7982641
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	7982641
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	89	89	88	88		7982641
D4-1,2-Dichloroethane	%	112	110	113	112		7982641
D8-Toluene	%	95	94	95	94		7982641

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3445
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SOH421	SOH422	SOH423	SOH424		
Sampling Date		2022/05/05	2022/05/05	2022/05/05	2022/05/05		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	OW79-5	OW80-3	OW81-5	GWDUP3	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7982641
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	7982641
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7982641
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	88	88	89	89		7982641
D4-1,2-Dichloroethane	%	112	110	110	109		7982641
D8-Toluene	%	94	95	94	93		7982641

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Sample SOH420 [OW73-6] : Metal Analysis:Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7982641	4-Bromofluorobenzene	2022/05/11	101	70 - 130	102	70 - 130	94	%				
7982641	D4-1,2-Dichloroethane	2022/05/11	99	70 - 130	98	70 - 130	107	%				
7982641	D8-Toluene	2022/05/11	107	70 - 130	110	70 - 130	93	%				
7982641	1,4-Dichlorobenzene	2022/05/11	110	70 - 130	110	70 - 130	<0.40	ug/L				
7982641	Benzene	2022/05/11	92	70 - 130	92	70 - 130	<0.20	ug/L				
7982641	Ethylbenzene	2022/05/11	92	70 - 130	94	70 - 130	<0.20	ug/L				
7982641	Methylene Chloride(Dichloromethane)	2022/05/11	113	70 - 130	111	70 - 130	<2.0	ug/L				
7982641	o-Xylene	2022/05/11	90	70 - 130	96	70 - 130	<0.20	ug/L				
7982641	p+m-Xylene	2022/05/11	99	70 - 130	102	70 - 130	<0.20	ug/L				
7982641	Toluene	2022/05/11	100	70 - 130	101	70 - 130	<0.20	ug/L				
7982641	Total Xylenes	2022/05/11					<0.20	ug/L				
7982641	Vinyl Chloride	2022/05/11	104	70 - 130	106	70 - 130	<0.20	ug/L				
7983614	Alkalinity (Total as CaCO3)	2022/05/11			95	85 - 115	<1.0	mg/L	0.58 (1)	20		
7983626	pH	2022/05/11			102	98 - 103			0.37 (1)	N/A		
7983627	Conductivity	2022/05/11			102	85 - 115	<1.0	umho/cm	0.96 (1)	25		
7983643	Nitrate (N)	2022/05/10	100 (2)	80 - 120	104	80 - 120	<0.10	mg/L	NC (1)	20		
7983647	Dissolved Chloride (Cl-)	2022/05/11	113 (2)	80 - 120	104	80 - 120	<1.0	mg/L	2.4 (1)	20		
7983652	Dissolved Sulphate (SO4)	2022/05/12	NC (2)	75 - 125	101	80 - 120	<1.0	mg/L	0.90 (1)	20		
7984341	Dissolved Barium (Ba)	2022/05/10	94	80 - 120	98	80 - 120	<0.005	mg/L	2.5 (3)	20		
7984341	Dissolved Boron (B)	2022/05/10	NC	80 - 120	91	80 - 120	<0.02	mg/L	1.1 (3)	20		
7984341	Dissolved Cadmium (Cd)	2022/05/10	100	80 - 120	98	80 - 120	<0.0001	mg/L	NC (3)	20		
7984341	Dissolved Calcium (Ca)	2022/05/10	NC	80 - 120	104	80 - 120	<0.2	mg/L	0.35 (3)	20		
7984341	Dissolved Iron (Fe)	2022/05/10	104	80 - 120	103	80 - 120	<0.1	mg/L	3.6 (3)	20		
7984341	Dissolved Lead (Pb)	2022/05/10	95	80 - 120	98	80 - 120	<0.0005	mg/L	NC (3)	20		
7984341	Dissolved Magnesium (Mg)	2022/05/10	NC	80 - 120	102	80 - 120	<0.05	mg/L	3.6 (3)	20		
7984341	Dissolved Potassium (K)	2022/05/10	105	80 - 120	103	80 - 120	<0.2	mg/L	1.9 (3)	20		
7984341	Dissolved Sodium (Na)	2022/05/10	NC	80 - 120	102	80 - 120	<0.1	mg/L	3.6 (3)	20		
7984348	Dissolved Barium (Ba)	2022/05/11	104 (4)	80 - 120	103	80 - 120	<0.005	mg/L	NC (5)	20		
7984348	Dissolved Boron (B)	2022/05/11	NC (4)	80 - 120	100	80 - 120	<0.02	mg/L	0.27 (5)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7984348	Dissolved Cadmium (Cd)	2022/05/11	101 (4)	80 - 120	101	80 - 120	<0.0001	mg/L	NC (5)	20		
7984348	Dissolved Calcium (Ca)	2022/05/11	NC (4)	80 - 120	99	80 - 120	<0.2	mg/L	4.9 (5)	20		
7984348	Dissolved Iron (Fe)	2022/05/11	100 (4)	80 - 120	99	80 - 120	<0.1	mg/L	1.6 (5)	20		
7984348	Dissolved Lead (Pb)	2022/05/11	95 (4)	80 - 120	100	80 - 120	<0.0005	mg/L	NC (5)	20		
7984348	Dissolved Magnesium (Mg)	2022/05/11	NC (4)	80 - 120	98	80 - 120	<0.05	mg/L	3.3 (5)	20		
7984348	Dissolved Potassium (K)	2022/05/11	104 (4)	80 - 120	101	80 - 120	<0.2	mg/L	3.0 (5)	20		
7984348	Dissolved Sodium (Na)	2022/05/11	NC (4)	80 - 120	98	80 - 120	<0.1	mg/L	1.0 (5)	20		
7984532	Dissolved Organic Carbon	2022/05/11	98 (6)	80 - 120	95	80 - 120	<0.4	mg/L	0.041 (7)	20		
7988704	Total Kjeldahl Nitrogen (TKN)	2022/05/12	105 (8)	80 - 120	105	80 - 120	<0.7	mg/L	NC (9)	20	103	80 - 120
7989093	Total Dissolved Solids	2022/05/12					<10	mg/L	7.0 (3)	25	97	90 - 110
7989399	Total Dissolved Solids	2022/05/12					<10	mg/L	1.4 (10)	25	98	90 - 110
7989400	Total Ammonia-N	2022/05/12	91 (11)	75 - 125	98	80 - 120	<0.15	mg/L	NC (12)	20		
7994666	Dissolved Barium (Ba)	2022/05/16	99 (13)	80 - 120	101	80 - 120	<0.005	mg/L	5.4 (14)	20		
7994666	Dissolved Boron (B)	2022/05/16	92 (13)	80 - 120	91	80 - 120	<0.02	mg/L	1.1 (14)	20		
7994666	Dissolved Cadmium (Cd)	2022/05/16	101 (13)	80 - 120	99	80 - 120	<0.0001	mg/L	NC (14)	20		
7994666	Dissolved Calcium (Ca)	2022/05/16	NC (13)	80 - 120	101	80 - 120	<0.2	mg/L	1.1 (14)	20		
7994666	Dissolved Iron (Fe)	2022/05/16	102 (13)	80 - 120	100	80 - 120	<0.1	mg/L	0.51 (14)	20		
7994666	Dissolved Lead (Pb)	2022/05/16	95 (13)	80 - 120	96	80 - 120	<0.0005	mg/L	NC (14)	20		
7994666	Dissolved Magnesium (Mg)	2022/05/16	NC (13)	80 - 120	99	80 - 120	<0.05	mg/L	6.4 (14)	20		
7994666	Dissolved Potassium (K)	2022/05/16	105 (13)	80 - 120	103	80 - 120	<0.2	mg/L	2.0 (14)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7994666	Dissolved Sodium (Na)	2022/05/16	NC (13)	80 - 120	97	80 - 120	<0.1	mg/L	0.94 (14)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID [SOH417-01]

(2) Matrix Spike Parent ID [SOH417-01]

(3) Duplicate Parent ID

(4) Matrix Spike Parent ID [SOH420-04]

(5) Duplicate Parent ID [SOH420-04]

(6) Matrix Spike Parent ID [SOH415-06]

(7) Duplicate Parent ID [SOH415-06]

(8) Matrix Spike Parent ID [SOH422-05]

(9) Duplicate Parent ID [SOH422-05]

(10) Duplicate Parent ID [SOH413-03]

(11) Matrix Spike Parent ID [SOH423-07]

(12) Duplicate Parent ID [SOH423-07]

(13) Matrix Spike Parent ID [SOH413-04]

(14) Duplicate Parent ID [SOH413-04]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

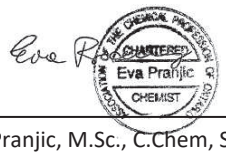
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3445
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/17
Report #: R7127953
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C3447
Received: 2022/05/07, 14:54

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2022/05/10	CAM SOP-00448	SM 23 2320 B m
Alkalinity	1	N/A	2022/05/11	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	5	N/A	2022/05/11	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	5	N/A	2022/05/16		
Conductivity	4	N/A	2022/05/10	CAM SOP-00414	SM 23 2510 m
Conductivity	1	N/A	2022/05/11	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	5	N/A	2022/05/11	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	3	N/A	2022/05/10	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2022/05/16	CAM SOP-00447	EPA 6020B m
Total Metals by ICPMS	1	N/A	2022/05/12	CAM SOP-00447	EPA 6020B m
Ammonia-N	5	N/A	2022/05/12	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	5	N/A	2022/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	4	2022/05/09	2022/05/10	CAM SOP-00413	SM 4500H+ B m
pH	1	2022/05/09	2022/05/11	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	5	N/A	2022/05/07		Field pH Meter
Sulphate by Automated Colourimetry	4	N/A	2022/05/10	CAM SOP-00464	EPA 375.4 m
Sulphate by Automated Colourimetry	1	N/A	2022/05/12	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	5	2022/05/11	2022/05/12	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	5	N/A	2022/05/07		Field Thermometer
Total Kjeldahl Nitrogen in Water	3	2022/05/10	2022/05/11	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	1	2022/05/10	2022/05/12	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	1	2022/05/11	2022/05/12	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	5	N/A	2022/05/16		
Volatile Organic Compounds in Water	5	N/A	2022/05/13	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/17
Report #: R7127953
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C3447
Received: 2022/05/07, 14:54

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
17 May 2022 16:16:09

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3447
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOH427		SOH428		SOH429		
Sampling Date		2022/05/05		2022/05/05		2022/05/05		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW39A-26**	**QC Batch**	**OW79-26**	**QC Batch**	**OW80-27**	**RDL**	**QC Batch**
Field Measurements								
Field Conductivity	uS/cm	10700	ONSITE	960	ONSITE	870	N/A	ONSITE
Field Temperature	Celsius	12.4	ONSITE	10.5	ONSITE	13.2	N/A	ONSITE
Field Turbidity	NTU	24.9	ONSITE	4.62	ONSITE	34.3	N/A	ONSITE
Field Measured pH	pH	7.6	ONSITE	8.2	ONSITE	8.0		ONSITE
Inorganics								
Total Ammonia-N	mg/L	0.22	7989400	<0.15	7989350	<0.15	0.15	7989400
Conductivity	umho/cm	950	7983627	860	7983742	760	1.0	7983742
Total Dissolved Solids	mg/L	495	7989399	470	7989093	415	10	7989093
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	7986878	<0.7	7986878	<0.7	0.7	7988704
Dissolved Organic Carbon	mg/L	11	7984495	1.5	7984495	1.5	0.4	7984495
pH	pH	8.10	7983626	8.06	7983706	8.23		7983706
Dissolved Sulphate (SO4)	mg/L	130	7983652	130	7983752	27	1.0	7983752
Alkalinity (Total as CaCO3)	mg/L	280	7983614	260	7983703	280	1.0	7983703
Dissolved Chloride (Cl-)	mg/L	42	7983647	28	7983751	47	1.0	7983751
Nitrate (N)	mg/L	<0.10	7983643	0.16	7983753	<0.10	0.10	7983753

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3447
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOH430		SOH431		
Sampling Date		2022/05/05		2022/05/06		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	OW81-27	RDL	CEMETERY WELL	RDL	QC Batch
Field Measurements						
Field Conductivity	uS/cm	1010	N/A	1360	N/A	ONSITE
Field Temperature	Celsius	12.1	N/A	9.8	N/A	ONSITE
Field Turbidity	NTU	54.2	N/A	51.1	N/A	ONSITE
Field Measured pH	pH	7.1		7.0		ONSITE
Inorganics						
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	0.15	7989400
Conductivity	umho/cm	1400	1.0	450	1.0	7983742
Total Dissolved Solids	mg/L	895	10	235	10	7989093
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	<0.7	0.7	7986878
Dissolved Organic Carbon	mg/L	1.9	0.4	4.7	0.4	7984495
pH	pH	7.76		8.14		7983706
Dissolved Sulphate (SO4)	mg/L	370	2.0	4.4	1.0	7983752
Alkalinity (Total as CaCO3)	mg/L	330	1.0	230	1.0	7983703
Dissolved Chloride (Cl-)	mg/L	30	1.0	3.8	1.0	7983751
Nitrate (N)	mg/L	<0.10	0.10	0.33	0.10	7983753

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3447
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOH427	SOH428	SOH429		SOH430		
Sampling Date		2022/05/05	2022/05/05	2022/05/05		2022/05/05		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	OW39A-26	OW79-26	OW80-27	QC Batch	OW81-27	RDL	QC Batch
Metals								
Dissolved Barium (Ba)	mg/L	0.081	0.022	0.047	7984348	0.072	0.005	7994666
Dissolved Boron (B)	mg/L	1.8	1.6	1.9	7984348	1.9	0.02	7994666
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	7984348	<0.0001	0.0001	7994666
Dissolved Calcium (Ca)	mg/L	21	29	14	7984348	30	0.2	7994666
Dissolved Iron (Fe)	mg/L	<0.1	<0.1	<0.1	7984348	<0.1	0.1	7994666
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	<0.0005	7984348	<0.0005	0.0005	7994666
Dissolved Magnesium (Mg)	mg/L	14	13	7.0	7984348	19	0.05	7994666
Dissolved Potassium (K)	mg/L	3.1	5.4	2.2	7984348	2.6	0.2	7994666
Dissolved Sodium (Na)	mg/L	140	130	140	7984348	180	0.1	7994666

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOH431		
Sampling Date		2022/05/06		
COC Number		TCEC-GWCM-MAY		
	UNITS	CEMETERY WELL	RDL	QC Batch
Metals				
Total Barium (Ba)	mg/L	0.020	0.005	7990842
Total Boron (B)	mg/L	0.03	0.02	7990842
Total Cadmium (Cd)	mg/L	0.0021	0.0001	7990842
Total Calcium (Ca)	mg/L	61	0.2	7990842
Total Iron (Fe)	mg/L	1.0	0.1	7990842
Total Lead (Pb)	mg/L	0.0060	0.0005	7990842
Total Magnesium (Mg)	mg/L	18	0.05	7990842
Total Potassium (K)	mg/L	3.3	0.2	7990842
Total Sodium (Na)	mg/L	3.5	0.1	7990842

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3447
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SOH427	SOH428	SOH429	SOH430		
Sampling Date		2022/05/05	2022/05/05	2022/05/05	2022/05/05		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	OW39A-26	OW79-26	OW80-27	OW81-27	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7983795
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	7983795
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7983795
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	98	98	97	96		7983795
D4-1,2-Dichloroethane	%	111	106	102	103		7983795
D8-Toluene	%	98	100	100	100		7983795

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOH431		
Sampling Date		2022/05/06		
COC Number		TCEC-GWCM-MAY		
	UNITS	CEMETERY WELL	RDL	QC Batch
Volatile Organics				
Benzene	ug/L	<0.20	0.20	7983795
1,4-Dichlorobenzene	ug/L	<0.40	0.40	7983795
Ethylbenzene	ug/L	<0.20	0.20	7983795
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	7983795
Toluene	ug/L	<0.20	0.20	7983795
Vinyl Chloride	ug/L	<0.20	0.20	7983795
p+m-Xylene	ug/L	<0.20	0.20	7983795
o-Xylene	ug/L	<0.20	0.20	7983795
Total Xylenes	ug/L	<0.20	0.20	7983795
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	97		7983795
D4-1,2-Dichloroethane	%	107		7983795
D8-Toluene	%	98		7983795

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7983795	4-Bromofluorobenzene	2022/05/13	99	70 - 130	101	70 - 130	99	%				
7983795	D4-1,2-Dichloroethane	2022/05/13	109	70 - 130	107	70 - 130	104	%				
7983795	D8-Toluene	2022/05/13	99	70 - 130	100	70 - 130	99	%				
7983614	Alkalinity (Total as CaCO3)	2022/05/11			95	85 - 115	<1.0	mg/L	0.58 (1)	20		
7983626	pH	2022/05/11			102	98 - 103			0.37 (1)	N/A		
7983627	Conductivity	2022/05/11			102	85 - 115	<1.0	umho/cm	0.96 (1)	25		
7983643	Nitrate (N)	2022/05/10	100	80 - 120	104	80 - 120	<0.10	mg/L	NC (1)	20		
7983647	Dissolved Chloride (Cl-)	2022/05/11	113	80 - 120	104	80 - 120	<1.0	mg/L	2.4 (1)	20		
7983652	Dissolved Sulphate (SO4)	2022/05/12	NC	75 - 125	101	80 - 120	<1.0	mg/L	0.90 (1)	20		
7983703	Alkalinity (Total as CaCO3)	2022/05/10			92	85 - 115	<1.0	mg/L	1.3 (2)	20		
7983706	pH	2022/05/10			102	98 - 103			0.53 (2)	N/A		
7983742	Conductivity	2022/05/10			101	85 - 115	<1.0	umho/cm	0.072 (2)	25		
7983751	Dissolved Chloride (Cl-)	2022/05/11	NC (3)	80 - 120	105	80 - 120	<1.0	mg/L	0.074 (4)	20		
7983752	Dissolved Sulphate (SO4)	2022/05/10	NC (3)	75 - 125	107	80 - 120	<1.0	mg/L	0.44 (4)	20		
7983753	Nitrate (N)	2022/05/10	103 (5)	80 - 120	105	80 - 120	<0.10	mg/L	NC (2)	20		
7983795	1,4-Dichlorobenzene	2022/05/13	113	70 - 130	112	70 - 130	<0.40	ug/L	NC (1)	30		
7983795	Benzene	2022/05/13	96	70 - 130	95	70 - 130	<0.20	ug/L	NC (1)	30		
7983795	Ethylbenzene	2022/05/13	91	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
7983795	Methylene Chloride(Dichloromethane)	2022/05/13	113	70 - 130	110	70 - 130	<2.0	ug/L	NC (1)	30		
7983795	o-Xylene	2022/05/13	90	70 - 130	91	70 - 130	<0.20	ug/L	NC (1)	30		
7983795	p+m-Xylene	2022/05/13	93	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30		
7983795	Toluene	2022/05/13	94	70 - 130	95	70 - 130	<0.20	ug/L	NC (1)	30		
7983795	Total Xylenes	2022/05/13					<0.20	ug/L	NC (1)	30		
7983795	Vinyl Chloride	2022/05/13	101	70 - 130	100	70 - 130	<0.20	ug/L	NC (1)	30		
7984348	Dissolved Barium (Ba)	2022/05/11	104	80 - 120	103	80 - 120	<0.005	mg/L	NC (1)	20		
7984348	Dissolved Boron (B)	2022/05/11	NC	80 - 120	100	80 - 120	<0.02	mg/L	0.27 (1)	20		
7984348	Dissolved Cadmium (Cd)	2022/05/11	101	80 - 120	101	80 - 120	<0.0001	mg/L	NC (1)	20		
7984348	Dissolved Calcium (Ca)	2022/05/11	NC	80 - 120	99	80 - 120	<0.2	mg/L	4.9 (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7984348	Dissolved Iron (Fe)	2022/05/11	100	80 - 120	99	80 - 120	<0.1	mg/L	1.6 (1)	20		
7984348	Dissolved Lead (Pb)	2022/05/11	95	80 - 120	100	80 - 120	<0.0005	mg/L	NC (1)	20		
7984348	Dissolved Magnesium (Mg)	2022/05/11	NC	80 - 120	98	80 - 120	<0.05	mg/L	3.3 (1)	20		
7984348	Dissolved Potassium (K)	2022/05/11	104	80 - 120	101	80 - 120	<0.2	mg/L	3.0 (1)	20		
7984348	Dissolved Sodium (Na)	2022/05/11	NC	80 - 120	98	80 - 120	<0.1	mg/L	1.0 (1)	20		
7984495	Dissolved Organic Carbon	2022/05/11	99	80 - 120	99	80 - 120	<0.4	mg/L	3.8 (1)	20		
7986878	Total Kjeldahl Nitrogen (TKN)	2022/05/11	108	80 - 120	99	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
7988704	Total Kjeldahl Nitrogen (TKN)	2022/05/12	105	80 - 120	105	80 - 120	<0.7	mg/L	NC (1)	20	103	80 - 120
7989093	Total Dissolved Solids	2022/05/12					<10	mg/L	7.0 (1)	25	97	90 - 110
7989350	Total Ammonia-N	2022/05/12	94 (6)	75 - 125	102	80 - 120	<0.15	mg/L	NC (7)	20		
7989399	Total Dissolved Solids	2022/05/12					<10	mg/L	1.4 (1)	25	98	90 - 110
7989400	Total Ammonia-N	2022/05/12	91	75 - 125	98	80 - 120	<0.15	mg/L	NC (1)	20		
7990842	Total Barium (Ba)	2022/05/12	97	80 - 120	97	80 - 120	<0.005	mg/L	0.89 (1)	20		
7990842	Total Boron (B)	2022/05/12	NC	80 - 120	94	80 - 120	<0.02	mg/L	0.21 (1)	20		
7990842	Total Cadmium (Cd)	2022/05/12	97	80 - 120	98	80 - 120	<0.0001	mg/L	NC (1)	20		
7990842	Total Calcium (Ca)	2022/05/12	NC	80 - 120	98	80 - 120	<0.2	mg/L	4.1 (1)	20		
7990842	Total Iron (Fe)	2022/05/12	94	80 - 120	97	80 - 120	<0.1	mg/L	8.5 (1)	20		
7990842	Total Lead (Pb)	2022/05/12	98	80 - 120	98	80 - 120	<0.0005	mg/L	NC (1)	20		
7990842	Total Magnesium (Mg)	2022/05/12	NC	80 - 120	98	80 - 120	<0.05	mg/L	6.0 (1)	20		
7990842	Total Potassium (K)	2022/05/12	93	80 - 120	97	80 - 120	<0.2	mg/L	4.5 (1)	20		
7990842	Total Sodium (Na)	2022/05/12	NC	80 - 120	96	80 - 120	<0.1	mg/L	2.8 (1)	20		
7994666	Dissolved Barium (Ba)	2022/05/16	99	80 - 120	101	80 - 120	<0.005	mg/L	5.4 (1)	20		
7994666	Dissolved Boron (B)	2022/05/16	92	80 - 120	91	80 - 120	<0.02	mg/L	1.1 (1)	20		
7994666	Dissolved Cadmium (Cd)	2022/05/16	101	80 - 120	99	80 - 120	<0.0001	mg/L	NC (1)	20		
7994666	Dissolved Calcium (Ca)	2022/05/16	NC	80 - 120	101	80 - 120	<0.2	mg/L	1.1 (1)	20		
7994666	Dissolved Iron (Fe)	2022/05/16	102	80 - 120	100	80 - 120	<0.1	mg/L	0.51 (1)	20		
7994666	Dissolved Lead (Pb)	2022/05/16	95	80 - 120	96	80 - 120	<0.0005	mg/L	NC (1)	20		
7994666	Dissolved Magnesium (Mg)	2022/05/16	NC	80 - 120	99	80 - 120	<0.05	mg/L	6.4 (1)	20		
7994666	Dissolved Potassium (K)	2022/05/16	105	80 - 120	103	80 - 120	<0.2	mg/L	2.0 (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7994666	Dissolved Sodium (Na)	2022/05/16	NC	80 - 120	97	80 - 120	<0.1	mg/L	0.94 (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Duplicate Parent ID [SOH430-01]

(3) Matrix Spike Parent ID [SOH429-01]

(4) Duplicate Parent ID [SOH429-01]

(5) Matrix Spike Parent ID [SOH430-01]

(6) Matrix Spike Parent ID [SOH428-07]

(7) Duplicate Parent ID [SOH428-07]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C3447
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/06/09
Report #: R7158811
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2F1635
Received: 2022/06/03, 10:20

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2022/06/06	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2022/06/06	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2022/06/09		
Conductivity	1	N/A	2022/06/06	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2022/06/08	CAM SOP-00446	SM 23 5310 B m
Field Measured Dissolved Oxygen in Water	1	N/A	2022/06/09		
Dissolved Metals by ICPMS	1	N/A	2022/06/08	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2022/06/08	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2022/06/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2022/06/04	2022/06/06	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	1	N/A	2022/06/03		Field pH Meter
Sulphate by Automated Colourimetry	1	N/A	2022/06/07	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	1	2022/06/04	2022/06/06	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	1	N/A	2022/06/03		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2022/06/06	2022/06/08	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	1	N/A	2022/06/09		
Volatile Organic Compounds in Water	1	N/A	2022/06/07	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/06/09
Report #: R7158811
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2F1635
Received: 2022/06/03, 10:20
customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
09 Jun 2022 17:05:46

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C2F1635
Report Date: 2022/06/09

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SUJ451		
Sampling Date		2022/06/02		
COC Number		n/a		
	UNITS	**OW81-7**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	2207	N/A	ONSITE
Field Dissolved Oxygen	mg/L	8.86	N/A	ONSITE
Field Temperature	Celsius	13.4	N/A	ONSITE
Field Turbidity	NTU	10.2	N/A	ONSITE
Field Measured pH	pH	7.2		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8037489
Conductivity	umho/cm	2600	1.0	8033825
Total Dissolved Solids	mg/L	1880	10	8034070
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8036067
Dissolved Organic Carbon	mg/L	2.9	0.4	8038007
pH	pH	7.67		8033823
Dissolved Sulphate (SO4)	mg/L	840	5.0	8033897
Alkalinity (Total as CaCO3)	mg/L	350	1.0	8033822
Dissolved Chloride (Cl-)	mg/L	210	2.0	8033919
Nitrate (N)	mg/L	0.12	0.10	8033818

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2F1635
Report Date: 2022/06/09

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SUJ451		
Sampling Date		2022/06/02		
COC Number		n/a		
	UNITS	OW81-7	RDL	QC Batch
Metals				
Dissolved Barium (Ba)	mg/L	0.019	0.005	8038425
Dissolved Boron (B)	mg/L	0.58	0.02	8038425
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	8038425
Dissolved Calcium (Ca)	mg/L	230	0.4	8038425
Dissolved Iron (Fe)	mg/L	1.6	0.1	8038425
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	8038425
Dissolved Magnesium (Mg)	mg/L	160	0.05	8038425
Dissolved Potassium (K)	mg/L	5.1	0.2	8038425
Dissolved Sodium (Na)	mg/L	110	0.1	8038425

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SUJ451		
Sampling Date		2022/06/02		
COC Number		n/a		
	UNITS	OW81-7	RDL	QC Batch
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8032162
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8032162
Ethylbenzene	ug/L	<0.20	0.20	8032162
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8032162
Toluene	ug/L	<0.20	0.20	8032162
Vinyl Chloride	ug/L	<0.20	0.20	8032162
p+m-Xylene	ug/L	<0.20	0.20	8032162
o-Xylene	ug/L	<0.20	0.20	8032162
Total Xylenes	ug/L	<0.20	0.20	8032162
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	94		8032162
D4-1,2-Dichloroethane	%	102		8032162
D8-Toluene	%	93		8032162

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8032162	4-Bromofluorobenzene	2022/06/07	100	70 - 130	102	70 - 130	95	%				
8032162	D4-1,2-Dichloroethane	2022/06/07	101	70 - 130	97	70 - 130	105	%				
8032162	D8-Toluene	2022/06/07	105	70 - 130	106	70 - 130	93	%				
8032162	1,4-Dichlorobenzene	2022/06/07	111	70 - 130	110	70 - 130	<0.40	ug/L	NC (1)	30		
8032162	Benzene	2022/06/07	95	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
8032162	Ethylbenzene	2022/06/07	90	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
8032162	Methylene Chloride(Dichloromethane)	2022/06/07	97	70 - 130	93	70 - 130	<2.0	ug/L	NC (1)	30		
8032162	o-Xylene	2022/06/07	88	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30		
8032162	p+m-Xylene	2022/06/07	96	70 - 130	98	70 - 130	<0.20	ug/L	NC (1)	30		
8032162	Toluene	2022/06/07	96	70 - 130	96	70 - 130	<0.20	ug/L	6.3 (1)	30		
8032162	Total Xylenes	2022/06/07					<0.20	ug/L	NC (1)	30		
8032162	Vinyl Chloride	2022/06/07	85	70 - 130	83	70 - 130	<0.20	ug/L	NC (1)	30		
8033818	Nitrate (N)	2022/06/08	95	80 - 120	94	80 - 120	<0.10	mg/L	NC (1)	20		
8033822	Alkalinity (Total as CaCO3)	2022/06/06			97	85 - 115	<1.0	mg/L	0.26 (1)	20		
8033823	pH	2022/06/06			102	98 - 103			0.44 (1)	N/A		
8033825	Conductivity	2022/06/06			99	85 - 115	<1.0	umho/cm	0.85 (1)	25		
8033897	Dissolved Sulphate (SO4)	2022/06/07	109	75 - 125	104	80 - 120	<1.0	mg/L	NC (2,1)	20		
8033919	Dissolved Chloride (Cl-)	2022/06/06	NC	80 - 120	104	80 - 120	<1.0	mg/L	0.28 (1)	20		
8034070	Total Dissolved Solids	2022/06/06					<10	mg/L	13 (1)	25	100	90 - 110
8036067	Total Kjeldahl Nitrogen (TKN)	2022/06/08	NC	80 - 120	103	80 - 120	<0.7	mg/L	1.3 (1)	20	101	80 - 120
8037489	Total Ammonia-N	2022/06/08	NC	75 - 125	98	80 - 120	<0.15	mg/L	0.76 (1)	20		
8038007	Dissolved Organic Carbon	2022/06/08	97 (3)	80 - 120	97	80 - 120	<0.4	mg/L	0.035 (4)	20		
8038425	Dissolved Barium (Ba)	2022/06/08	99 (5)	80 - 120	97	80 - 120	<0.005	mg/L	1.2 (6)	20		
8038425	Dissolved Boron (B)	2022/06/08	NC (5)	80 - 120	93	80 - 120	<0.02	mg/L	5.9 (6)	20		
8038425	Dissolved Cadmium (Cd)	2022/06/08	102 (5)	80 - 120	98	80 - 120	<0.0001	mg/L	NC (6)	20		
8038425	Dissolved Calcium (Ca)	2022/06/08	NC (5)	80 - 120	97	80 - 120	<0.2	mg/L	2.0 (6)	20		
8038425	Dissolved Iron (Fe)	2022/06/08	103 (5)	80 - 120	98	80 - 120	<0.1	mg/L	0.16 (6)	20		
8038425	Dissolved Lead (Pb)	2022/06/08	99 (5)	80 - 120	98	80 - 120	<0.0005	mg/L	NC (6)	20		
8038425	Dissolved Magnesium (Mg)	2022/06/08	NC (5)	80 - 120	94	80 - 120	<0.05	mg/L	2.4 (6)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8038425	Dissolved Potassium (K)	2022/06/08	104 (5)	80 - 120	97	80 - 120	<0.2	mg/L	0.98 (6)	20		
8038425	Dissolved Sodium (Na)	2022/06/08	NC (5)	80 - 120	92	80 - 120	<0.1	mg/L	2.3 (6)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

(3) Matrix Spike Parent ID [SUJ451-04]

(4) Duplicate Parent ID [SUJ451-04]

(5) Matrix Spike Parent ID [SUJ451-05]

(6) Duplicate Parent ID [SUJ451-05]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2F1635
Report Date: 2022/06/09

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Patricia Legette, Project Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/10
Report #: R7382649
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2W2093
Received: 2022/11/03, 09:20

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	7	N/A	2022/11/05	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	7	N/A	2022/11/05	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	7	N/A	2022/11/10		
Conductivity	7	N/A	2022/11/05	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	7	N/A	2022/11/08	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	7	N/A	2022/11/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	7	N/A	2022/11/08	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	7	N/A	2022/11/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	7	2022/11/03	2022/11/05	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	7	N/A	2022/11/10		Field pH Meter
Sulphate by Automated Colourimetry	7	N/A	2022/11/08	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	7	2022/11/07	2022/11/08	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	7	N/A	2022/11/10		Field Thermometer
Total Kjeldahl Nitrogen in Water	7	2022/11/08	2022/11/08	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	7	N/A	2022/11/10		
Volatile Organic Compounds in Water	2	N/A	2022/11/08	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/10
Report #: R7382649
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2W2093

Received: 2022/11/03, 09:20

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
10 Nov 2022 17:32:29

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C2W2093
Report Date: 2022/11/10

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UEU801			UEU802			UEU803		
Sampling Date		2022/11/01			2022/11/01			2022/11/01		
COC Number		n/a			n/a			n/a		
	UNITS	OW54A-4	RDL	QC Batch	OW67-4	RDL	QC Batch	OW70B-5	RDL	QC Batch
Field Measurements										
Field Conductivity	uS/cm	2440	N/A	ONSITE	1030	N/A	ONSITE	2270	N/A	ONSITE
Field Temperature	Celsius	15.0	N/A	ONSITE	16.8	N/A	ONSITE	13.7	N/A	ONSITE
Field Turbidity	NTU	12.9	N/A	ONSITE	>1000	N/A	ONSITE	2.43	N/A	ONSITE
Field Measured pH	pH	7.3		ONSITE	7.5		ONSITE	7.0		ONSITE
Inorganics										
Total Ammonia-N	mg/L	1.37	0.15	8332386	<0.15	0.15	8332386	<0.15	0.15	8332386
Conductivity	umho/cm	2200	1.0	8325709	880	1.0	8325709	2000	1.0	8325709
Total Dissolved Solids	mg/L	1540	10	8330297	625	10	8330290	1320	10	8330317
Total Kjeldahl Nitrogen (TKN)	mg/L	1.6	0.7	8332289	<0.7	0.7	8332289	<0.7	0.7	8332289
Dissolved Organic Carbon	mg/L	6.6	0.4	8330944	12	0.4	8330944	2.7	0.4	8330944
pH	pH	7.91		8325714	7.96		8325714	7.90		8325714
Dissolved Sulphate (SO4)	mg/L	710	5.0	8325656	140	1.0	8325656	590	5.0	8325656
Alkalinity (Total as CaCO3)	mg/L	650	1.0	8325693	240	1.0	8325693	650	1.0	8325693
Dissolved Chloride (Cl-)	mg/L	25	1.0	8325651	60	1.0	8325651	7.2	1.0	8325651
Nitrate (N)	mg/L	<0.10	0.10	8325718	0.16	0.10	8325718	<0.10	0.10	8325718

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W2093
Report Date: 2022/11/10

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UEU804			UEU805			UEU806		
Sampling Date		2022/11/01			2022/11/01			2022/11/01		
COC Number		n/a			n/a			n/a		
	UNITS	GWDUP1	RDL	QC Batch	OW71A-5	RDL	QC Batch	OW72-6	RDL	QC Batch
Field Measurements										
Field Conductivity	uS/cm	2270	N/A	ONSITE	1560	N/A	ONSITE	2990	N/A	ONSITE
Field Temperature	Celsius	13.7	N/A	ONSITE	16.1	N/A	ONSITE	14.8	N/A	ONSITE
Field Turbidity	NTU	2.43	N/A	ONSITE	29.2	N/A	ONSITE	1.63	N/A	ONSITE
Field Measured pH	pH	7.0		ONSITE	7.2		ONSITE	7.2		ONSITE
Inorganics										
Total Ammonia-N	mg/L	<0.15	0.15	8332386	0.98	0.15	8332384	<0.15	0.15	8332384
Conductivity	umho/cm	2000	1.0	8325709	1300	1.0	8325709	2800	1.0	8325709
Total Dissolved Solids	mg/L	1040	10	8330290	665	10	8330272	2230	10	8330290
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8332289	1.1	0.7	8332289	<0.7	0.7	8332289
Dissolved Organic Carbon	mg/L	2.7	0.4	8330944	3.8	0.4	8330944	3.9	0.4	8330944
pH	pH	7.88		8325714	7.90		8325714	7.81		8325714
Dissolved Sulphate (SO4)	mg/L	580	5.0	8325656	270	1.0	8325656	1200	5.0	8325656
Alkalinity (Total as CaCO3)	mg/L	650	1.0	8325693	480	1.0	8325693	570	1.0	8325693
Dissolved Chloride (Cl-)	mg/L	7.3	1.0	8325651	32	1.0	8325651	4.8	1.0	8325651
Nitrate (N)	mg/L	<0.10	0.10	8325718	<0.10	0.10	8325718	<0.10	0.10	8325718

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W2093
Report Date: 2022/11/10

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UEU807		
Sampling Date		2022/11/01		
COC Number		n/a		
	UNITS	**OW73-6**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	4430	N/A	ONSITE
Field Temperature	Celsius	14.7	N/A	ONSITE
Field Turbidity	NTU	6.67	N/A	ONSITE
Field Measured pH	pH	6.9		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8332384
Conductivity	umho/cm	4400	1.0	8325709
Total Dissolved Solids	mg/L	3670	10	8330269
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8332289
Dissolved Organic Carbon	mg/L	3.7	0.4	8330944
pH	pH	7.62		8325714
Dissolved Sulphate (SO4)	mg/L	2600	10	8325656
Alkalinity (Total as CaCO3)	mg/L	530	1.0	8325693
Dissolved Chloride (Cl-)	mg/L	8.2	1.0	8325651
Nitrate (N)	mg/L	<0.10	0.10	8325718

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W2093
Report Date: 2022/11/10

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		UEU801	UEU802	UEU803	UEU804	UEU805	UEU806		
Sampling Date		2022/11/01	2022/11/01	2022/11/01	2022/11/01	2022/11/01	2022/11/01		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	OW54A-4	OW67-4	OW70B-5	GWDUP1	OW71A-5	OW72-6	RDL	QC Batch
Metals									
Dissolved Barium (Ba)	mg/L	0.017	0.048	0.012	0.012	0.076	0.008	0.005	8330070
Dissolved Boron (B)	mg/L	0.24	0.21	0.51	0.48	0.13	0.70	0.02	8330070
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	8330070
Dissolved Calcium (Ca)	mg/L	140	89	130	120	120	210	0.2	8330070
Dissolved Iron (Fe)	mg/L	0.2	0.7	1.4	1.5	0.1	0.2	0.1	8330070
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	8330070
Dissolved Magnesium (Mg)	mg/L	200	24	220	210	91	300	0.05	8330070
Dissolved Potassium (K)	mg/L	3.9	2.2	5.2	4.9	2.7	5.4	0.2	8330070
Dissolved Sodium (Na)	mg/L	140	62	94	90	39	120	0.1	8330070

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		UEU807		
Sampling Date		2022/11/01		
COC Number		n/a		
	UNITS	OW73-6	RDL	QC Batch
Metals				
Dissolved Barium (Ba)	mg/L	0.008	0.005	8330070
Dissolved Boron (B)	mg/L	0.86	0.02	8330070
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	8330070
Dissolved Calcium (Ca)	mg/L	520	1	8330070
Dissolved Iron (Fe)	mg/L	0.5	0.1	8330070
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	8330070
Dissolved Magnesium (Mg)	mg/L	410	0.3	8330070
Dissolved Potassium (K)	mg/L	8.1	0.2	8330070
Dissolved Sodium (Na)	mg/L	260	0.1	8330070

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		UEU803	UEU804		
Sampling Date		2022/11/01	2022/11/01		
COC Number		n/a	n/a		
	UNITS	OW70B-5	GWDUP1	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	8329304
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	8329304
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8329304
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	8329304
Toluene	ug/L	<0.20	<0.20	0.20	8329304
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	8329304
p+m-Xylene	ug/L	<0.20	<0.20	0.20	8329304
o-Xylene	ug/L	<0.20	<0.20	0.20	8329304
Total Xylenes	ug/L	<0.20	<0.20	0.20	8329304
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	99	99		8329304
D4-1,2-Dichloroethane	%	103	103		8329304
D8-Toluene	%	98	99		8329304

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8329304	4-Bromofluorobenzene	2022/11/08	100 (4)	70 - 130	98	70 - 130	99	%				
8329304	D4-1,2-Dichloroethane	2022/11/08	105 (4)	70 - 130	102	70 - 130	102	%				
8329304	D8-Toluene	2022/11/08	98 (4)	70 - 130	101	70 - 130	100	%				
8325651	Dissolved Chloride (Cl-)	2022/11/05	113 (1)	80 - 120	100	80 - 120	<1.0	mg/L	0.88 (2)	20		
8325656	Dissolved Sulphate (SO4)	2022/11/08	NC (1)	75 - 125	103	80 - 120	<1.0	mg/L	0.76 (2)	20		
8325693	Alkalinity (Total as CaCO3)	2022/11/05			98	85 - 115	<1.0	mg/L	0.15 (3)	20		
8325709	Conductivity	2022/11/05			98	85 - 115	<1.0	umho/cm	0 (3)	25		
8325714	pH	2022/11/05			102	98 - 103			0.13 (3)	N/A		
8325718	Nitrate (N)	2022/11/08	97 (1)	80 - 120	101	80 - 120	<0.10	mg/L	NC (2)	20		
8329304	1,4-Dichlorobenzene	2022/11/08	104 (4)	70 - 130	102	70 - 130	<0.40	ug/L	NC (5)	30		
8329304	Benzene	2022/11/08	88 (4)	70 - 130	86	70 - 130	<0.20	ug/L	NC (5)	30		
8329304	Ethylbenzene	2022/11/08	87 (4)	70 - 130	86	70 - 130	<0.20	ug/L	NC (5)	30		
8329304	Methylene Chloride(Dichloromethane)	2022/11/08	95 (4)	70 - 130	92	70 - 130	<2.0	ug/L	NC (5)	30		
8329304	o-Xylene	2022/11/08	88 (4)	70 - 130	87	70 - 130	<0.20	ug/L	NC (5)	30		
8329304	p+m-Xylene	2022/11/08	88 (4)	70 - 130	86	70 - 130	<0.20	ug/L	NC (5)	30		
8329304	Toluene	2022/11/08	84 (4)	70 - 130	85	70 - 130	<0.20	ug/L	NC (5)	30		
8329304	Total Xylenes	2022/11/08					<0.20	ug/L	NC (5)	30		
8329304	Vinyl Chloride	2022/11/08	84 (4)	70 - 130	85	70 - 130	<0.20	ug/L	NC (5)	30		
8330070	Dissolved Barium (Ba)	2022/11/09	97	80 - 120	96	80 - 120	<0.005	mg/L	2.9 (3)	20		
8330070	Dissolved Boron (B)	2022/11/09	NC	80 - 120	96	80 - 120	<0.02	mg/L	4.1 (3)	20		
8330070	Dissolved Cadmium (Cd)	2022/11/09	97	80 - 120	97	80 - 120	<0.0001	mg/L	NC (3)	20		
8330070	Dissolved Calcium (Ca)	2022/11/09	NC	80 - 120	97	80 - 120	<0.2	mg/L	2.4 (3)	20		
8330070	Dissolved Iron (Fe)	2022/11/09	101	80 - 120	97	80 - 120	<0.1	mg/L	NC (3)	20		
8330070	Dissolved Lead (Pb)	2022/11/09	91	80 - 120	94	80 - 120	<0.0005	mg/L	NC (3)	20		
8330070	Dissolved Magnesium (Mg)	2022/11/09	NC	80 - 120	97	80 - 120	<0.05	mg/L	2.5 (3)	20		
8330070	Dissolved Potassium (K)	2022/11/09	105	80 - 120	98	80 - 120	<0.2	mg/L	1.4 (3)	20		
8330070	Dissolved Sodium (Na)	2022/11/09	NC	80 - 120	96	80 - 120	<0.1	mg/L	2.0 (3)	20		
8330269	Total Dissolved Solids	2022/11/08					<10	mg/L	5.8 (3)	25	97	90 - 110
8330272	Total Dissolved Solids	2022/11/08					<10	mg/L	6.5 (3)	25	95	90 - 110

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8330290	Total Dissolved Solids	2022/11/08					<10	mg/L	1.1 (6)	25	100	90 - 110
8330297	Total Dissolved Solids	2022/11/08					<10	mg/L	0 (3)	25	97	90 - 110
8330317	Total Dissolved Solids	2022/11/08					<10	mg/L	2.1 (3)	25	102	90 - 110
8330944	Dissolved Organic Carbon	2022/11/08	96	80 - 120	96	80 - 120	<0.4	mg/L	1.4 (3)	20		
8332289	Total Kjeldahl Nitrogen (TKN)	2022/11/08	102 (7)	80 - 120	101	80 - 120	<0.7	mg/L	NC (8)	20	103	80 - 120
8332384	Total Ammonia-N	2022/11/08	103	75 - 125	104	80 - 120	<0.15	mg/L	1.6 (3)	20		
8332386	Total Ammonia-N	2022/11/08	103	75 - 125	103	80 - 120	<0.15	mg/L	NC (3)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [UEU807-01]

(2) Duplicate Parent ID [UEU807-01]

(3) Duplicate Parent ID

(4) Matrix Spike Parent ID [UEU803-07]

(5) Duplicate Parent ID [UEU803-07]

(6) Duplicate Parent ID [UEU806-02]

(7) Matrix Spike Parent ID [UEU807-03]

(8) Duplicate Parent ID [UEU807-03]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

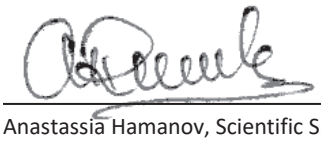
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W2093
Report Date: 2022/11/10

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/14
Report #: R7386917
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2W2066
Received: 2022/11/03, 09:20

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2022/11/05	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	4	N/A	2022/11/05	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	4	N/A	2022/11/10		
Conductivity	4	N/A	2022/11/05	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	4	N/A	2022/11/07	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	3	N/A	2022/11/10	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2022/11/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	4	N/A	2022/11/08	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	4	N/A	2022/11/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	4	2022/11/03	2022/11/05	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	4	N/A	2022/11/10		Field pH Meter
Sulphate by Automated Colourimetry	4	N/A	2022/11/08	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	4	2022/11/07	2022/11/08	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	4	N/A	2022/11/10		Field Thermometer
Total Kjeldahl Nitrogen in Water	4	2022/11/08	2022/11/08	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	4	N/A	2022/11/10		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/14
Report #: R7386917
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2W2066

Received: 2022/11/03, 09:20

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
14 Nov 2022 13:38:20

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C2W2066
Report Date: 2022/11/14

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UEU626		UEU627			UEU628			UEU629		
Sampling Date		2022/11/01		2022/11/01			2022/11/01			2022/11/01		
COC Number		N/A		N/A			N/A			N/A		
	UNITS	OW54-10	RDL	OW67-11	RDL	QC Batch	OW72-10	RDL	QC Batch	OW73-9	RDL	QC Batch
Field Measurements												
Field Conductivity	uS/cm	2650	N/A	1730	N/A	ONSITE	3010	N/A	ONSITE	4040	N/A	ONSITE
Field Temperature	Celsius	14.6	N/A	14.2	N/A	ONSITE	15.8	N/A	ONSITE	15.0	N/A	ONSITE
Field Turbidity	NTU	35.6	N/A	9.34	N/A	ONSITE	25.3	N/A	ONSITE	9.30	N/A	ONSITE
Field Measured pH	pH	7.3		7.3		ONSITE	7.1		ONSITE	7.3		ONSITE
Inorganics												
Total Ammonia-N	mg/L	0.26	0.15	0.62	0.15	8332384	0.15	0.15	8332384	<0.15	0.15	8332384
Conductivity	umho/cm	2400	1.0	1500	1.0	8325709	2700	1.0	8325709	3900	1.0	8325709
Total Dissolved Solids	mg/L	1710	10	980	10	8330269	1900	10	8330272	3280	10	8330269
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	0.7	0.7	8332289	<0.7	0.7	8332289	<0.7	0.7	8332289
Dissolved Organic Carbon	mg/L	2.1	0.4	2.8	0.4	8330938	1.8	0.4	8330938	2.0	0.4	8330938
pH	pH	7.92		7.88		8325714	7.82		8325714	7.87		8325714
Dissolved Sulphate (SO4)	mg/L	1100	5.0	430	2.0	8325656	1300	5.0	8325656	2400	10	8325656
Alkalinity (Total as CaCO3)	mg/L	330	1.0	420	1.0	8325693	390	1.0	8325693	290	1.0	8325693
Dissolved Chloride (Cl-)	mg/L	8.8	1.0	25	1.0	8325651	5.4	1.0	8325651	7.7	1.0	8325651
Nitrate (N)	mg/L	0.27	0.10	0.10	0.10	8325718	<0.10	0.10	8325718	0.60	0.10	8325718

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W2066
Report Date: 2022/11/14

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		UEU626		UEU627		UEU628		UEU629		
Sampling Date		2022/11/01		2022/11/01		2022/11/01		2022/11/01		
COC Number		N/A		N/A		N/A		N/A		
	UNITS	OW54-10	RDL	OW67-11	RDL	OW72-10	RDL	OW73-9	RDL	QC Batch
Metals										
Dissolved Barium (Ba)	mg/L	0.013	0.005	0.019	0.005	0.010	0.005	0.007	0.005	8330112
Dissolved Boron (B)	mg/L	1.0	0.02	0.58	0.02	1.1	0.02	1.3	0.02	8330112
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	8330112
Dissolved Calcium (Ca)	mg/L	180	0.4	140	0.2	240	0.4	390	1	8330112
Dissolved Iron (Fe)	mg/L	0.7	0.1	0.3	0.1	3.3	0.1	2.1	0.1	8330112
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	0.0005	<0.0005	0.0005	<0.0005	0.0005	8330112
Dissolved Magnesium (Mg)	mg/L	180	0.05	100	0.05	240	0.05	340	0.05	8330112
Dissolved Potassium (K)	mg/L	4.5	0.2	4.4	0.2	5.3	0.2	6.2	0.2	8330112
Dissolved Sodium (Na)	mg/L	150	0.1	57	0.1	140	0.1	230	0.1	8330112

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W2066
Report Date: 2022/11/14

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8325651	Dissolved Chloride (Cl-)	2022/11/05	113	80 - 120	100	80 - 120	<1.0	mg/L	0.88 (1)	20		
8325656	Dissolved Sulphate (SO4)	2022/11/08	NC	75 - 125	103	80 - 120	<1.0	mg/L	0.76 (1)	20		
8325693	Alkalinity (Total as CaCO3)	2022/11/05			98	85 - 115	<1.0	mg/L	0.15 (2)	20		
8325709	Conductivity	2022/11/05			98	85 - 115	<1.0	umho/cm	0 (2)	25		
8325714	pH	2022/11/05			102	98 - 103			0.13 (2)	N/A		
8325718	Nitrate (N)	2022/11/08	97	80 - 120	101	80 - 120	<0.10	mg/L	NC (1)	20		
8330112	Dissolved Barium (Ba)	2022/11/10	98	80 - 120	99	80 - 120	<0.005	mg/L	2.3 (1)	20		
8330112	Dissolved Boron (B)	2022/11/10	114	80 - 120	93	80 - 120	<0.02	mg/L	2.9 (1)	20		
8330112	Dissolved Cadmium (Cd)	2022/11/10	100	80 - 120	98	80 - 120	<0.0001	mg/L				
8330112	Dissolved Calcium (Ca)	2022/11/10	NC	80 - 120	99	80 - 120	<0.2	mg/L	2.0 (1)	20		
8330112	Dissolved Iron (Fe)	2022/11/10	96	80 - 120	95	80 - 120	<0.1	mg/L	0.26 (1)	20		
8330112	Dissolved Lead (Pb)	2022/11/10	98	80 - 120	102	80 - 120	<0.0005	mg/L	NC (1)	20		
8330112	Dissolved Magnesium (Mg)	2022/11/10	NC	80 - 120	100	80 - 120	<0.05	mg/L	1.4 (1)	20		
8330112	Dissolved Potassium (K)	2022/11/10	103	80 - 120	99	80 - 120	<0.2	mg/L	1.3 (1)	20		
8330112	Dissolved Sodium (Na)	2022/11/10	NC	80 - 120	95	80 - 120	<0.1	mg/L	1.3 (1)	20		
8330269	Total Dissolved Solids	2022/11/08					<10	mg/L	5.8 (1)	25	97	90 - 110
8330272	Total Dissolved Solids	2022/11/08					<10	mg/L	6.5 (1)	25	95	90 - 110
8330938	Dissolved Organic Carbon	2022/11/07	97	80 - 120	97	80 - 120	<0.4	mg/L	0.64 (1)	20		
8332289	Total Kjeldahl Nitrogen (TKN)	2022/11/08	102	80 - 120	101	80 - 120	<0.7	mg/L	NC (1)	20	103	80 - 120

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8332384	Total Ammonia-N	2022/11/08	103	75 - 125	104	80 - 120	<0.15	mg/L	1.6 (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Duplicate Parent ID [UEU626-01]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

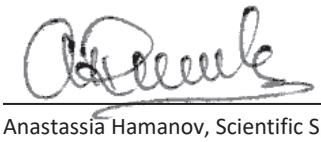
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W2066
Report Date: 2022/11/14

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/15
Report #: R7389384
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2W3826
Received: 2022/11/04, 09:37

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	5	N/A	2022/11/06	CAM SOP-00448	SM 23 2320 B m
Alkalinity	1	N/A	2022/11/07	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	3	N/A	2022/11/10	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	3	N/A	2022/11/07	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	6	N/A	2022/11/15		
Conductivity	5	N/A	2022/11/06	CAM SOP-00414	SM 23 2510 m
Conductivity	1	N/A	2022/11/07	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2022/11/08	CAM SOP-00446	SM 23 5310 B m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2022/11/09	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	6	N/A	2022/11/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	6	N/A	2022/11/08	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	6	N/A	2022/11/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2022/11/05	2022/11/06	CAM SOP-00413	SM 4500H+ B m
pH	1	2022/11/05	2022/11/07	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	6	N/A	2022/11/15		Field pH Meter
Sulphate by Automated Colourimetry	4	N/A	2022/11/08	CAM SOP-00464	EPA 375.4 m
Sulphate by Automated Colourimetry	2	N/A	2022/11/09	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	6	2022/11/08	2022/11/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	6	N/A	2022/11/15		Field Thermometer
Total Kjeldahl Nitrogen in Water	6	2022/11/08	2022/11/08	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	6	N/A	2022/11/15		
Volatile Organic Compounds in Water	2	N/A	2022/11/07	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/15
Report #: R7389384
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2W3826
Received: 2022/11/04, 09:37

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
15 Nov 2022 16:35:56

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C2W3826
Report Date: 2022/11/15

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UFE649		UFE650			UFE651		UFE652		
Sampling Date		2022/11/02		2022/11/02			2022/11/02		2022/11/02		
COC Number		N/A		N/A			N/A		N/A		
	UNITS	OW16-7	QC Batch	GWDUP3	RDL	QC Batch	OW46-7	QC Batch	OW47-6	RDL	QC Batch
Field Measurements											
Field Conductivity	uS/cm	1480	ONSITE	1480	N/A	ONSITE	4710	ONSITE	4130	N/A	ONSITE
Field Temperature	Celsius	12.2	ONSITE	12.2	N/A	ONSITE	15.4	ONSITE	13.0	N/A	ONSITE
Field Turbidity	NTU	17.7	ONSITE	17.7	N/A	ONSITE	5.08	ONSITE	1.03	N/A	ONSITE
Field Measured pH	pH	7.0	ONSITE	7.0		ONSITE	7.4	ONSITE	7.5		ONSITE
Inorganics											
Total Ammonia-N	mg/L	0.26	8332386	0.22	0.15	8332386	<0.15	8332386	<0.15	0.15	8332386
Conductivity	umho/cm	1300	8328825	1300	1.0	8328825	4900	8328923	4800	1.0	8328825
Total Dissolved Solids	mg/L	730	8332128	755	10	8332128	4470	8332125	4210	10	8332191
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	8332323	<0.7	0.7	8332289	<0.7	8332289	<0.7	0.7	8332289
Dissolved Organic Carbon	mg/L	2.4	8333614	2.4	0.4	8333596	2.7	8333614	2.4	0.4	8333614
pH	pH	7.86	8328828	7.86		8328828	7.83	8328924	7.88		8328828
Dissolved Sulphate (SO4)	mg/L	260	8328865	270	1.0	8328795	3100	8328795	3100	10	8328865
Alkalinity (Total as CaCO3)	mg/L	480	8328827	480	1.0	8328827	390	8328921	400	1.0	8328827
Dissolved Chloride (Cl-)	mg/L	6.6	8328859	6.6	1.0	8328796	13	8328796	5.9	1.0	8328859
Nitrate (N)	mg/L	0.29	8328815	0.32	0.10	8328809	0.17	8328815	0.33	0.10	8328815

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W3826
Report Date: 2022/11/15

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UFE653			UFE654		
Sampling Date		2022/11/02			2022/11/02		
COC Number		N/A			N/A		
	UNITS	**OW57-15**	**RDL**	**QC Batch**	**OW58-17**	**RDL**	**QC Batch**
Field Measurements							
Field Conductivity	uS/cm	3080	N/A	ONSITE	3820	N/A	ONSITE
Field Temperature	Celsius	15.2	N/A	ONSITE	14.5	N/A	ONSITE
Field Turbidity	NTU	41.5	N/A	ONSITE	7.64	N/A	ONSITE
Field Measured pH	pH	7.3		ONSITE	7.3		ONSITE
Inorganics							
Total Ammonia-N	mg/L	1.08	0.15	8332386	0.24	0.15	8332386
Conductivity	umho/cm	3000	1.0	8328825	3800	1.0	8328825
Total Dissolved Solids	mg/L	2370	10	8332128	3370	10	8332128
Total Kjeldahl Nitrogen (TKN)	mg/L	1.2	0.7	8332289	<0.7	0.7	8332289
Dissolved Organic Carbon	mg/L	2.5	0.4	8333596	2.0	0.4	8333596
pH	pH	7.78		8328828	7.75		8328828
Dissolved Sulphate (SO4)	mg/L	1600	5.0	8328823	2400	10	8328865
Alkalinity (Total as CaCO3)	mg/L	170	1.0	8328827	64	1.0	8328827
Dissolved Chloride (Cl-)	mg/L	8.7	1.0	8328820	9.5	1.0	8328859
Nitrate (N)	mg/L	<0.10	0.10	8328809	<0.10	0.10	8328815

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W3826
Report Date: 2022/11/15

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		UFE649	UFE650		UFE651	UFE652		UFE653		
Sampling Date		2022/11/02	2022/11/02		2022/11/02	2022/11/02		2022/11/02		
COC Number		N/A	N/A		N/A	N/A		N/A		
	UNITS	OW16-7	GWDUP3	RDL	OW46-7	OW47-6	RDL	OW57-15	RDL	QC Batch
Metals										
Dissolved Barium (Ba)	mg/L	0.016	0.017	0.005	0.014	0.007	0.005	0.010	0.005	8330070
Dissolved Boron (B)	mg/L	0.27	0.28	0.02	0.80	1.0	0.02	1.2	0.02	8330070
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	8330070
Dissolved Calcium (Ca)	mg/L	110	110	0.2	470	470	1	310	0.4	8330070
Dissolved Iron (Fe)	mg/L	0.8	0.7	0.1	<0.1	<0.1	0.1	3.1	0.1	8330070
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.0005	8330070
Dissolved Magnesium (Mg)	mg/L	80	80	0.05	490	490	0.3	220	0.05	8330070
Dissolved Potassium (K)	mg/L	3.9	3.9	0.2	8.7	7.6	0.2	5.0	0.2	8330070
Dissolved Sodium (Na)	mg/L	60	59	0.1	300	220	0.1	190	0.1	8330070

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		UFE654		
Sampling Date		2022/11/02		
COC Number		N/A		
	UNITS	OW58-17	RDL	QC Batch
Metals				
Dissolved Barium (Ba)	mg/L	0.014	0.005	8330070
Dissolved Boron (B)	mg/L	1.3	0.02	8330070
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	8330070
Dissolved Calcium (Ca)	mg/L	470	1	8330070
Dissolved Iron (Fe)	mg/L	<0.1	0.1	8330070
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	8330070
Dissolved Magnesium (Mg)	mg/L	260	0.05	8330070
Dissolved Potassium (K)	mg/L	4.9	0.2	8330070
Dissolved Sodium (Na)	mg/L	200	0.1	8330070

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W3826
Report Date: 2022/11/15

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		UFE649	UFE650		
Sampling Date		2022/11/02	2022/11/02		
COC Number		N/A	N/A		
	UNITS	OW16-7	GWDUP3	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	8328835
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	8328835
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8328835
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	8328835
Toluene	ug/L	<0.20	<0.20	0.20	8328835
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	8328835
p+m-Xylene	ug/L	<0.20	<0.20	0.20	8328835
o-Xylene	ug/L	<0.20	<0.20	0.20	8328835
Total Xylenes	ug/L	<0.20	<0.20	0.20	8328835
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	92	93		8328835
D4-1,2-Dichloroethane	%	115	116		8328835
D8-Toluene	%	89	89		8328835

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Sample UFE649 [OW16-7] : TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample UFE650 [GWDUP3] : TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample UFE654 [OW58-17] : TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8328835	4-Bromofluorobenzene	2022/11/07	105 (4)	70 - 130	104	70 - 130	97	%				
8328835	D4-1,2-Dichloroethane	2022/11/07	112 (4)	70 - 130	111	70 - 130	113	%				
8328835	D8-Toluene	2022/11/07	106 (4)	70 - 130	99	70 - 130	90	%				
8328795	Dissolved Sulphate (SO4)	2022/11/09	NC	75 - 125	101	80 - 120	<1.0	mg/L	0.51 (1)	20		
8328796	Dissolved Chloride (Cl-)	2022/11/07	NC	80 - 120	101	80 - 120	<1.0	mg/L	1.7 (1)	20		
8328809	Nitrate (N)	2022/11/08	93	80 - 120	103	80 - 120	<0.10	mg/L	NC (1)	20		
8328815	Nitrate (N)	2022/11/08	93 (2)	80 - 120	101	80 - 120	<0.10	mg/L	2.2 (3)	20		
8328820	Dissolved Chloride (Cl-)	2022/11/07	115	80 - 120	101	80 - 120	<1.0	mg/L	2.2 (1)	20		
8328823	Dissolved Sulphate (SO4)	2022/11/08	NC	75 - 125	105	80 - 120	<1.0	mg/L	0.091 (1)	20		
8328825	Conductivity	2022/11/06			100	85 - 115	<1.0	umho/cm	0.26 (1)	25		
8328827	Alkalinity (Total as CaCO3)	2022/11/06			96	85 - 115	<1.0	mg/L	0.75 (1)	20		
8328828	pH	2022/11/06			102	98 - 103			0.45 (1)	N/A		
8328835	1,4-Dichlorobenzene	2022/11/07	110 (4)	70 - 130	103	70 - 130	<0.40	ug/L	NC (5)	30		
8328835	Benzene	2022/11/07	93 (4)	70 - 130	92	70 - 130	<0.20	ug/L	NC (5)	30		
8328835	Ethylbenzene	2022/11/07	91 (4)	70 - 130	90	70 - 130	<0.20	ug/L	NC (5)	30		
8328835	Methylene Chloride(Dichloromethane)	2022/11/07	108 (4)	70 - 130	100	70 - 130	<2.0	ug/L	NC (5)	30		
8328835	o-Xylene	2022/11/07	90 (4)	70 - 130	93	70 - 130	<0.20	ug/L	NC (5)	30		
8328835	p+m-Xylene	2022/11/07	98 (4)	70 - 130	97	70 - 130	<0.20	ug/L	NC (5)	30		
8328835	Toluene	2022/11/07	96 (4)	70 - 130	91	70 - 130	<0.20	ug/L	NC (5)	30		
8328835	Total Xylenes	2022/11/07					<0.20	ug/L	NC (5)	30		
8328835	Vinyl Chloride	2022/11/07	96 (4)	70 - 130	91	70 - 130	<0.20	ug/L	NC (5)	30		
8328859	Dissolved Chloride (Cl-)	2022/11/10	116	80 - 120	103	80 - 120	<1.0	mg/L	1.2 (1)	20		
8328865	Dissolved Sulphate (SO4)	2022/11/08	NC	75 - 125	103	80 - 120	<1.0	mg/L	1.0 (1)	20		
8328921	Alkalinity (Total as CaCO3)	2022/11/07			97	85 - 115	<1.0	mg/L	0.49 (3)	20		
8328923	Conductivity	2022/11/07			101	85 - 115	<1.0	umho/cm	0.21 (3)	25		
8328924	pH	2022/11/07			102	98 - 103			0.0013 (3)	N/A		
8330070	Dissolved Barium (Ba)	2022/11/09	97 (6)	80 - 120	96	80 - 120	<0.005	mg/L	2.9 (7)	20		
8330070	Dissolved Boron (B)	2022/11/09	NC (6)	80 - 120	96	80 - 120	<0.02	mg/L	4.1 (7)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8330070	Dissolved Cadmium (Cd)	2022/11/09	97 (6)	80 - 120	97	80 - 120	<0.0001	mg/L	NC (7)	20		
8330070	Dissolved Calcium (Ca)	2022/11/09	NC (6)	80 - 120	97	80 - 120	<0.2	mg/L	2.4 (7)	20		
8330070	Dissolved Iron (Fe)	2022/11/09	101 (6)	80 - 120	97	80 - 120	<0.1	mg/L	NC (7)	20		
8330070	Dissolved Lead (Pb)	2022/11/09	91 (6)	80 - 120	94	80 - 120	<0.0005	mg/L	NC (7)	20		
8330070	Dissolved Magnesium (Mg)	2022/11/09	NC (6)	80 - 120	97	80 - 120	<0.05	mg/L	2.5 (7)	20		
8330070	Dissolved Potassium (K)	2022/11/09	105 (6)	80 - 120	98	80 - 120	<0.2	mg/L	1.4 (7)	20		
8330070	Dissolved Sodium (Na)	2022/11/09	NC (6)	80 - 120	96	80 - 120	<0.1	mg/L	2.0 (7)	20		
8332125	Total Dissolved Solids	2022/11/09					<10	mg/L	2.1 (1)	25	100	90 - 110
8332128	Total Dissolved Solids	2022/11/09					<10	mg/L	5.4 (1)	25	102	N/A
8332191	Total Dissolved Solids	2022/11/09					<10	mg/L	0.29 (1)	25	97	90 - 110
8332289	Total Kjeldahl Nitrogen (TKN)	2022/11/08	102	80 - 120	101	80 - 120	<0.7	mg/L	NC (1)	20	103	80 - 120
8332323	Total Kjeldahl Nitrogen (TKN)	2022/11/08	102 (8)	80 - 120	105	80 - 120	<0.7	mg/L	NC (9)	20	103	80 - 120
8332386	Total Ammonia-N	2022/11/08	103 (10)	75 - 125	103	80 - 120	<0.15	mg/L	NC (11)	20		
8333596	Dissolved Organic Carbon	2022/11/08	96	80 - 120	97	80 - 120	<0.4	mg/L	0.95 (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8333614	Dissolved Organic Carbon	2022/11/09	94 (12)	80 - 120	96	80 - 120	<0.4	mg/L	1.1 (13)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [UFE651-01]

(3) Duplicate Parent ID [UFE651-01]

(4) Matrix Spike Parent ID [UFE649-07]

(5) Duplicate Parent ID [UFE649-07]

(6) Matrix Spike Parent ID [UFE654-03]

(7) Duplicate Parent ID [UFE654-03]

(8) Matrix Spike Parent ID [UFE649-05]

(9) Duplicate Parent ID [UFE649-05]

(10) Matrix Spike Parent ID [UFE652-06]

(11) Duplicate Parent ID [UFE652-06]

(12) Matrix Spike Parent ID [UFE649-04]

(13) Duplicate Parent ID [UFE649-04]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

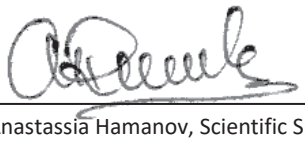
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W3826
Report Date: 2022/11/15

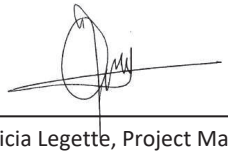
RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist



Patricia Legette, Project Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/18
Report #: R7393793
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2W3812
Received: 2022/11/04, 09:37

Sample Matrix: Water
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	10	N/A	2022/11/06	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	10	N/A	2022/11/07	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	9	N/A	2022/11/16		
Conductivity	10	N/A	2022/11/06	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	10	N/A	2022/11/09	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	6	N/A	2022/11/10	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	3	N/A	2022/11/11	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2022/11/17	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2022/11/08	CAM SOP-00441	USGS I-2522-90 m
Ammonia-N	8	N/A	2022/11/09	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	6	N/A	2022/11/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate & Nitrite as Nitrogen in Water (2)	4	N/A	2022/11/09	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	10	2022/11/05	2022/11/06	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	9	N/A	2022/11/16		Field pH Meter
Sulphate by Automated Colourimetry	10	N/A	2022/11/09	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	10	2022/11/08	2022/11/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	9	N/A	2022/11/16		Field Thermometer
Total Kjeldahl Nitrogen in Water	4	2022/11/08	2022/11/08	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	6	2022/11/08	2022/11/09	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	9	N/A	2022/11/16		
Volatile Organic Compounds in Water	3	N/A	2022/11/09	CAM SOP-00228	EPA 8260C m
Volatile Organic Compounds in Water	1	N/A	2022/11/10	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/18
Report #: R7393793
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2W3812
Received: 2022/11/04, 09:37

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
18 Nov 2022 09:59:48

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C2W3812
Report Date: 2022/11/18

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UFE584	UFE585			UFE586			UFE587		
Sampling Date		2022/11/02	2022/11/02			2022/11/02			2022/11/02		
COC Number		N/A	N/A			N/A			N/A		
	UNITS	**OW16-6**	**GWDUP2**	**RDL**	**QC Batch**	**OW17-4**	**RDL**	**QC Batch**	**FIELD BLANK**	**RDL**	**QC Batch**
Field Measurements											
Field Conductivity	uS/cm	2140	2140	N/A	ONSITE	1750	N/A	ONSITE			
Field Temperature	Celsius	11.6	11.6	N/A	ONSITE	17.9	N/A	ONSITE			
Field Turbidity	NTU	2.14	2.14	N/A	ONSITE	8.40	N/A	ONSITE			
Field Measured pH	pH	7.1	7.1		ONSITE	7.2		ONSITE			
Inorganics											
Total Ammonia-N	mg/L	6.64	6.69	0.15	8333493	0.31	0.15	8333493	<0.15	0.15	8333493
Conductivity	umho/cm	2000	2000	1.0	8328759	2100	1.0	8328759	1.9	1.0	8328759
Total Dissolved Solids	mg/L	1090	1070	10	8332191	1800	10	8332191	<10	10	8332191
Total Kjeldahl Nitrogen (TKN)	mg/L	7.1	7.2	0.7	8332289	<0.7	0.7	8332289	<0.7	0.7	8332289
Dissolved Organic Carbon	mg/L	4.7	4.7	0.4	8333614	7.8	0.4	8333614	0.5	0.4	8333614
pH	pH	7.73	7.69		8328757	7.75		8328757	6.56		8328757
Dissolved Sulphate (SO4)	mg/L	390	400	2.0	8328795	780	5.0	8328795	<1.0	1.0	8328795
Alkalinity (Total as CaCO3)	mg/L	650	650	1.0	8328756	430	1.0	8328756	3.2	1.0	8328756
Dissolved Chloride (Cl-)	mg/L	45	45	1.0	8328796	28	1.0	8328796	<1.0	1.0	8328796
Nitrate (N)	mg/L	0.15	0.16	0.10	8328760	0.14	0.10	8328761	<0.10	0.10	8328761

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W3812
Report Date: 2022/11/18

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UFE588		UFE589			UFE590	UFE591		
Sampling Date		2022/11/02		2022/11/02			2022/11/02	2022/11/02		
COC Number		N/A		N/A			N/A	N/A		
	UNITS	OW56-4	RDL	OW57-4	RDL	QC Batch	OW58-6	OW59-6	RDL	QC Batch
Field Measurements										
Field Conductivity	uS/cm	3820	N/A	3660	N/A	ONSITE	3740	4880	N/A	ONSITE
Field Temperature	Celsius	13.5	N/A	16.6	N/A	ONSITE	16.1	15.6	N/A	ONSITE
Field Turbidity	NTU	5.31	N/A	2.82	N/A	ONSITE	3.30	2.20	N/A	ONSITE
Field Measured pH	pH	7.5		6.8		ONSITE	6.9	6.8		ONSITE
Inorganics										
Total Ammonia-N	mg/L	<0.15	0.15	0.20	0.15	8333493	0.16	<0.15	0.15	8333493
Conductivity	umho/cm	4200	1.0	3600	1.0	8328759	3600	4900	1.0	8328759
Total Dissolved Solids	mg/L	3630	10	2820	10	8332191	2950	4370	10	8332191
Total Kjeldahl Nitrogen (TKN)	mg/L	0.8	0.7	0.9	0.7	8332323	<0.7	0.7	0.7	8332323
Dissolved Organic Carbon	mg/L	3.7	0.4	3.8	0.4	8333614	3.3	2.8	0.4	8333614
pH	pH	7.52		7.62		8328757	7.51	7.53		8328757
Dissolved Sulphate (SO4)	mg/L	2800	10	1800	5.0	8328795	2100	3200	10	8328795
Alkalinity (Total as CaCO3)	mg/L	370	1.0	590	1.0	8328756	380	430	1.0	8328756
Dissolved Chloride (Cl-)	mg/L	7.4	1.0	6.1	1.0	8328796	4.6	6.4	1.0	8328796
Nitrate (N)	mg/L	0.14	0.10	<0.10	0.10	8328761	<0.10	<0.10	0.10	8328760

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W3812
Report Date: 2022/11/18

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UFE592			UFE593		
Sampling Date		2022/11/02			2022/11/02		
COC Number		N/A			N/A		
	UNITS	OW68-5	RDL	QC Batch	OW69-5	RDL	QC Batch
Field Measurements							
Field Conductivity	uS/cm	1340	N/A	ONSITE	5220	N/A	ONSITE
Field Temperature	Celsius	13.0	N/A	ONSITE	16.2	N/A	ONSITE
Field Turbidity	NTU	4.40	N/A	ONSITE	3.83	N/A	ONSITE
Field Measured pH	pH	6.9		ONSITE	6.5		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	0.15	8332386	0.17	0.15	8332386
Conductivity	umho/cm	1100	1.0	8328825	5800	1.0	8328759
Total Dissolved Solids	mg/L	590	10	8332191	4950	10	8332191
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8332323	0.9	0.7	8332323
Dissolved Organic Carbon	mg/L	2.9	0.4	8333614	3.0	0.4	8333614
pH	pH	7.75		8328828	7.36		8328757
Dissolved Sulphate (SO4)	mg/L	180	1.0	8328795	3700	10	8328795
Alkalinity (Total as CaCO3)	mg/L	480	1.0	8328827	720	1.0	8328756
Dissolved Chloride (Cl-)	mg/L	9.8	1.0	8328796	11	1.0	8328796
Nitrate (N)	mg/L	<0.10	0.10	8328761	<0.10	0.10	8328761

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W3812
Report Date: 2022/11/18

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		UFE584	UFE585		UFE586		UFE587		
Sampling Date		2022/11/02	2022/11/02		2022/11/02		2022/11/02		
COC Number		N/A	N/A		N/A		N/A		
	UNITS	OW16-6	GWDUP2	QC Batch	OW17-4	QC Batch	FIELD BLANK	RDL	QC Batch
Metals									
Dissolved Barium (Ba)	mg/L	0.012	0.011	8330102	0.012	8351103	<0.005	0.005	8330102
Dissolved Boron (B)	mg/L	0.18	0.17	8330102	0.33	8351103	<0.02	0.02	8330102
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	8330102	<0.0001	8351103	<0.0001	0.0001	8330102
Dissolved Calcium (Ca)	mg/L	120	120	8330102	310	8351103	<0.2	0.2	8330102
Dissolved Iron (Fe)	mg/L	0.2	0.3	8330102	0.3	8351103	<0.1	0.1	8330102
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	8330102	<0.0005	8351103	<0.0005	0.0005	8330102
Dissolved Magnesium (Mg)	mg/L	100	100	8330102	310	8351103	<0.05	0.05	8330102
Dissolved Potassium (K)	mg/L	7.2	7.1	8330102	3.6	8351103	<0.2	0.2	8330102
Dissolved Sodium (Na)	mg/L	180	180	8330102	120	8351103	<0.1	0.1	8330102

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		UFE588		UFE589		UFE590			UFE591		
Sampling Date		2022/11/02		2022/11/02		2022/11/02			2022/11/02		
COC Number		N/A		N/A		N/A			N/A		
	UNITS	OW56-4	RDL	OW57-4	QC Batch	OW58-6	RDL	QC Batch	OW59-6	RDL	QC Batch
Metals											
Dissolved Barium (Ba)	mg/L	0.012	0.005	0.009	8330102	0.009	0.005	8332187	0.007	0.005	8330102
Dissolved Boron (B)	mg/L	0.50	0.02	0.45	8330102	0.69	0.02	8332187	0.74	0.02	8330102
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	8330102	<0.0001	0.0001	8332187	<0.0001	0.0001	8330102
Dissolved Calcium (Ca)	mg/L	450	1	340	8330102	410	0.2	8332187	430	1	8330102
Dissolved Iron (Fe)	mg/L	2.3	0.1	1.9	8330102	3.1	0.1	8332187	<0.1	0.1	8330102
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	8330102	<0.0005	0.0005	8332187	<0.0005	0.0005	8330102
Dissolved Magnesium (Mg)	mg/L	470	0.3	360	8330102	270	0.05	8332187	460	0.3	8330102
Dissolved Potassium (K)	mg/L	3.7	0.2	4.6	8330102	6.5	0.2	8332187	6.4	0.2	8330102
Dissolved Sodium (Na)	mg/L	98	0.1	130	8330102	210	0.1	8332187	290	0.1	8330102

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W3812
Report Date: 2022/11/18

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		UFE592		UFE593		
Sampling Date		2022/11/02		2022/11/02		
COC Number		N/A		N/A		
	UNITS	OW68-5	RDL	OW69-5	RDL	QC Batch
Metals						
Dissolved Barium (Ba)	mg/L	0.037	0.005	0.009	0.005	8330102
Dissolved Boron (B)	mg/L	0.10	0.02	1.1	0.02	8330102
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	8330102
Dissolved Calcium (Ca)	mg/L	110	0.2	460	1	8330102
Dissolved Iron (Fe)	mg/L	<0.1	0.1	3.1	0.1	8330102
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	0.0005	8330102
Dissolved Magnesium (Mg)	mg/L	81	0.05	650	0.3	8330102
Dissolved Potassium (K)	mg/L	2.6	0.2	6.6	0.2	8330102
Dissolved Sodium (Na)	mg/L	36	0.1	290	0.1	8330102

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W3812
Report Date: 2022/11/18

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		UFE584	UFE585	UFE587	UFE594		
Sampling Date		2022/11/02	2022/11/02	2022/11/02	2022/11/02		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	OW16-6	GWDUP2	FIELD BLANK	TRIP BLANK	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8330978
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8330978
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8330978
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8330978
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8330978
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8330978
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8330978
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8330978
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8330978
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	98	100	97	96		8330978
D4-1,2-Dichloroethane	%	108	108	104	107		8330978
D8-Toluene	%	96	97	99	99		8330978

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Sample UFE586 [OW17-4] : TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample UFE590 [OW58-6] : TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8330978	4-Bromofluorobenzene	2022/11/09	100	70 - 130	98	70 - 130	99	%				
8330978	D4-1,2-Dichloroethane	2022/11/09	108	70 - 130	104	70 - 130	101	%				
8330978	D8-Toluene	2022/11/09	98	70 - 130	99	70 - 130	100	%				
8328756	Alkalinity (Total as CaCO3)	2022/11/06			97	85 - 115	<1.0	mg/L	1.4 (1)	20		
8328757	pH	2022/11/06			102	98 - 103			0.27 (1)	N/A		
8328759	Conductivity	2022/11/06			100	85 - 115	<1.0	umho/cm	0 (1)	25		
8328760	Nitrate (N)	2022/11/09	99	80 - 120	102	80 - 120	<0.10	mg/L	0.60 (2)	20		
8328761	Nitrate (N)	2022/11/08	92 (3)	80 - 120	105	80 - 120	<0.10	mg/L	4.4 (1)	20		
8328795	Dissolved Sulphate (SO4)	2022/11/09	NC (3)	75 - 125	101	80 - 120	<1.0	mg/L	0.51 (1)	20		
8328796	Dissolved Chloride (Cl-)	2022/11/07	NC (3)	80 - 120	101	80 - 120	<1.0	mg/L	1.7 (1)	20		
8328825	Conductivity	2022/11/06			100	85 - 115	<1.0	umho/cm	0.26 (4)	25		
8328827	Alkalinity (Total as CaCO3)	2022/11/06			96	85 - 115	<1.0	mg/L	0.75 (4)	20		
8328828	pH	2022/11/06			102	98 - 103			0.45 (4)	N/A		
8330102	Dissolved Barium (Ba)	2022/11/10	102	80 - 120	99	80 - 120	<0.005	mg/L				
8330102	Dissolved Boron (B)	2022/11/10	NC	80 - 120	95	80 - 120	<0.02	mg/L	3.7 (2)	20		
8330102	Dissolved Cadmium (Cd)	2022/11/10	102	80 - 120	98	80 - 120	<0.0001	mg/L				
8330102	Dissolved Calcium (Ca)	2022/11/10	NC	80 - 120	99	80 - 120	<0.2	mg/L	0.51 (2)	20		
8330102	Dissolved Iron (Fe)	2022/11/10	98	80 - 120	96	80 - 120	<0.1	mg/L	0.16 (2)	20		
8330102	Dissolved Lead (Pb)	2022/11/10	98	80 - 120	99	80 - 120	<0.0005	mg/L				
8330102	Dissolved Magnesium (Mg)	2022/11/10	NC	80 - 120	99	80 - 120	<0.05	mg/L	1.3 (2)	20		
8330102	Dissolved Potassium (K)	2022/11/10	101	80 - 120	100	80 - 120	<0.2	mg/L	2.0 (2)	20		
8330102	Dissolved Sodium (Na)	2022/11/10	NC	80 - 120	94	80 - 120	<0.1	mg/L	0.69 (2)	20		
8330978	1,4-Dichlorobenzene	2022/11/09	104	70 - 130	104	70 - 130	<0.40	ug/L	NC (2)	30		
8330978	Benzene	2022/11/09	85	70 - 130	85	70 - 130	<0.20	ug/L	NC (2)	30		
8330978	Ethylbenzene	2022/11/09	83	70 - 130	86	70 - 130	<0.20	ug/L	NC (2)	30		
8330978	Methylene Chloride(Dichloromethane)	2022/11/09	93	70 - 130	91	70 - 130	<2.0	ug/L	NC (2)	30		
8330978	o-Xylene	2022/11/09	85	70 - 130	86	70 - 130	<0.20	ug/L	NC (2)	30		
8330978	p+m-Xylene	2022/11/09	85	70 - 130	87	70 - 130	<0.20	ug/L	NC (2)	30		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8330978	Toluene	2022/11/09	82	70 - 130	84	70 - 130	<0.20	ug/L	NC (2)	30		
8330978	Total Xylenes	2022/11/09					<0.20	ug/L	NC (2)	30		
8330978	Vinyl Chloride	2022/11/09	80	70 - 130	82	70 - 130	<0.20	ug/L	NC (2)	30		
8332187	Dissolved Barium (Ba)	2022/11/10	103	80 - 120	99	80 - 120	<0.005	mg/L	0.067 (2)	20		
8332187	Dissolved Boron (B)	2022/11/10	102	80 - 120	104	80 - 120	<0.02	mg/L	3.5 (2)	20		
8332187	Dissolved Cadmium (Cd)	2022/11/10	98	80 - 120	97	80 - 120	<0.0001	mg/L				
8332187	Dissolved Calcium (Ca)	2022/11/10	NC	80 - 120	100	80 - 120	<0.2	mg/L	0.69 (2)	20		
8332187	Dissolved Iron (Fe)	2022/11/10	100	80 - 120	100	80 - 120	<0.1	mg/L	1.2 (2)	20		
8332187	Dissolved Lead (Pb)	2022/11/10	96	80 - 120	98	80 - 120	<0.0005	mg/L	NC (2)	20		
8332187	Dissolved Magnesium (Mg)	2022/11/10	NC	80 - 120	98	80 - 120	<0.05	mg/L	0.94 (2)	20		
8332187	Dissolved Potassium (K)	2022/11/10	103	80 - 120	102	80 - 120	<0.2	mg/L	1.6 (2)	20		
8332187	Dissolved Sodium (Na)	2022/11/10	NC	80 - 120	97	80 - 120	<0.1	mg/L	1.3 (2)	20		
8332191	Total Dissolved Solids	2022/11/09					<10	mg/L	0.29 (2)	20	97	90 - 110
8332289	Total Kjeldahl Nitrogen (TKN)	2022/11/08	102	80 - 120	101	80 - 120	<0.7	mg/L	NC (2)	20	103	80 - 120
8332323	Total Kjeldahl Nitrogen (TKN)	2022/11/08	102	80 - 120	105	80 - 120	<0.7	mg/L	NC (2)	20	103	80 - 120
8332386	Total Ammonia-N	2022/11/08	103	75 - 125	103	80 - 120	<0.15	mg/L	NC (2)	20		
8333493	Total Ammonia-N	2022/11/09	98	75 - 125	97	80 - 120	<0.15	mg/L	0.21 (2)	20		
8333614	Dissolved Organic Carbon	2022/11/09	94	80 - 120	96	80 - 120	<0.4	mg/L	1.1 (2)	20		
8351103	Dissolved Barium (Ba)	2022/11/17	94 (5)	80 - 120	98	80 - 120	<0.005	mg/L	1.7 (6)	20		
8351103	Dissolved Boron (B)	2022/11/17	94 (5)	80 - 120	90	80 - 120	<0.02	mg/L	1.7 (6)	20		
8351103	Dissolved Cadmium (Cd)	2022/11/17	96 (5)	80 - 120	97	80 - 120	<0.0001	mg/L	NC (6)	20		
8351103	Dissolved Calcium (Ca)	2022/11/17	NC (5)	80 - 120	99	80 - 120	<0.2	mg/L	0.77 (6)	20		
8351103	Dissolved Iron (Fe)	2022/11/17	98 (5)	80 - 120	97	80 - 120	<0.1	mg/L	1.4 (6)	20		
8351103	Dissolved Lead (Pb)	2022/11/17	90 (5)	80 - 120	95	80 - 120	<0.0005	mg/L	NC (6)	20		
8351103	Dissolved Magnesium (Mg)	2022/11/17	NC (5)	80 - 120	95	80 - 120	<0.05	mg/L	0.34 (6)	20		
8351103	Dissolved Potassium (K)	2022/11/17	98 (5)	80 - 120	98	80 - 120	<0.2	mg/L	0.69 (6)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8351103	Dissolved Sodium (Na)	2022/11/17	NC (5)	80 - 120	96	80 - 120	<0.1	mg/L	2.2 (6)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID [UFE588-01]

(2) Duplicate Parent ID

(3) Matrix Spike Parent ID [UFE588-01]

(4) Duplicate Parent ID [UFE592-01]

(5) Matrix Spike Parent ID [UFE586-03]

(6) Duplicate Parent ID [UFE586-03]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

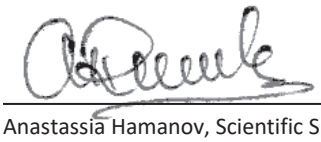
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2W3812
Report Date: 2022/11/18

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

APPENDIX I:

Surface Water Chemical Results

Table I-1
Precipitation Event Surface Water Quality - Field Chemical Results
Twin Creeks Environmental Centre

Station Number	Location	pH	Conductivity	Temperature	Turbidity	Dissolved Oxygen	Estimated Flow Rate
		(pH units)	(µS/cm)	(°C)	(NTU)	(mg/L)	(L/s)
First Quarter							
February 17, 2022 (Routine monitoring for February 16, 2022 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	7.8	312	2.2	512	10.9	Flooded
SS10	Off-Site Flow into East Ditch Line - Background surface water quality	Ins	Ins	Ins	Ins	Ins	Ins
SS16	On-Site Flow from Township land to the south – Background surface water quality	7.4	224	2.0	126	9.8	8
SP1	Southeast Sedimentation Pond	7.6	299	4.6	525	10.7	34
SP2	Southwest Sedimentation Pond	7.7	237	1.4	315	9.9	18
SP3	Northwest Sedimentation Pond	7.8	175	1.0	312	10.4	9
SP4	Northeast Sedimentation Pond	7.2	147	1.2	186	11.4	5
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	7.4	125	1.5	68.4	10.7	6
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	7.5	235	1.4	57.3	10.1	3
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	7.4	315	3.1	700	10.9	26
May 4, 2022 (Verification monitoring for February 17, 2022 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	8.1	735	11.6	177	9.64	Flooded
Second Quarter							
May 4, 2022 (Routine monitoring for May 3, 2022 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	8.1	735	11.6	177	9.64	Flooded
SS10	Off-Site Flow into East Ditch Line - Background surface water quality	8.8	229	17.0	334	8.75	0.3
SS16	On-Site Flow from Township land to the south – Background surface water quality	7.8	395	12.5	81.1	9.16	2
SP1	Southeast Sedimentation Pond	8.0	753	15.5	101	8.92	107
SP2	Southwest Sedimentation Pond	8.2	1000	15.3	15.0	9.32	24
SP3	Northwest Sedimentation Pond	8.9	764	15.0	12.8	11.3	6
SP4	Northeast Sedimentation Pond	8.1	676	13.3	91.1	7.60	7
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	8.3	681	18.0	36.6	7.60	2
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	8.8	229	17.0	99.0	8.75	2
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	8.1	608	16.3	197	9.16	11
May 16, 2022 (Verification monitoring for May 4, 2022 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	7.4	810	18.6	>1000	7.83	23
SP2	Southwest Sedimentation Pond	7.9	952	24.5	14.7	8.29	No Flow
Third Quarter							
July 20, 2022 (Routine monitoring for July 19, 2022 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	Ins	Ins	Ins	Ins	Ins	Ins
SS10	Off-Site Flow into East Ditch Line - Background surface water quality	Ins	Ins	Ins	Ins	Ins	Ins
SS16	On-Site Flow from Township land to the south – Background surface water quality	Ins	Ins	Ins	Ins	Ins	Ins
SP1	Southeast Sedimentation Pond	9.1	596	26.9	15.1	9.49	0.1
SP2	Southwest Sedimentation Pond	8.2	834	26.5	5.54	5.61	26
SP3	Northwest Sedimentation Pond	Ins	Ins	Ins	Ins	Ins	Ins
SP4	Northeast Sedimentation Pond	Ins	Ins	Ins	Ins	Ins	Ins
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	Ins	Ins	Ins	Ins	Ins	Ins
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	Ins	Ins	Ins	Ins	Ins	Ins
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	Ins	Ins	Ins	Ins	Ins	Ins
August 2, 2022 (Routine monitoring for August 1, 2022 precipitation event)							
SP3	Northwest Sedimentation Pond	8.8	850	23.7	5.98	11.5	0.1
August 2, 2022 (Verification monitoring for July 20, 2022 precipitation event)							
SP1	Southeast Sedimentation Pond	9.1	813	24.6	90.0	8.05	No Flow
SP2	Southwest Sedimentation Pond	9.2	983	24.6	4.77	6.84	18
August 4, 2022 (Routine monitoring for August 3, 2022 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	7.9	922	24.1	82.8	8.22	3
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	7.5	558	24.2	582	3.13	2
August 4, 2022 (Storm event monitoring for August 3, 2022 precipitation event)							
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	7.5	558	24.2	582	3.13	2
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	Ins	Ins	Ins	Ins	Ins	Ins
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	Ins	Ins	Ins	Ins	Ins	Ins
August 30, 2022 (Routine monitoring for August 29, 2022 precipitation event)							
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	8.1	667	21.8	797	7.91	0.2
September 28, 2022 (Routine monitoring for September 27, 2022 precipitation event)							
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	7.8	446	15.6	23.6	7.68	1
September 28, 2022 (Storm event monitoring for September 27, 2022 precipitation event)							
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	7.8	446	15.6	23.6	7.68	1
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	8.1	327	14.7	>1000	9.79	4
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	7.8	341	14.1	449	8.43	2
Fourth Quarter							
October 18, 2022 (Routine monitoring for October 17, 2022 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	8.3	811	7.3	451	11.5	83
SS10	Off-Site Flow into East Ditch Line - Background surface water quality	Ins	Ins	Ins	Ins	Ins	Ins
SS16	On-Site Flow from Township land to the south – Background surface water quality	Ins	Ins	Ins	Ins	Ins	Ins
SP1	Southeast Sedimentation Pond	8.4	802	7.4	14.8	11.3	16
SP2	Southwest Sedimentation Pond	8.4	701	6.4	830	11.1	306
SP3	Northwest Sedimentation Pond	9.5	809	7.8	6.48	11.7	12
SP4	Northeast Sedimentation Pond	8.1	560	7.5	69.7	10.9	11
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	Ins	Ins	Ins	Ins	Ins	Ins
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	8.1	518	7.0	>1000	11.5	1
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	8.1	653	6.6	304	11.4	4
October 19, 2022 (Routine monitoring for October 18, 2022 precipitation event)							
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	7.2	427	8.5	381	10.2	2
November 28, 2022 (Verification monitoring for October 18, 2022 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	7.3	1351	6.4	172	11.0	2
January 13, 2023 (Verification monitoring for October 18, 2022 precipitation event)							
SP2	Southwest Sedimentation Pond	8.5	1140	2.5	188	11.9	No Flow

Notes:
1) Ins denotes insufficient volume to sample.
2) µS/cm denotes microsiemens per centimetre.
3) °C denotes degrees Celsius.
4) NTU denotes nephelometric turbidity unit.
5) mg/L denotes milligrams per litre.
6) L/s denotes litres per second.
7) Estimated Flow Rate = Average flow rate (m/s) x channel width (m) x channel depth (m) x 1000 L/m3
8) NR denotes not recorded

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1									
Date			9-Apr-02	4-Apr-03	13-Jun-03	15-Oct-03	AZ	30-Dec-03	3-May-04	31-Jul-04	1-Dec-04	2-Apr-05
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (as $CaCO_3$)	mg/L	<25%***	99	71	138	134	112	109	170	222	184	125
Dissolved Chloride (Cl)	mg/L		14	14	35	168	15	10	7	24	17	12
Dissolved Sulphate (SO_4)	mg/L		102	74	53	23	109	94	107	151	122	43
Nitrate (N)	mg/L		2.66	6.82	0.61	0.28	2.94	1.75	<0.10	23.60	2.02	<0.10
Phenols-4AAP	mg/L	0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Ammonia-N	mg/L		<0.02	0.09	0.07	0.07	0.03	0.03	0.09	0.07	0.03	0.06
Total Boron (B)	mg/L	0.200	0.19	0.08	0.12	0.03	0.16	0.18	0.19	**0.28**	0.12	0.11
Total Calcium (Ca)	mg/L		53	52	59	44	63	58	71	116	99	51
Total Chromium (Cr)	mg/L	0.0089	<0.01	<0.005	<0.005	0.006	0.002	0.004	<0.005	<0.001	0.002	0.001
Total Iron (Fe)	mg/L	0.300	**0.41**	**0.53**	**0.89**	**0.89**	**1.01**	**0.51**	**0.53**	**0.42**	0.24	**0.39**
Total Magnesium (Mg)	mg/L		15	13	15	8	17	16	19	30	23	13
Total Nickel (Ni)	mg/L	0.025	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Potassium (K)	mg/L		2	5	9	9	4	6	3	7	6	3
Total Sodium (Na)	mg/L		17	8	22	128	10	10	11	18	12	10
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.005	<0.005	**0.06**	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Ion Percentage	%		3.1	7.3	5.5	4.0	3.0	4.5	2.3	5.5	5.7	6.0

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1									
Date			9-Nov-05	18-Jan-06	9-Mar-06	5-Oct-06	17-Nov-06	2-Mar-07	9-Jan-08	19-Mar-08	11-Apr-08	12-May-08
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	182	105	56	177	150	162		90	180	256
Conductivity	umho/cm									298		661
Dissolved Chloride (Cl)	mg/L		24	18	15	35	25	18	26	13	22	18
Dissolved Mercury (Hg)	mg/L	0.0002								<0.0002	<0.0002	<0.0002
Dissolved Sulphate (SO_4)	mg/L		156	102	40	122	78	64	98	41	84	75
Nitrate (N)	mg/L		1.94	3.09	2.79	<0.10	1.31	1.76	6.70	1.50	<0.1	0.40
Nitrite (N)	mg/L									0.02	<0.01	<0.01
pH	(pH units)	6.5-8.5								8.1		8.2
Phenols-4AAP	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Ammonia-N	mg/L		0.13	0.04	0.28	0.03	0.05	0.69		0.09	<0.05	<0.15
Total Arsenic (As)	mg/L	0.100*								0.002	0.001	<0.001
Total Barium (Ba)	mg/L									0.052	0.037	0.042
Total BOD	mg/L									<2	<2	3
Total Boron (B)	mg/L	0.200	**0.24**	0.18	0.05	**0.21**	**0.26**	0.11	0.19	0.10	**0.23**	**0.23**
Total Cadmium (Cd)	mg/L	0.0002								<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		120	54	30	93	69	68	65	38	82	90
Total Chemical Oxygen Demand (COD)	mg/L									26		41
Total Chromium (Cr)	mg/L	0.0089	<0.001	0.002	0.002	0.002	0.001	0.001	**0.009**	**0.010**	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005								**0.006**	0.002	0.003
Total Dissolved Solids	mg/L									204	355	440
Total Iron (Fe)	mg/L	0.300	0.22	**0.36**	**0.78**	0.23	**0.38**	**0.38**	**3.60**	**5.00**	**1.00**	**1.00**
Total Kjeldahl Nitrogen (TKN)	mg/L									1.1	0.8	2.0
Total Lead (Pb)	mg/L	0.005								0.004	0.0007	0.0007
Total Magnesium (Mg)	mg/L		25	15	8	22	19	18	17	10	21	25
Total Nickel (Ni)	mg/L	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	0.008	0.002	0.003
Total Phosphorus	mg/L	0.02*								**0.13**	**0.08**	
Total Potassium (K)	mg/L		3.0	3.0	5.0	7.0	5.0	5.0	4.3	3.3	4.1	8.6
Total Sodium (Na)	mg/L		17.0	12.0	9.0	19.0	17.0	15.0	16.0	7.7	17.0	17.0
Total Suspended Solids	mg/L									67.0	14.0	34.0
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.02	**0.03**	<0.01	<0.01
Ion Percentage	%		6.4	1.1	5.4	3.9	5.3	6.0		4.1	5.9	4.9

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1									
Date			14-Jun-08	17-Jun-08	28-Jun-08	23-Jul-08	4-Nov-08	5-Dec-08	12-Feb-09	8-Mar-09	6-Apr-09	26-Apr-09
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	254		242	196	68	170	88	83	75	168
Dissolved Chloride (Cl)	mg/L		22	30	24	15	4	5	7	6	5	6
Dissolved Sulphate (SO_4)	mg/L		95		72	30	50	44	27	27	45	27
Total Ammonia-N	mg/L		<0.15		<0.15	<0.15	0.55	<0.15	0.16	<0.15	<0.15	<0.15
Total Un-ionized Ammonia	mg/L	0.02	<0.02		<0.02	<0.02	**0.03**	<0.02	<0.02	<0.02	<0.02	<0.02
Nitrate (N)	mg/L		<0.1		<0.1	<0.1	1.7	0.3	0.7	0.8	0.7	0.3
Phenols-4AAP	mg/L	0.001	**0.003**	**0.006**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Boron (B)	mg/L	0.200	**0.36**		**0.28**	**0.2**	**0.4**	0.07	0.07	0.06	0.06	0.06
Total Calcium (Ca)	mg/L		100		82	59	970	61	45	34	120	76
Total Chromium (Cr)	mg/L	0.0089	<0.005		<0.005	<0.005	**0.67**	0.008	**0.023**	**0.012**	**0.071**	**0.028**
Total Iron (Fe)	mg/L	0.300	**0.4**		**0.9**	**0.9**	**690.0**	**4.0**	**23.0**	**13.0**	**70.0**	**27.0**
Total Magnesium (Mg)	mg/L		24		22	19	280	16	14	9.2	35	21
Total Potassium (K)	mg/L		4.3		3.4	3.8	84.0	4.2	5.7	4.3	9.7	6.4
Total Sodium (Na)	mg/L		19.0		17.0	13.0	10.0	5.5	5.4	4.4	2.8	5.2
Total Nickel (Ni)	mg/L	0.025	0.003		0.003	0.002	**0.90**	0.005	**0.030**	0.017	**0.091**	**0.037**
Total Zinc (Zn)	mg/L	0.020	<0.01		<0.01	<0.01	**1.60**	0.01	**0.06**	**0.03**	**0.15**	**0.60**
pH	(pH units)	6.5-8.5	8.1	8.0	8.2	8.2	8.0	8.0	7.7	7.1	7.5	8.0
Conductivity	umho/cm		700		629	469	268	424	229	225	254	367
Total BOD	mg/L		3		<2	2	<2	<2	<2	<2	<2	<2
Total Chemical Oxygen Demand (COD)	mg/L		45		41	37	300	16	16	16	40	35
Total Dissolved Solids	mg/L		444		415	310	180	280	142	150	165	230
Total Kjeldahl Nitrogen (TKN)	mg/L		<1		1.3	1.3	14.0	0.5	1.8	1.3	3.0	1.8
Total Phosphorus	mg/L	0.02*	**0.14**		**0.10**	**0.22**	**9.30**	<0.15	**0.31**	**0.22**	**0.79**	**0.48**
Total Suspended Solids	mg/L		4		19	19	13000	45	330	300	1400	630
Nitrite (N)	mg/L		<0.01		<0.01	<0.01	0.02	<0.01	0.01	0.02	0.01	0.02
Dissolved Mercury (Hg)	mg/L	0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Arsenic (As)	mg/L	0.100*	0.003		0.003	0.002	**0.190**	0.001	0.007	0.004	0.018	0.009
Total Barium (Ba)	mg/L		0.037		0.030	0.026	2.400	0.051	0.095	0.057	0.240	0.110
Total Cadmium (Cd)	mg/L	0.0002	<0.0001		<0.0001	<0.0001	**0.003**	<0.0001	0.0001	<0.0001	**0.0003**	**0.0001**
Total Copper (Cu)	mg/L	0.005	0.002		0.002	<0.002	**0.550**	0.003	**0.020**	**0.010**	**0.047**	**0.022**
Total Lead (Pb)	mg/L	0.005	<0.0005		0.001	<0.0005	**0.260**	0.002	**0.010**	0.004	**0.024**	**0.010**
Ion Percentage	%		4.2		2.6	5.2	47.1	5.4	13.5	7.2	30.2	13.3

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1									
Date			9-May-09	9-Aug-09	10-Oct-09	25-Jan-10	6-Apr-10	16-Jul-10	14-Oct-10	6-Nov-10	28-Feb-11	20-Apr-11
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	97	86	139	94	104	141	109	104	114	132
Conductivity	umho/cm		274	447	578	479	917	700	484	455	490	526
Dissolved Chloride (Cl)	mg/L		4	7	11	31	180	35	32	17	45	29
Dissolved Mercury (Hg)	mg/L	0.0002	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Sulphate (SO_4)	mg/L		44	120	120	88	78	160	79	92	50	90
Nitrate (N)	mg/L		0.9	3.0	4.9	1.7	2.0	0.3	<0.1	<0.1	0.8	<0.1
Nitrite (N)	mg/L		0.03	0.10	0.01	0.03	0.02	0.04	<0.01	0.02	0.01	0.01
pH	(pH units)	6.5-8.5	6.8	7.8	7.8	7.9	7.9	7.9	7.9	8.0	7.9	8.1
Phenols-4AAP	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Ammonia-N	mg/L		0.36	<0.15	<0.15	0.17	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.002	0.002	<0.001	0.001	0.001	0.001	0.003	0.001	<0.001	0.001
Total Barium (Ba)	mg/L		0.630	0.045	0.033	0.045	0.050	0.044	0.083	0.028	0.044	0.033
Total BOD	mg/L		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Boron (B)	mg/L	0.200	0.09	0.07	0.07	0.13	0.07	0.19	0.07	0.09	0.06	0.19
Total Cadmium (Cd)	mg/L	0.0002	**0.0011**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		380	58	74	54	98	100	65	62	56	67
Total Chemical Oxygen Demand (COD)	mg/L		130	20	16	14	30	31	19	21	19	23
Total Chromium (Cr)	mg/L	0.0089	**0.061**	<0.005	<0.005	0.006	<0.005	<0.005	**0.013**	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	**0.086**	0.005	0.004	0.004	0.003	**0.006**	**0.006**	0.003	0.002	0.003
Total Dissolved Solids	mg/L		180	290	370	315	600	450	300	282	284	306
Total Iron (Fe)	mg/L	0.300	**140.0**	**4.1**	**1.7**	**3.8**	**2.0**	**0.7**	**7.3**	**2.2**	**1.4**	**1.8**
Total Kjeldahl Nitrogen (TKN)	mg/L		8.0	1.0	1.0	1.1	1.1	0.9	0.8	0.9	0.9	1.1
Total Lead (Pb)	mg/L	0.005	**0.067**	0.001	0.001	0.002	0.001	<0.0005	0.003	0.001	0.001	0.001
Total Magnesium (Mg)	mg/L		83	15	18	18	25	22	15	19	14	20
Total Nickel (Ni)	mg/L	0.025	**0.130**	0.007	0.002	0.006	0.002	0.002	0.009	0.004	0.003	0.004
Total Phosphorus	mg/L	0.02*	**3.2**	**0.09**	**0.09**	**0.10**	**0.07**	**0.08**	**0.20**	**0.08**	**0.05**	**0.07**
Total Potassium (K)	mg/L		13.0	3.4	2.4	5.4	4.7	3.6	9.3	3.1	3.6	3.6
Total Sodium (Na)	mg/L		4.9	6.6	6.5	18.0	51.0	19.0	16.0	14.0	23.0	20.0
Total Suspended Solids	mg/L		8400	90	32	65	37	16	38	36	15	35
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	**0.26**	<0.01	<0.01	0.01	0.01	<0.01	0.02	0.02	<0.01	0.01
Ion Percentage	%		40.9	0.4	0.4	2.7	1.5	2.0	3.6	4.6	2.4	2.8

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1									
Date			9-Aug-11	20-Oct-11	23-Nov-11	6-Dec-11	13-Mar-12	22-Jun-12	30-Oct-12	21-Dec-12	13-Jan-13	30-Jan-13
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	144	149	116	121	120	150	110	140	93	95
Conductivity	umho/cm		545	408	423	406	490	590	470	660	380	330
Dissolved Chloride (Cl)	mg/L		33	17	17	12	20	29	18	25	13	14
Dissolved Mercury (Hg)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		81	37	68	61	99	100	87	160	75	55
Nitrate (N)	mg/L		<0.1	<0.1	0.7	0.3	0.5	<0.10	0.48	0.36	0.64	0.51
Nitrite (N)	mg/L		<0.01	<0.01	0.01	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	0.075
pH	(pH units)	6.5-8.5	8.0	8.0	8.0	7.9	8.0	8.0	7.4	7.8	7.7	7.5
Phenols-4AAP	mg/L	0.001	0.001	**0.002**	<0.001	**0.004**	**0.0013**	<0.0010	<0.0010	<0.0010	<0.0010	**0.004**
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.29	<0.15	<0.15	0.29
Total Arsenic (As)	mg/L	0.100*	0.002	0.002	0.003	0.004	0.002	0.002	0.026	0.002	0.003	0.003
Total Barium (Ba)	mg/L		0.038	0.032	0.057	0.110	0.053	0.041	0.320	0.047	0.059	0.048
Total BOD	mg/L		<2	2	3	5	<2.0	<2.0	2.0	<2.0	<2.0	4
Total Boron (B)	mg/L	0.200	0.090	0.040	0.160	**0.220**	0.190	0.170	0.170	0.180	0.140	0.120
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.0004**	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		72	53	60	55	63	75	310	90	56	57
Total Chemical Oxygen Demand (COD)	mg/L		22	28	32	25	27	39	90	22	28	22
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	0.010	**0.025**	0.007	<0.005	**0.13**	0.005	**0.012**	**0.010**
Total Copper (Cu)	mg/L	0.005	0.005	0.005	**0.009**	**0.008**	**0.007**	**0.006**	**0.091**	0.005	**0.009**	**0.011**
Total Dissolved Solids	mg/L		382	298	258	286	378	398	296	348	332	256
Total Iron (Fe)	mg/L	0.300	**1.9**	**2.6**	**9.6**	**12**	**7.0**	**1.3**	**120.0**	**4.3**	**11.0**	**9.5**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.9	1.0	2.0	2.0	1.3	0.9	2.3	1.2	1.9	1.6
Total Lead (Pb)	mg/L	0.005	0.001	0.001	0.004	0.004	0.003	0.001	**0.047**	0.002	0.005	0.004
Total Magnesium (Mg)	mg/L		15	12	16	18	19	18	77	29	17	16
Total Nickel (Ni)	mg/L	0.025	0.003	0.004	0.013	0.015	0.009	0.003	**0.18**	0.007	0.014	0.014
Total Phosphorus	mg/L	0.02*	**0.10**	**0.20**	**0.30**	**0.30**	**0.19**	**0.05**	**2.20**	**0.10**	**0.24**	**0.29**
Total Potassium (K)	mg/L		4.5	6.0	8.0	11.0	4.9	4.7	17.0	5.3	5.5	7.1
Total Sodium (Na)	mg/L		20	12	11	11	15	21	15	20	11	9.8
Total Suspended Solids	mg/L		33	39	120	100	75	20	2200	65	170	180
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	<0.01	0.010	**0.030**	**0.030**	**0.030**	0.010	**0.300**	0.020	**0.040**	**0.040**
Ion Percentage	%		1.4	0.5	4.5	5.8	2.2	1.5	34.6	3.6	6.3	8.6

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1									
Date			10-Apr-13	29-May-13	5-Jul-13	12-Sep-13	7-Oct-13	11-Jan-14	8-Apr-14	30-Apr-14	7-Jul-14	6-Sep-14
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event								Routine	Routine	Verification	Routine	Verification
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	94	61	94	120	140	94	160	140	100	88
Conductivity	umho/cm		360	330	300	470	480	250	460	460	580	400
Dissolved Chloride (Cl)	mg/L		17	10	24	20	18	8	18	13	20	15
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		60	81	40	81	77	19	48	76	170	81
Nitrate (N)	mg/L		0.54	0.18	<0.10	<0.10	<0.10	0.64	0.14	0.84	<0.10	0.79
Nitrite (N)	mg/L		0.026	<0.010	<0.010	<0.010	<0.010	0.015	0.024	0.012	<0.010	0.038
pH	(pH units)	6.5-8.5	7.9	7.9	8.2	8.0	8.0	8.1	8.2	8.1	7.7	7.8
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	**0.0032**	<0.0010	**0.0016**	<0.0010
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	0.26	<0.15	<0.15	<0.15	0.15
Total Arsenic (As)	mg/L	0.100*	0.004	0.002	0.004	0.003	0.002	<0.001	0.001	0.001	0.002	0.004
Total Barium (Ba)	mg/L		0.058	0.024	0.062	0.033	0.041	0.014	0.027	0.038	0.048	0.064
Total BOD	mg/L		<2.0	<2.0	2.0	<2.0	3.0	3.0	<2.0	<2.0	<2.0	2.0
Total Boron (B)	mg/L	0.200	0.080	0.190	0.080	**0.330**	**0.270**	<0.02	0.070	0.180	0.110	0.190
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		58	40	55	54	58	32	63	67	74	60
Total Chemical Oxygen Demand (COD)	mg/L		34	26	25	32	28	25	29	28	21	27
Total Chromium (Cr)	mg/L	0.0089	**0.0130**	<0.005	**0.0140**	<0.005	<0.005	<0.005	<0.005	<0.005	0.0050	**0.0120**
Total Copper (Cu)	mg/L	0.005	**0.013**	0.005	**0.020**	0.004	0.002	<0.002	0.003	**0.013**	**0.009**	**0.011**
Total Dissolved Solids	mg/L		288	206	312	286	282	84	326	324	392	294
Total Iron (Fe)	mg/L	0.300	**13.0**	**2.50**	**14.0**	**1.70**	**1.40**	**0.38**	**2.00**	**3.40**	**5.20**	**12.0**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.9	0.8	1.6	2.0	1.2	1.1	1.5	1.2	1.2	1.3
Total Lead (Pb)	mg/L	0.005	**0.006**	0.001	**0.011**	0.001	0.001	<0.0005	0.001	0.002	0.002	0.004
Total Magnesium (Mg)	mg/L		14	16	13	21	18	9.5	16	18	16	19
Total Nickel (Ni)	mg/L	0.025	0.021	0.005	0.022	0.005	0.004	<0.001	0.004	0.012	0.008	0.016
Total Phosphorus	mg/L	0.02*	**0.45**	**0.09**	**0.64**	**0.17**	**0.10**	**0.20**	**0.07**	**0.11**	**0.21**	**0.25**
Total Potassium (K)	mg/L		7.9	1.9	9.4	6.9	6.5	7.0	3.9	4.8	6.0	8.0
Total Sodium (Na)	mg/L		7.2	11.0	16.0	17.0	16.0	4.1	12.0	12.0	16.0	11.0
Total Suspended Solids	mg/L		1900	51	710	37	29	6	24	45	98	260
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.0092	<0.0053	<0.0019	0.0044	<0.0023	<0.003	<0.0051	0.0039
Total Zinc (Zn)	mg/L	0.020	**0.050**	<0.01	**0.100**	<0.01	<0.01	<0.01	0.010	0.010	0.010	**0.040**
Ion Percentage	%		6.2	4.7	9.0	3.6	1.7	2.5	2.0	3.7	1.2	7.9

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1									
Date			25-Dec-14	4-Jan-15	10-Apr-15	1-Jun-15	3-Aug-15	22-Dec-15	25-Feb-16	7-Apr-16	14-Jul-16	3-Nov-16
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event			Routine	Routine	Routine/ Verification	Verification	Routine	Routine	Routine	Routine	Routine	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	120	130	100	95	100	170	110	130	110	160
Conductivity	umho/cm		470	460	310	480	510	840	450	400	600	560
Dissolved Chloride (Cl)	mg/L		15	12	9	12	21	36	9.6	6.1	13	12
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		91	86	45	120	130	220	95	69	170	100
Nitrate (N)	mg/L		1.35	0.84	1.02	<0.10	<0.10	1.33	1.20	0.59	0.018	0.34
Nitrite (N)	mg/L		0.017	0.018	0.023	<0.010	<0.010	0.024	<0.010	<0.010	0.270	0.027
pH	(pH units)	6.5-8.5	7.9	8.3	7.0	7.9	7.8	8.1	8.1	7.9	7.9	8.0
Phenols-4AAP	mg/L	0.001	<0.001	**0.0058**	**0.0012**	<0.0010	<0.0010	**0.0015**	<0.0010	<0.0010	<0.0040	<0.0040
Total Ammonia-N	mg/L		<0.15	0.16	<0.15	0.15	<0.15	<0.15	<0.15	<0.15	<0.15	3.21
Total Arsenic (As)	mg/L	0.100*	0.003	<0.001	0.007	0.001	0.002	<0.001	0.002	0.003	0.001	0.003
Total Barium (Ba)	mg/L		0.100	0.032	0.110	0.027	0.038	0.035	0.077	0.048	0.047	0.037
Total BOD	mg/L		3.0	3.0	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Boron (B)	mg/L	0.200	0.13	0.06	0.11	0.10	0.07	0.05	0.13	0.10	0.10	**1.2**
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		61	61	54	60	69	100	60	63	79	60
Total Chemical Oxygen Demand (COD)	mg/L		23	21	24	22	13	25	22	34	22	31
Total Chromium (Cr)	mg/L	0.0089	**0.0190**	<0.005	**0.0250**	<0.005	<0.005	<0.005	**0.0130**	**0.0090**	<0.005	0.0050
Total Copper (Cu)	mg/L	0.005	**0.010**	0.003	**0.017**	0.005	**0.007**	0.004	**0.006**	**0.008**	**0.006**	**0.007**
Total Dissolved Solids	mg/L		354	292	240	342	360	510	262	272	418	404
Total Iron (Fe)	mg/L	0.300	**11.0**	**0.95**	**24.0**	**1.40**	**3.00**	**0.90**	**7.30**	**7.80**	**2.40**	**4.80**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.20	0.83	1.30	0.86	0.34	0.68	0.48	0.49	<0.7	3.60
Total Lead (Pb)	mg/L	0.005	0.004	0.001	**0.010**	0.001	0.001	<0.0005	0.003	0.003	0.001	0.002
Total Magnesium (Mg)	mg/L		20	19	17	18	15	30	18	17	21	21
Total Nickel (Ni)	mg/L	0.025	0.013	0.002	**0.032**	0.004	0.005	0.002	0.009	0.011	0.004	0.009
Total Phosphorus	mg/L	0.02*	**0.22**	**0.10**	**0.47**	**0.10**	**0.09**	**0.04**	**0.16**	**0.21**	**0.15**	**0.08**
Total Potassium (K)	mg/L		11.0	7.4	6.4	2.4	6.1	6.3	7.7	4.7	8.4	9.0
Total Sodium (Na)	mg/L		8.1	7.4	5.3	11.0	15.0	30.0	7.5	6.6	13.0	24.0
Total Suspended Solids	mg/L		180	13	220	26	54	20	78	130	160	150
Total Un-ionized Ammonia	mg/L	0.02	<0.0034	0.004	<0.0031	0.0049	<0.0053	<0.003	<0.0013	<0.0005	<0.0052	**0.082**
Total Zinc (Zn)	mg/L	0.020	**0.030**	<0.01	**0.060**	<0.01	<0.01	<0.01	0.020	0.020	<0.01	0.010
Ion Percentage	%		3.2	2.1	9.1	1.4	0.8	0.3	3.0	4.3	1.3	1.7

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1									
Date			27-Dec-16	12-Jan-17	8-Feb-17	6-Apr-17	13-Jul-17	19-Nov-17	23-Jan-18	4-Apr-18	8-Aug-18	26-Sep-18
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event			Verification	Routine	Verification	Routine	Routine	Routine	Routine	Routine	Routine	Verification
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	120	110	120	140	110	100	120	130	93	88
Conductivity	umho/cm		440	430	440	490	320	620	440	500	400	470
Dissolved Chloride (Cl)	mg/L		11.0	12.0	9.6	9.7	11.0	11.0	9.0	7.4	16.0	11.0
Dissolved Mercury (Hg)	mg/L	0.0002	*<0.00010*	*<0.00010*	*<0.00010*	*<0.00010*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*	*<0.0001*
Dissolved Sulphate (SO_4)	mg/L		83	78	81	91	43	190	74	43	83	130
Nitrate (N)	mg/L		0.87	0.80	0.90	0.52	<0.10	2.14	1.87	0.87	<0.10	<0.10
Nitrite (N)	mg/L		0.024	0.046	0.018	0.015	<0.010	0.011	0.022	0.013	<0.010	0.011
pH	(pH units)	6.5-8.5	8.0	7.9	7.7	8.1	7.8	8.0	7.9	8.1	7.8	8.1
Phenols-4AAP	mg/L	0.001	*<0.004*	*<0.0040*	*<0.0040*	*<0.0040*	*<0.020*	***0.0023***	*<0.0010*	*<0.0010*	*<0.0010*	*<0.0010*
Total Ammonia-N	mg/L		1.42	1.12	0.37	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.002	0.006	0.002	0.002	0.003	0.001	0.003	0.003	0.026	0.003
Total Barium (Ba)	mg/L		0.044	0.140	0.040	0.046	0.049	0.035	0.046	0.053	0.300	0.027
Total BOD	mg/L		2.0	5.0	<2.0	<2.0	5.0	<2.0	<2.0	<2	<2	3.0
Total Boron (B)	mg/L	0.200	**0.500**	**0.400**	0.160	0.150	0.080	0.120	0.100	0.130	0.130	0.170
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	**0.0003**	<0.0001
Total Calcium (Ca)	mg/L		44	58	52	75	55	86	66	70	180	46
Total Chemical Oxygen Demand (COD)	mg/L		26	36	15	25	40	10	17	13	17	21
Total Chromium (Cr)	mg/L	0.0089	0.0070	**0.0300**	0.0060	0.0060	**0.0130**	<0.005	**0.0110**	**0.0100**	**0.0900**	<0.005
Total Copper (Cu)	mg/L	0.005	0.005	**0.014**	0.004	**0.007**	**0.039**	**0.006**	**0.010**	**0.009**	**0.076**	0.004
Total Dissolved Solids	mg/L		296	290	294	316	280	285	255	225	270	345
Total Iron (Fe)	mg/L	0.300	**4.10**	**18.0**	**3.50**	**6.10**	**9.60**	**3.20**	**9.30**	**9.40**	**92.0**	**1.00**
Total Kjeldahl Nitrogen (TKN)	mg/L		2.1	1.9	0.9	0.6	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Total Lead (Pb)	mg/L	0.005	0.002	**0.007**	0.002	0.003	**0.016**	0.001	0.004	0.004	**0.031**	0.001
Total Magnesium (Mg)	mg/L		15	21	16	21	12	26	20	22	45	20
Total Nickel (Ni)	mg/L	0.025	0.006	0.024	0.006	0.010	0.018	0.006	0.013	0.013	**0.120**	0.003
Total Phosphorus	mg/L	0.02*	**0.14**	**0.34**	**0.09**	**0.15**	**0.30**	**0.08**	**0.18**	**0.17**	**1.10**	**0.04**
Total Potassium (K)	mg/L		7.5	16.0	6.4	5.4	9.0	5.2	5.6	5.2	16.0	4.2
Total Sodium (Na)	mg/L		11.0	9.4	6.3	8.2	9.4	12.0	8.0	9.4	13.0	9.8
Total Suspended Solids	mg/L		78	340	75	110	190	81	170	170	2100	26
Total Un-ionized Ammonia	mg/L	0.02	0.0053	0.0027	0.0008	<0.0012	<0.0047	<0.0029	<0.0025	<0.0005	<0.0005	<0.001
Total Zinc (Zn)	mg/L	0.020	0.010	0.050	0.010	0.020	**0.160**	0.010	0.030	**0.030**	**0.210**	<0.01
Ion Percentage	%		2.2	7.3	0.1	4.8	6.8	3.1	6.80	12.00	28.40	1.85

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1									
Date			2-Oct-18	24-Jan-19	17-Apr-19	2-Oct-19	27-Oct-19	11-Jan-20	29-Mar-20	18-May-20	15-Nov-20	26-Nov-20
Laboratory			Maxxam	Maxxam	Maxxam	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Routine/Verification Event			Routine	Routine	Routine	Routine	Verification	Routine	Verification	Routine	Routine	Verification
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	270	100	130	69	120	120	180	140	110	120
Conductivity	umho/cm		530	430	610	520	550	570	610	510	440	890
Dissolved Chloride (Cl)	mg/L		6.3	17.0	19.0	8.5	15.0	24.0	20.0	22.0	28	24
Dissolved Mercury (Hg)	mg/L	0.0002	*<0.0001*	*<0.0001*	*<0.0001*	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		25	73	140	160	130	140	170	93	72	300
Nitrate (N)	mg/L		<0.10	0.74	0.54	0.34	0.23	0.65	0.54	0.17	<0.10	1.09
Nitrite (N)	mg/L		<0.010	0.025	<0.010	<0.010	<0.010	0.014	0.053	<0.010	<0.010	0.031
pH	(pH units)	6.5-8.5	8.2	7.7	8.2	8.0	8.1	8.0	7.9	8.1	7.9	8.0
Phenols-4AAP	mg/L	0.001	*<0.0010*	*<0.0010*	*<0.0010*	**0.0012**	<0.0010	<0.0010	<0.0010	<0.0010	*0.0012*	<0.0010
Total Ammonia-N	mg/L		<0.15	0.50	<0.15	0.19	<0.15	<0.15	0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	<0.001	<0.001	<0.001	0.040	0.002	0.003	0.037	0.002	0.005	0.003
Total Barium (Ba)	mg/L		0.027	0.022	0.026	0.560	0.022	0.062	0.390	0.0350	0.06	0.053
Total BOD	mg/L		<2	3.0	<2	<2	<2	<2	<2	3.0	5	<2
Total Boron (B)	mg/L	0.200	0.030	0.090	0.140	**0.300**	0.180	0.140	**0.210**	0.090	0.11	0.17
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	0.0001	**0.0006**	<0.0001	0.0001	<0.0001
Total Calcium (Ca)	mg/L		78	42	66	450	62	87	480	60	63	110
Total Chemical Oxygen Demand (COD)	mg/L		29.0	18.0	21.0	5.6	18.0	10.0	<4.0	38.0	38	14
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	**0.190**	<0.005	**0.012**	**0.160**	<0.005	**0.014**	**0.010**
Total Copper (Cu)	mg/L	0.005	0.003	0.003	0.004	**0.130**	0.004	**0.023**	**0.130**	**0.009**	**0.024**	**0.009**
Total Dissolved Solids	mg/L		275	270	365	345	335	385	465	340	360	580
Total Iron (Fe)	mg/L	0.300	**0.3**	**0.800**	**0.700**	**180**	**1.7**	**8.9**	**150**	**3.1**	**12.0**	**7.4**
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	1.0	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Total Lead (Pb)	mg/L	0.005	<0.0005	0.0005	<0.0005	**0.066**	0.0007	**0.009**	**0.063**	0.002	**0.009**	0.0031
Total Magnesium (Mg)	mg/L		18	14	26	120	26	32	110	19.0	21	46
Total Nickel (Ni)	mg/L	0.025	0.001	0.002	0.003	**0.260**	0.005	0.015	0.240	0.0	0.019	0.012
Total Phosphorus	mg/L	0.02*	**0.10**	**0.09**	**0.05**	**2.80**	**0.07**	**0.29**	**2.90**	**0.11**	**0.53**	**0.16**
Total Potassium (K)	mg/L		3.5	6.9	4.2	44.0	5.2	8.4	18.0	4.9	15	8.6
Total Sodium (Na)	mg/L		6.2	8.9	13.0	13.0	15.0	17.0	16.0	15.0	12	23
Total Suspended Solids	mg/L		6	20	18	3200	30	270	6000	150	230	220
Total Un-ionized Ammonia	mg/L	0.02	<0.00073	<0.00061	<0.0079	0.016	<0.013	<0.0052	0.007	<0.0034	<0.00061	<0.00076
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	<0.01	**0.40**	<0.01	**0.09**	**0.38**	0.02	**0.09**	0.02
Ion Percentage	%		1.7	1.4	0.1	38.7	2.1	7.2	32.5	0.2	6.8	2.9

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" Denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1									
Date			26-Mar-21	9-Apr-21	3-Jun-21	9-Jul-21	30-Jul-21	4-Oct-21	15-Oct-21	17-Feb-22	4-May-22	16-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Routine/Verification Event			Routine	Verification	Routine	Routine	Verification	Routine	Verification	Routine	Routine	Verification
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	65	200	110	87	75	70	110	90	160	110
Conductivity	umho/cm		640	800	860	730	590	670	700	312	730	810
Dissolved Chloride (Cl)	mg/L		22	46	35	40	31	20	34	19	29	30
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		230	150	310	220	180	250	200	58	180	340
Nitrate (N)	mg/L		0.86	<0.10	<0.010	<0.10	0.21	0.44	0.45	0.58	0.45	0.46
Nitrite (N)	mg/L		<0.010	<0.010	0.24	0.012	0.02	0.026	0.023	0.045	0.012	0.035
pH	(pH units)	6.5-8.5	8.0	8.1	8.0	8.1	7.9	7.8	7.9	8.0	8.3	7.4
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	1.17	<0.15	0.26
Total Arsenic (As)	mg/L	0.100*	**0.28**	0.002	0.001	0.003	0.003	<0.001	0.002	0.007	0.002	0.007
Total Barium (Ba)	mg/L		3.0	0.047	0.043	0.030	0.024	0.023	0.031	0.083	0.04	0.1
Total BOD	mg/L		3	5	<2	<2	2.0	<2	2	3	<2	3
Total Boron (B)	mg/L	0.200	**0.7**	**0.25**	0.1	**0.26**	**0.26**	**0.22**	**0.47**	0.08	**0.36**	0.19
Total Cadmium (Cd)	mg/L	0.0002	**0.004**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		2900	90	110	63	50	64	72	75	80	140
Total Chemical Oxygen Demand (COD)	mg/L		<4.0	46	8.1	26	28	10	29	27	23	29
Total Chromium (Cr)	mg/L	0.0089	**1.1**	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	**0.026**	<0.005	**0.019**
Total Copper (Cu)	mg/L	0.005	**0.88**	**0.009**	0.005	0.003	0.002	0.002	0.005	**0.023**	0.005	**0.02**
Total Dissolved Solids	mg/L		390	530	645	485	385	420	360	230	370	695
Total Iron (Fe)	mg/L	0.300	**1200**	**3.5**	**3**	1	<0.1	0.2	**2.1**	**26**	**4.4**	**21**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.8	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	2.0	<0.7	<0.7
Total Lead (Pb)	mg/L	0.005	**0.42**	0.0018	0.0012	<0.0005	<0.0005	<0.0005	0.0009	**0.011**	0.0017	**0.0077**
Total Magnesium (Mg)	mg/L		650	31	35	35	29	31	33	23	34	52
Total Nickel (Ni)	mg/L	0.025	**1.6**	0.008	0.006	0.005	0.003	0.002	0.006	**0.039**	0.009	**0.032**
Total Phosphorus	mg/L	0.02*	**16**	**0.12**	**0.05**	**0.04**	**0.07**	**0.04**	**0.08**	**0.48**	**0.088**	**0.30**
Total Potassium (K)	mg/L		110	5.7	4.9	3.4	4.0	4.7	7.6	9.6	5.1	8
Total Sodium (Na)	mg/L		27	30	27	31	24	21	30	11	26	28
Total Suspended Solids	mg/L		32000	74	73	35	39	16	49	660	95	1200
Total Un-ionized Ammonia	mg/L	0.02	<0.00089	<0.0016	<0.0023	<0.0025	<0.0061	<0.0019	<0.0084	0.0089	<0.0047	0.0028
Total Zinc (Zn)	mg/L	0.020	**2.7**	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.07	0.01	0.05
Ion Percentage	%		47.5	0.1	0.1	0.1	0.6	1.6	1.5	15.1	0.8	5.6

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" Denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60 m East of Lambton Rd. 79 - SS1										
Date			**4-Aug-22**	**18-Oct-22**	**28-Nov-22**								
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**								
Routine/Verification Event			**Routine**	**Routine**	**Verification**								
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	110	55	110								
Conductivity	umho/cm		922	700	1500								
Dissolved Chloride (Cl)	mg/L		18	23	29								
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010								
Dissolved Sulphate (SO_4)	mg/L		390	290	660								
Nitrate (N)	mg/L		1.07	0.41	2.06								
Nitrite (N)	mg/L		0.043	0.037	0.022								
pH	(pH units)	6.5-8.5	8.1	7.9	7.9								
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010								
Total Ammonia-N	mg/L		<0.15	0.47	<0.15								
Total Arsenic (As)	mg/L	0.100*	0.002	0.016	0.001								
Total Barium (Ba)	mg/L		0.038	0.19	0.043								
Total BOD	mg/L		<2	5	2								
Total Boron (B)	mg/L	0.200	0.11	0.13	0.08								
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	**0.0003**	<0.0001								
Total Calcium (Ca)	mg/L		140	270	160								
Total Chemical Oxygen Demand (COD)	mg/L		11	16	19								
Total Chromium (Cr)	mg/L	0.0089	<0.005	0.062	<0.005								
Total Copper (Cu)	mg/L	0.005	**0.007**	**0.053**	**0.006**								
Total Dissolved Solids	mg/L		715	390	1020								
Total Iron (Fe)	mg/L	0.300	3.1	64	3.0								
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7								
Total Lead (Pb)	mg/L	0.005	0.0012	**0.026**	0.0010								
Total Magnesium (Mg)	mg/L		51	61	85								
Total Nickel (Ni)	mg/L	0.025	0.006	0.092	0.005								
Total Phosphorus	mg/L	0.02*	**0.054**	**0.94**	**0.048**								
Total Potassium (K)	mg/L		5	12	8.6								
Total Sodium (Na)	mg/L		26	15	39								
Total Suspended Solids	mg/L		98	1400	70								
Total Un-ionized Ammonia	mg/L	0.02	<0.0074	0.017	<0.00051								
Total Zinc (Zn)	mg/L	0.020	0.01	**0.17**	<0.01								
Ion Percentage	%		3.4	21.7	0.0								

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" Denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow Into East Ditch Line (Background Surface Water Quality) - SS10									
Date			9-Apr-02	29-Apr-02	4-Apr-03	13-Jun-03	15-Oct-03	3-Nov-03	30-Dec-03	3-May-04	31-Jul-04	1-Dec-04
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	52	128	33	105	83	74	40	76	86	41
Dissolved Chloride (Cl)	mg/L		4	6	3	1	8	6	2	5	5	3
Dissolved Sulphate (SO_4)	mg/L		25	62	33	51	51	42	14	47	59	14
Nitrate (N)	mg/L		3.85	1.53	4.47	0.11	23.50	13.80	2.75	5.84	15.40	5.55
Phenols-4AAP	mg/L	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Ammonia-N	mg/L		0.12	0.26	0.06	0.07	<0.02	0.03	0.02	0.16	0.11	0.02
Total Boron (B)	mg/L	0.200	<0.05	0.08	<0.05	0.12	0.19	0.17	0.08	0.15	**0.39**	0.06
Total Calcium (Ca)	mg/L		24	49	22	32	84	46	17	38	60	29
Total Chromium (Cr)	mg/L	0.0089	<0.01	<0.01	<0.005	<0.005	0.004	0.002	0.003	<0.005	<0.001	0.002
Total Iron (Fe)	mg/L	0.300	**1.51**	**0.94**	**0.79**	**0.74**	**1.53**	**1.05**	**1.07**	**0.81**	**0.48**	**0.88**
Total Magnesium (Mg)	mg/L		5	15	6	7	13	8	4	7	10	5
Total Nickel (Ni)	mg/L	0.025	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Potassium (K)	mg/L		1	5	2	3	5	2	1	2	3	2
Total Sodium (Na)	mg/L		9	8	3	<2	6	3	2	3	4	4
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	0.010	<0.01	<0.005	<0.005	0.010	<0.01	<0.01	<0.01	<0.01	0.020
Ion Percentage	%		7.9	4.1	7.6	4.8	18.3	8.4	6.6	3.1	9.6	16.8

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow Into East Ditch Line (Background Surface Water Quality) - SS10									
Date			2-Apr-05	9-Nov-05	18-Jan-06	9-Mar-06	5-Oct-06	17-Nov-06	2-Mar-07	9-Jan-08	19-Mar-08	11-Apr-08
Laboratory			Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Accutest	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	55	57	41	34	124	68	31	203	34	97
Conductivity	umho/cm										89	
Dissolved Chloride (Cl)	mg/L		3	24	4	3	40	9	5	24	4	4
Dissolved Sulphate (SO_4)	mg/L		11	23	13	8	41	16	9	203	10	11
Nitrate (N)	mg/L		0.45	10.50	0.58	1.14	45.60	1.34	2.24	0.50	0.40	<0.1
Nitrite (N)	mg/L										<0.01	<0.01
pH	(pH units)	6.5-8.5									7.6	7.0
Phenols-4AAP	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Ammonia-N	mg/L		0.09	0.15	0.04	0.17	0.08	0.02	0.22		0.08	0.06
Total Arsenic (As)	mg/L	0.100*									<0.001	
Total Barium (Ba)	mg/L			0.080	0.020	0.020	0.360	0.030	0.010	0.083	0.023	
Total Boron (B)	mg/L	0.200	0.070	0.160	0.050	0.030	**0.210**	0.090	0.030	**0.480**	0.040	0.120
Total Cadmium (Cd)	mg/L	0.0002		<0.001	<0.0001	<0.0001	**0.0014**	<0.0001	<0.0001	<0.0001	<0.0001	
Total Calcium (Ca)	mg/L		22	52	15	14	120	27	16	110	13	36
Total Chromium (Cr)	mg/L	0.0089	0.0010	**0.0170**	0.0010	<0.001	0.0050	<0.001	<0.001	**0.0110**	<0.005	0.0080
Total Copper (Cu)	mg/L	0.005		**0.009**	0.002	0.002	**0.014**	0.003	0.002	**0.006**	0.002	
Total Dissolved Solids	mg/L										59	151
Total Iron (Fe)	mg/L	0.300	**0.700**	**12.400**	**0.540**	**0.530**	**3.040**	**0.360**	0.250	**4.400**	**2.100**	**3.900**
Total Kjeldahl Nitrogen (TKN)	mg/L										0.8	1.1
Total Lead (Pb)	mg/L	0.005		<0.01	<0.001	0.001	**0.012**	0.002	<0.001	0.002	0.001	
Total Magnesium (Mg)	mg/L		5.0	8.0	3.0	2.0	20.0	6.0	3.0	33.0	3.3	8.5
Total Nickel (Ni)	mg/L	0.025	<0.005	0.015	<0.005	<0.005	**0.028**	<0.005	<0.005	0.008	0.003	0.005
Total Phosphorus	mg/L	0.02*									<0.06	**0.15**
Total Potassium (K)	mg/L		1.0	4.0	2.0	3.0	5.0	3.0	2.0	6.0	2.3	5.7
Total Sodium (Na)	mg/L		2.0	<2	<2	<2	11.0	3.0	3.0	20.0	0.9	2.3
Total Suspended Solids	mg/L											
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	<0.01	**0.04**	<0.01	<0.01	**0.04**	<0.01	0.02	0.02	<0.01	0.01
Ion Percentage	%		7.6	12.2	1.2	5.3	16.3	3.9	8.0	0.7	4.2	8.7

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow Into East Ditch Line (Background Surface Water Quality) - SS10									
Date			14-Jun-08	23-Jul-08	4-Nov-08	12-Feb-09	6-Apr-09	9-Aug-09	3-Dec-09	25-Jan-10	6-Apr-10	17-Nov-10
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	90	31	157	38	52	82	94	27	62	64
Conductivity	umho/cm		194	89	410	110	147	625	202	65	400	541
Dissolved Chloride (Cl)	mg/L		2	4	21	5	5	23	2	1	1	46
Dissolved Mercury (Hg)	mg/L	0.0002	<0.0002				<0.0001				<0.0001	
Dissolved Sulphate (SO_4)	mg/L		3	2	21	12	7	220	10	3	9	27
Nitrate (N)	mg/L		0.1	0.4	0.9	1.2	3.0	0.6	0.3	0.5	29.0	24.0
Nitrite (N)	mg/L		<0.01	0.02	1.3	0.05	0.04	0.04	0.03	0.02	0.40	0.06
pH	(pH units)	6.5-8.5	8.0	7.5	7.8	7.3	7.1	7.3	7.8	7.2	7.7	7.6
Phenols-4AAP	mg/L	0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001
Total Ammonia-N	mg/L		<0.15	0.17	0.21	<0.15	<0.15	<0.15	<0.15	0.18	18.40	0.17
Total Arsenic (As)	mg/L	0.100*	0.001		0.007		0.005				0.010	
Total Barium (Ba)	mg/L		0.017		0.130		0.085				0.220	
Total BOD	mg/L		4				<2				<2	
Total Boron (B)	mg/L	0.200	0.150	0.060	0.130	0.050	0.060	0.090	0.090	0.030	0.070	0.150
Total Cadmium (Cd)	mg/L	0.0002	**0.0003**		0.0002		0.0001				0.0004	
Total Calcium (Ca)	mg/L		29.0	9.8	67.0	17.0	25.0	70.0	34.0	8.3	41.0	75.0
Total Chemical Oxygen Demand (COD)	mg/L		48		62		37				110.000	
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	**0.0250**	**0.0200**	**0.0200**	<0.005	**0.0260**	<0.005	**0.0560**	**0.0410**
Total Copper (Cu)	mg/L	0.005	0.004		**0.019**		**0.012**				0.029	
Total Dissolved Solids	mg/L		134	60	270	68	90		130	43	260	348
Total Iron (Fe)	mg/L	0.300	**1.700**	**1.600**	**27.000**	**19.000**	**20.000**	**3.900**	**26.000**	**3.000**	**55.000**	**20.000**
Total Kjeldahl Nitrogen (TKN)	mg/L		<4	1.9	5	2	<4	1	4	1.7	33	4
Total Lead (Pb)	mg/L	0.005	0.0008		**0.008**		**0.007**				0.024	
Total Magnesium (Mg)	mg/L		5.8	2.5	15.0	6.4	8.9	25.0	11.0	2.3	18.0	17.0
Total Nickel (Ni)	mg/L	0.025	0.003	0.002	**0.029**	0.021	0.024	0.007	**0.030**	0.004	**0.067**	0.021
Total Phosphorus	mg/L	0.02*	**<0.15**	**0.34**	**1.20**	**0.28**	**0.35**	**0.07**	**0.64**	**0.16**	**1.60**	**0.50**
Total Potassium (K)	mg/L		3.7	7.7	9.8	5.2	4.9	4.6	7.4	3.7	9.2	17
Total Sodium (Na)	mg/L		2.0	0.8	3.3	1.2	1.5	13	1.6	0.6	1.7	3.7
Total Suspended Solids	mg/L		18		270		240	410			980	
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.06**	<0.02
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	**0.07**	**0.04**	**0.06**	0.01	**0.06**	<0.01	**0.15**	**0.05**
Ion Percentage	%		2.7	5.7	4.9	8.5	13.4	2.7	8.1	4.1	24.8	16.0

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow Into East Ditch Line (Background Surface Water Quality) - SS10									
Date			28-Feb-11	20-Apr-11	20-Oct-11	30-Oct-12	13-Jan-13	10-Apr-13	5-Jul-13	7-Oct-13	11-Jan-14	8-Apr-14
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event											Routine	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	50	78	88	69	45	40	70	78	22	69
Conductivity	umho/cm		164	197	190	230	120	110	350	190	62.0	170
Dissolved Chloride (Cl)	mg/L		4	9	3	11	9	2	4	4	2	6
Dissolved Mercury (Hg)	mg/L	0.0002		<0.0001				<0.00010				<0.00010
Dissolved Sulphate (SO_4)	mg/L		10	8	6	13	12	2	82	9	1	9
Nitrate (N)	mg/L		3.6	2.4	<0.1	6.1	<0.10	0.74	2.2	<0.10	0.55	<0.10
Nitrite (N)	mg/L		0.020	0.020	<0.01	<0.010	<0.010	0.035	0.051	<0.010	0.016	<0.010
pH	(pH units)	6.5-8.5	7.5	7.8	7.8	6.9	7.3	7.3	7.6	7.7	7.9	8.2
Phenols-4AAP	mg/L	0.001	<0.001	<0.001	**0.006**	<0.0010	<0.0010	<0.0010	<0.0010	**0.003**	<0.0010	**0.007**
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	0.25	<0.15	<0.15	<0.15	0.15	0.61	<0.15
Total Arsenic (As)	mg/L	0.100*		0.006				0.002				0.001
Total Barium (Ba)	mg/L			0.120				0.046				0.013
Total BOD	mg/L			<2				<2.0				3.0
Total Boron (B)	mg/L	0.200	0.050	0.100	0.090	0.180	0.060	0.070	0.130	0.090	<0.02	0.070
Total Cadmium (Cd)	mg/L	0.0002		0.0002				<0.0001				<0.0001
Total Calcium (Ca)	mg/L		25.0	35.0	35.0	32.0	19.0	18.0	49.0	28.0	5.4	25.0
Total Chemical Oxygen Demand (COD)	mg/L			55				44				48
Total Chromium (Cr)	mg/L	0.0089	0.005	**0.024**	**0.020**	**0.067**	**0.012**	0.008	<0.005	**0.013**	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005		**0.039**				**0.007**				0.0029
Total Dissolved Solids	mg/L		98	110	122	604	194	288	258	216	26.0	192
Total Iron (Fe)	mg/L	0.300	**5.500**	**23.000**	**20.000**	**26.000**	**11.000**	**8.800**	**3.800**	**6.900**	0.320	**1.400**
Total Kjeldahl Nitrogen (TKN)	mg/L		2.0	2.7	3.0	2.7	1.8	2.1	1.5	2.2	1.6	1.6
Total Lead (Pb)	mg/L	0.005		**0.009**				0.004				0.001
Total Magnesium (Mg)	mg/L		5.7	11.0	10.0	10.0	5.8	5.1	12.0	7.3	1.6	5.0
Total Nickel (Ni)	mg/L	0.025	0.007	**0.027**	0.025	**0.048**	0.014	0.011	0.006	0.008	<0.001	0.002
Total Phosphorus	mg/L	0.02*	**0.23**	**0.53**	**0.50**	**0.85**	**0.27**	**0.27**	**0.12**	**0.36**	**0.36**	**0.14**
Total Potassium (K)	mg/L		3.2	6.6	7.0	12.0	4.9	4.3	5.2	9.7	4.8	4.7
Total Sodium (Na)	mg/L		2.0	1.9	1.3	1.7	1.1	1.3	5.1	1.2	0.5	1.5
Total Suspended Solids	mg/L			240				55				28
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0089	0.0021	0.0064	<0.0021
Total Zinc (Zn)	mg/L	0.020	0.02	**0.06**	**0.05**	**0.10**	**0.03**	0.02	0.01	0.02	<0.01	<0.01
Ion Percentage	%		9.7	10.5	9.9	10.1	3.7	13.9	4.2	6.2	1.8	1.7

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow Into East Ditch Line (Background Surface Water Quality) - SS10									
Date			**30-Apr-14**	**7-Jul-14**	**15-Oct-14**	**24-Nov-14**	**4-Jan-15**	**10-Apr-15**	**25-Oct-15**	**7-Apr-16**	**12-Jan-17**	**6-Apr-17**
Laboratory			**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**
Routine/Verification Event			**Verification**	**Routine**	**Routine**	**Verification**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	66	64	79	43	30	51	79	49	120	160
Conductivity	umho/cm		150	400	250	120	98	130	560	110	360	340
Dissolved Chloride (Cl)	mg/L		3	6	8	3	4	4	30	1.2	13	3.7
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010					<0.00010		<0.00010		<0.00010
Dissolved Sulphate (SO_4)	mg/L		1	120	34	11	12	15	150	1	35	19
Nitrate (N)	mg/L		<0.10	1.33	<0.10	<0.10	<0.10	<0.10	0.59	<0.10	0.48	<0.10
Nitrite (N)	mg/L		<0.010	0.109	0.016	<0.010	0.029	0.011	0.049	<0.010	0.021	<0.010
pH	(pH units)	6.5-8.5	7.7	7.8	7.7	7.3	8.2	6.7	7.8	7.1	7.9	8.1
Phenols-4AAP	mg/L	0.001	**0.002**	**0.002**	<0.001	<0.001	**0.005**	**0.002**	<0.0010	<0.0010	<0.0040	<0.0040
Total Ammonia-N	mg/L		<0.15	2.31	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.25	<0.15
Total Arsenic (As)	mg/L	0.100*	<0.001					<0.001		0.001		
Total Barium (Ba)	mg/L		0.02					0.015		0.027		
Total BOD	mg/L		3.0					<2.0		<2.0		<2.0
Total Boron (B)	mg/L	0.200	0.060	**0.300**	0.070	0.060	0.030	0.060	0.100	0.040	0.040	0.040
Total Cadmium (Cd)	mg/L	0.0002	<0.0001					<0.0001		<0.0001		
Total Calcium (Ca)	mg/L		24	63	39	17	14	20	63	17	45	61
Total Chemical Oxygen Demand (COD)	mg/L		55					40		44		34
Total Chromium (Cr)	mg/L	0.0089	<0.005	**0.016**	**0.011**	**0.012**	<0.005	<0.005	<0.005	0.007	0.005	0.008
Total Copper (Cu)	mg/L	0.005	0.003					0.003		0.004		
Total Dissolved Solids	mg/L		142	524	288	296	96	128	382	156	194	222
Total Iron (Fe)	mg/L	0.300	**1.500**	**15.000**	**10.000**	**12.000**	**1.300**	**2.000**	**1.500**	**4.900**	**3.600**	**6.700**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.60	3.10	4.10	2.20	0.75	0.57	0.60	0.41	0.90	<0.7
Total Lead (Pb)	mg/L	0.005	0.001					0.001		0.002		
Total Magnesium (Mg)	mg/L		5.0	15.0	11.0	5.7	2.8	4.7	15.0	4.5	12.0	15.0
Total Nickel (Ni)	mg/L	0.025	0.003	0.020	0.014	0.014	0.002	0.003	0.004	0.007	0.005	0.010
Total Phosphorus	mg/L	0.02*	**0.12**	**0.33**	**0.91**	**0.37**	**0.18**	**0.12**	**0.066**	**0.15**	**0.32**	**0.16**
Total Potassium (K)	mg/L		4.2	6.3	15.0	7.1	4.9	3.2	11.0	3.2	12.0	4.7
Total Sodium (Na)	mg/L		1.4	7.2	1.5	0.9	0.6	1.5	16.0	1.1	4.1	4.0
Total Suspended Solids	mg/L		19					13		16		160
Total Un-ionized Ammonia	mg/L	0.02	<0.00074	**0.12**	<0.0036	*<0.024*	<0.0021	<0.0096	<0.0028	<0.0005	0.0007	<0.00051
Total Zinc (Zn)	mg/L	0.020	<0.01	**0.04**	**0.03**	**0.03**	<0.01	<0.01	0.01	0.01	0.02	0.02
Ion Percentage	%		6.3	5.3	7.7	7.7	3.3	1.6	1.0	7.5	1.8	5.8

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow Into East Ditch Line (Background Surface Water Quality) - SS10									
Date			13-Jul-17	28-Oct-17	23-Jan-18	4-Apr-18	8-Aug-18	2-Oct-18	24-Jan-19	17-Apr-19	2-Oct-19	11-Jan-20
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Bureau Veritas	Bureau Veritas
Routine/Verification Event			Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	48	71	42	150	64	190	50	200	80	55
Conductivity	umho/cm		370	470	130	300	1200	650	140	720	390	114
Dissolved Chloride (Cl)	mg/L		4.6	8.8	5.5	3.0	25.0	26.0	3.8	22.0	10.0	1.6
Dissolved Mercury (Hg)	mg/L	0.0002				<0.00010				<0.00010		
Dissolved Sulphate (SO_4)	mg/L		80.0	130.0	15.0	8.9	67.0	120.0	7.3	160.0	72.0	1.2
Nitrate (N)	mg/L		12.90	3.78	0.89	<0.10	102.00	2.33	0.47	<0.10	6.03	0.17
Nitrite (N)	mg/L		0.017	0.015	0.011	<0.010	3.980	0.014	0.014	0.013	0.024	0.084
pH	(pH units)	6.5-8.5	7.7	8.0	7.4	8.0	7.4	8.2	7.4	8.5	7.9	**8.7**
Phenols-4AAP	mg/L	0.001	*<0.0080*	*<0.0010*	**0.003**	*<0.0010*	*<0.0010*	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		<0.15	<0.050	0.050	0.056	0.094	<0.050	0.190	<0.050	0.100	0.084
Total Arsenic (As)	mg/L	0.100*				0.003				<0.001		
Total Barium (Ba)	mg/L					0.048				0.028		
Total BOD	mg/L					<2				<2		
Total Boron (B)	mg/L	0.200	0.080	0.050	0.040	0.020	0.140	**0.290**	<0.02	**0.240**	0.090	0.070
Total Cadmium (Cd)	mg/L	0.0002				<0.0001				<0.0001		
Total Calcium (Ca)	mg/L		69	71	19	54	170	87	15	95	60	39
Total Chemical Oxygen Demand (COD)	mg/L					18				81		
Total Chromium (Cr)	mg/L	0.0089	**0.0320**	**0.0060**	**0.0090**	**0.0090**	<0.005	<0.005	<0.005	<0.005	0.0050	**0.08**
Total Copper (Cu)	mg/L	0.005				**0.007**				0.003		
Total Dissolved Solids	mg/L		294	420	140	135	1010	450	115	460	275	630
Total Iron (Fe)	mg/L	0.300	**32.000**	**3.400**	**7.800**	**8.900**	**3.100**	**3.800**	**0.600**	**0.900**	**4.800**	**79**
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.8	<0.7	<0.7	<5	0.7	0.8	<0.7	0.9	<0.7
Total Lead (Pb)	mg/L	0.005				0.003				<0.0005		
Total Magnesium (Mg)	mg/L		18	14	5.2	13	29	27	3.6	33	11	21
Total Nickel (Ni)	mg/L	0.025	**0.042**	0.005	0.010	0.012	0.006	0.007	0.001	0.003	0.007	**0.097**
Total Phosphorus	mg/L	0.02*	**0.51**	**0.10**	**0.19**	**0.27**	**0.13**	**0.16**	**0.14**	**0.05**	**0.20**	**1.40**
Total Potassium (K)	mg/L		5.6	2.8	3.2	4.6	5.0	7.0	5.0	4.5	2.8	11.0
Total Sodium (Na)	mg/L		3.2	3.6	1.2	3.9	14.0	15.0	1.1	15.0	4.1	1.1
Total Suspended Solids	mg/L					310				14		
Total Un-ionized Ammonia	mg/L	0.02	<0.013	*<0.00066*	0.0038	<0.0005	0.0013	<0.00061	<0.00061	<0.0008	0.0056	0.0056
Total Zinc (Zn)	mg/L	0.020	**0.070**	*<0.01*	0.020	**0.030**	<0.01	0.010	<0.01	<0.01	0.010	**0.2**
Ion Percentage	%		16.0	3.0	4.0	5.9	28.1	1.3	0.8	0.8	5.3	30.4

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" Denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow Into East Ditch Line (Background Surface Water Quality) - SS10									
Date			18-May-20	15-Nov-20	26-Mar-21	9-Jul-21	4-May-22					
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas					
Routine/Verification Event			Routine	Routine	Routine	Routine	Routine					
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	84	96	65	160	96					
Conductivity	umho/cm		190	420	290	740	200					
Dissolved Chloride (Cl)	mg/L		2.1	29	8.9	16	2.5					
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010				<0.00010					
Dissolved Sulphate (SO_4)	mg/L		*0.5*	29	41	180	0.5					
Nitrate (N)	mg/L		61	9.51	5.04	8.24	0.3					
Nitrite (N)	mg/L		0.012	0.078	0.046	0.03	0.016					
pH	(pH units)	6.5-8.5	7.9	7.5	7.8	8.0	8.3					
Phenols-4AAP	mg/L	0.001	<0.0010	0.001	<0.0010	<0.0010	<0.0010					
Total Ammonia-N	mg/L		0.13	0.53	0.097	<0.15	<0.15					
Total Arsenic (As)	mg/L	0.100*	0.002				0.003					
Total Barium (Ba)	mg/L		0.03				0.048					
Total BOD	mg/L		4				<2					
Total Boron (B)	mg/L	0.200	0.06	0.06	0.07	0.14	0.07					
Total Cadmium (Cd)	mg/L	0.0002	<0.0001				0.0001					
Total Calcium (Ca)	mg/L		29	51	42	110	33.0					
Total Chemical Oxygen Demand (COD)	mg/L		38				42					
Total Chromium (Cr)	mg/L	0.0089	0.006	0.007	**0.019**	0.008	**0.010**					
Total Copper (Cu)	mg/L	0.005	0.005				**0.007**					
Total Dissolved Solids	mg/L		185	300	160	535	140.0					
Total Iron (Fe)	mg/L	0.300	**5.0**	**5.7**	**17**	**5.5**	**9.7**					
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	1.6	<0.7	0.8	<0.7					
Total Lead (Pb)	mg/L	0.005	0.0022				0.0034					
Total Magnesium (Mg)	mg/L		6.8	13	12	25	8.3					
Total Nickel (Ni)	mg/L	0.025	0.007	0.009	0.022	0.008	0.013					
Total Phosphorus	mg/L	0.02*	**0.21**	**0.80**	**0.34**	**0.25**	**0.22**					
Total Potassium (K)	mg/L		2.9	13	4.7	3.8	3.6					
Total Sodium (Na)	mg/L		1.5	5.8	4.1	9.2	2.1					
Total Suspended Solids	mg/L		95				94					
Total Un-ionized Ammonia	mg/L	0.02	0.014	0.014	0.00082	<0.0027	<0.031					
Total Zinc (Zn)	mg/L	0.020	0.02	**0.04**	**0.04**	0.02	0.02					
Ion Percentage	%		5.7	6.3	9.0	2.1	6.4					

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" Denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow From Township Land to South (Background Surface Water Quality) - SS16									
Date			19-Mar-08	11-Apr-08	12-May-08	23-Jul-08	4-Nov-08	12-Feb-09	6-Apr-09	10-Oct-09	25-Jan-10	6-Apr-10
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	50	152	228	50	118	77	102	138	65	181
Conductivity	umho/cm		123		478	109	305	190	231	409	212	389
Dissolved Chloride (Cl)	mg/L		3	7	9	2	6	4	6	4	11	7
Dissolved Mercury (Hg)	mg/L	0.0002			<0.0002				<0.0001			<0.0001
Dissolved Sulphate (SO_4)	mg/L		12	22	15	2	35	11	14	58	21	20
Nitrate (N)	mg/L		0.3	<0.1	<0.1	<0.1	1.0	0.6	0.8	1.5	1.0	<0.1
Nitrite (N)	mg/L		<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	<0.01	0.02	0.02
pH	(pH units)	6.5-8.5	7.7	8.3	8.1	7.8	8.0	7.7	7.6	7.9	7.8	8.0
Phenols-4AAP	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Ammonia-N	mg/L		0.05	0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*			0.002		0.005		0.003			0.001
Total Barium (Ba)	mg/L				0.04		0.072		0.059			0.038
Total BOD	mg/L				<2				<2			3
Total Boron (B)	mg/L	0.200	<0.02	0.040	0.050	0.030	0.030	0.020	0.030	0.040	<0.02	0.040
Total Cadmium (Cd)	mg/L	0.0002			0.0001		0.0001		0.0001			<0.0001
Total Calcium (Ca)	mg/L		17	53	82	15	44	27	38	64	28	62
Total Chemical Oxygen Demand (COD)	mg/L				36		36		33			45
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	0.006	<0.005	**0.0140**	0.0080	**0.0130**	**0.0120**	<0.005	0.0060
Total Copper (Cu)	mg/L	0.005			0.004		**0.012**		**0.009**			0.003
Total Dissolved Solids	mg/L		84	238	290	70	200	120	142	265	135	250
Total Iron (Fe)	mg/L	0.300	**1.800**	**1.000**	**3.700**	**1.900**	**16.000**	**7.900**	**12.000**	**10.000**	**2.800**	**2.900**
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.7	1.0	1.7	2.0	1.0	<4	2.2	0.7	1.0
Total Lead (Pb)	mg/L	0.005			0.003		**0.006**		0.004			0.001
Total Magnesium (Mg)	mg/L		4.6	12.0	22.0	3.3	13.0	7.1	11.0	14.0	7.4	15.0
Total Nickel (Ni)	mg/L	0.025	0.002	0.001	0.006	0.003	0.019	0.009	0.016	0.013	0.004	0.004
Total Phosphorus	mg/L	0.02*	<0.06	**0.06**		**0.22**	**0.50**	*<0.15*	*<0.15*	**0.27**	**0.10**	**0.15**
Total Potassium (K)	mg/L		3.1	3.2	4.2	4.8	8.8	4.2	5.3	4.7	4.3	5.4
Total Sodium (Na)	mg/L		2.3	8.6	14.0	2.6	3.2	4.2	4.6	4.6	6.1	6.4
Total Suspended Solids	mg/L				40		200		150			37
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	0.010	<0.01	0.020	0.010	**0.040**	0.020	**0.030**	**0.030**	0.010	0.010
Ion Percentage	%		5.3	6.9	11.1	8.3	6.5	8.5	10.0	6.9	7.1	7.5

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow From Township Land to South (Background Surface Water Quality) - SS16									
Date			17-Nov-10	28-Feb-11	20-Apr-11	20-Oct-11	13-Mar-12	4-May-12	13-Jan-13	10-Apr-13	5-Jul-13	12-Sep-13
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	82	100	140	123	140	200	84	87	99	130
Conductivity	umho/cm		254	256	323	314	310	410	220	220	250	470
Dissolved Chloride (Cl)	mg/L		6	5	7	7	6	4	3	5	8	20
Dissolved Mercury (Hg)	mg/L	0.0002			<0.0001			<0.00010		<0.00010		
Dissolved Sulphate (SO_4)	mg/L		36	21	21	30	20	<1	23	19	31	80
Nitrate (N)	mg/L		<0.1	0.5	<0.1	<0.1	<0.10	<0.10	0.3	0.5	0.1	<0.10
Nitrite (N)	mg/L		<0.01	0.01	<0.01	<0.01	<0.010	<0.010	<0.010	0.027	<0.010	<0.010
pH	(pH units)	6.5-8.5	7.9	7.7	8.1	7.9	8.0	8.1	7.5	7.9	7.8	7.8
Phenols-4AAP	mg/L	0.001	0.001	0.001	<0.001	**0.005**	**0.002**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*			0.001			0.002		0.003		
Total Barium (Ba)	mg/L				0.028			0.055		0.054		
Total BOD	mg/L				<2			3		<2.0		
Total Boron (B)	mg/L	0.200	0.040	0.020	0.020	0.030	0.030	0.050	0.020	0.040	0.170	**0.320**
Total Cadmium (Cd)	mg/L	0.0002			<0.0001			0.0001		<0.0001		
Total Calcium (Ca)	mg/L		34	38	52	46	47	61	31	39	320	55
Total Chemical Oxygen Demand (COD)	mg/L				32			51		32		
Total Chromium (Cr)	mg/L	0.0089	**0.0140**	<0.005	<0.005	<0.005	0.0050	0.0080	0.0060	**0.0090**	**0.2000**	<0.005
Total Copper (Cu)	mg/L	0.005			0.002			0.0045		**0.010**		
Total Dissolved Solids	mg/L		168	156	192	236	248	264	238	236	264	300
Total Iron (Fe)	mg/L	0.300	**8.000**	**0.900**	**2.600**	**2.100**	**4.500**	**4.500**	**5.200**	**11.000**	**200.000**	**1.300**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.00	0.80	0.80	1.00	3.50	1.40	1.00	1.50	7.20	1.40
Total Lead (Pb)	mg/L	0.005			0.001			0.003		0.004		
Total Magnesium (Mg)	mg/L		9.1	9.0	12.0	9.9	11.0	16.0	7.5	9.2	85.0	20.0
Total Nickel (Ni)	mg/L	0.025	0.009	0.002	0.004	0.003	0.006	0.006	0.007	0.015	0.27	0.006
Total Phosphorus	mg/L	0.02*	**0.24**	**0.07**	**0.10**	**0.30**	**0.13**	**0.17**	**0.15**	*<0.3*	**3.10**	**0.17**
Total Potassium (K)	mg/L		8.6	3.4	3.2	6.1	4.4	5.6	4.3	5.3	25.0	6.9
Total Sodium (Na)	mg/L		3.8	4.0	5.8	4.4	4.6	5.1	3.1	3.5	5.0	17.0
Total Suspended Solids	mg/L				27			55		81		
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0054	<0.0037
Total Zinc (Zn)	mg/L	0.020	0.020	<0.01	0.010	0.010	0.020	0.020	0.020	**0.030**	**0.400**	<0.01
Ion Percentage	%		2.7	3.1	3.6	1.4	1.4	3.7	1.9	7.3	39.9	2.4

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow From Township Land to South (Background Surface Water Quality) - SS16									
Date			7-Oct-13	11-Jan-14	8-Apr-14	30-Apr-14	7-Jul-14	6-Sep-14	15-Oct-14	24-Nov-14	25-Dec-14	4-Jan-15
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event				Routine	Routine	Verification	Routine	Verification	Routine	Verifcation	Verification	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	160	74	120	170	100	160	140	120	170	100
Conductivity	umho/cm		490	270	280	350	590	490	610	320	400	280
Dissolved Chloride (Cl)	mg/L		5	15	5	4	20	9	5	10	7	7
Dissolved Mercury (Hg)	mg/L	0.0002			<0.00010	<0.00010						
Dissolved Sulphate (SO_4)	mg/L		78	29	22	27	170	83	160	44	32	33
Nitrate (N)	mg/L		<0.10	1.30	0.22	0.12	<0.10	<0.10	<0.10	0.15	<0.50	0.12
Nitrite (N)	mg/L		<0.010	0.035	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.059	0.041
pH	(pH units)	6.5-8.5	8.0	8.0	7.4	8.1	8.0	8.0	7.8	7.8	7.9	7.9
Phenols-4AAP	mg/L	0.001	**0.002**	0.001	**0.004**	<0.0010	0.001	<0.0010	<0.001	<0.001	<0.001	**0.008**
Total Ammonia-N	mg/L		<0.15	0.19	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*			0.001	0.002						
Total Barium (Ba)	mg/L				0.030	0.046						
Total BOD	mg/L				<2.0	<2.0						
Total Boron (B)	mg/L	0.200	0.040	0.030	0.020	0.030	0.140	0.050	0.050	0.090	0.020	0.030
Total Cadmium (Cd)	mg/L	0.0002			<0.0001	<0.0001						
Total Calcium (Ca)	mg/L		71	27	44	63	100	89	89	200	56	41
Total Chemical Oxygen Demand (COD)	mg/L				32	42						
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	0.0060	**0.0140**	<0.005	<0.005	**0.0790**	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005			0.004	**0.0053**						
Total Dissolved Solids	mg/L		320	134	284	304	410	316	442	166	354	178
Total Iron (Fe)	mg/L	0.300	**2.900**	0.300	**4.300**	**6.200**	**13.000**	**4.900**	**3.000**	**76.000**	<0.10	**1.800**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.2	1.4	1.2	1.6	1.3	0.9	1.5	3.8	1.2	0.58
Total Lead (Pb)	mg/L	0.005			0.0016	0.003						
Total Magnesium (Mg)	mg/L		19.0	8.7	11.0	14.0	22.0	19.0	27.0	49.0	14.0	11.0
Total Nickel (Ni)	mg/L	0.025	0.004	0.001	0.005	0.01	0.018	0.008	0.004	**0.110**	<0.001	0.003
Total Phosphorus	mg/L	0.02*	**0.15**	**0.25**	**0.12**	**0.18**	**0.23**	**0.24**	**0.21**	**1.20**	**0.12**	**0.12**
Total Potassium (K)	mg/L		6.5	12.0	5.4	4.6	8.1	5.1	11.0	17.0	4.8	8.1
Total Sodium (Na)	mg/L		7.1	6.1	3.5	5.1	18.0	9.0	8.3	5.0		2.6
Total Suspended Solids	mg/L				33	120						
Total Un-ionized Ammonia	mg/L	0.02	<0.0038	0.0029	<0.00072	<0.0012	<0.0038	<0.0073	<0.0061	*<0.027*	<0.0014	<0.0011
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	0.010	0.020	**0.040**	0.010	0.010	**0.180**	<0.01	0.010
Ion Percentage	%		3.1	1.3	3.3	3.5	6.1	6.0	3.9	31.1	1.3	3.4

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow From Township Land to South (Background Surface Water Quality) - SS16									
Date			10-Apr-15	1-Jun-15	25-Feb-16	7-Apr-16	12-Jan-17	6-Apr-17	13-Jul-17	19-Nov-17	23-Jan-18	4-Apr-18
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event			Routine	Verification	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	160	220	140	170	91	170	45	150	80	150
Conductivity	umho/cm		330	510	330	440	220	350	380	440	170	300
Dissolved Chloride (Cl)	mg/L		4.0	5.0	4.0	4.2	4.3	3.1	1.2	4.2	2.9	4.1
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010			<0.00010		<0.00010				<0.00010
Dissolved Sulphate (SO_4)	mg/L		27	41	33	47	19	18	120	69	1.0	17
Nitrate (N)	mg/L		<0.10	<0.10	0.15	0.38	0.27	<0.10	0.74	<0.10	<0.10	<0.10
Nitrite (N)	mg/L		<0.010	0.015	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010	0.014
pH	(pH units)	6.5-8.5	7.4	8.0	8.0	8.0	8.0	8.1	7.8	8.0	7.7	8.0
Phenols-4AAP	mg/L	0.001	**0.002**	<0.0010	<0.0010	<0.0010	<0.0040	<0.0040	<0.0040	**0.002**	**0.002**	<0.0010
Total Ammonia-N	mg/L		<0.15	0.17	<0.15	<0.15	<0.15	<0.15	<0.15	<0.050	0.066	0.058
Total Arsenic (As)	mg/L	0.100*	0.001			0.002						0.003
Total Barium (Ba)	mg/L		0.032			0.039						0.057
Total BOD	mg/L		<2.0			<2.0		<2.0				<2
Total Boron (B)	mg/L	0.200	0.040	0.050	0.030	0.120	0.060	0.040	**0.400**	0.030	<0.02	0.030
Total Cadmium (Cd)	mg/L	0.0002	<0.0001			<0.0001						<0.0001
Total Calcium (Ca)	mg/L		56	77	50	62	150	61	1300	66	24	60
Total Chemical Oxygen Demand (COD)	mg/L		26			28		36				18
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	0.0070	0.0060	0.0470	0.0070	0.5200	<0.005	<0.005	**0.0100**
Total Copper (Cu)	mg/L	0.005	0.0035			**0.006**						**0.012**
Total Dissolved Solids	mg/L		246	364	212	720	164	254	188	180	140	130
Total Iron (Fe)	mg/L	0.300	**3.100**	**1.700**	**3.300**	**5.600**	**47.000**	**6.100**	**540.000**	**3.700**	**1.000**	**9.800**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.55	0.97	0.31	0.39	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Total Lead (Pb)	mg/L	0.005	0.002			0.002						0.004
Total Magnesium (Mg)	mg/L		12.0	20.0	12.0	20.0	33.0	15.0	290.0	16.0	4.8	14.0
Total Nickel (Ni)	mg/L	0.025	0.005	0.003	0.004	0.008	**0.067**	0.009	**0.790**	0.006	0.002	0.013
Total Phosphorus	mg/L	0.02*	**0.12**	**0.09**	**0.09**	**0.15**	**1.00**	**0.20**	**13.00**	**0.11**	**0.09**	**0.19**
Total Potassium (K)	mg/L		4.2	4.5	5.0	10.0	13.0	4.6	60.0	5.1	3.8	4.7
Total Sodium (Na)	mg/L		4.5	7.5	4.4	6.7	2.0	4.1	8.0	4.9	1.4	3.8
Total Suspended Solids	mg/L		45			94		140				2100
Total Un-ionized Ammonia	mg/L	0.02	<0.0013	0.0058	<0.0017	<0.0005	<0.0005	<0.0012	<0.015	<0.0005	0.0019	<0.0005
Total Zinc (Zn)	mg/L	0.020	0.010	<0.01	0.010	0.010	0.110	0.020	**1.200**	0.010	<0.01	**0.030**
Ion Percentage	%		1.4	2.5	1.5	4.4	33.8	4.7	47.2	2.2	0.9	6.7

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Off-Site Flow From Township Land to South (Background Surface Water Quality) - SS16									
Date			24-Jan-19	17-Apr-19	2-Oct-19	11-Jan-20	18-May-20	26-Mar-21	17-Feb-22	4-May-22		
Laboratory			Maxxam	Maxxam	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas		
Routine/Verification Event			Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine		
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	96	200	91	74	170	120	40	190		
Conductivity	umho/cm		290	400	620	221	190	290	224	370		
Dissolved Chloride (Cl)	mg/L		9.2	3.9	2.1	2.7	3.4	7.0	3.0	3.3		
Dissolved Mercury (Hg)	mg/L	0.0002		<0.00010			<0.00010			<0.00010		
Dissolved Sulphate (SO_4)	mg/L		34	10	220	30	1.9	29	*0.5*	9.4		
Nitrate (N)	mg/L		0.53	<0.10	0.30	0.15	0.23	0.21	0.29	<0.10		
Nitrite (N)	mg/L		0.021	<0.010	0.014	0.026	<0.010	<0.010	0.012	<0.010		
pH	(pH units)	6.5-8.5	7.7	8.2	7.9	8.4	7.9	7.8	7.6	8.2		
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Total Ammonia-N	mg/L		0.300	<0.050	0.210	<0.050	<0.050	0.078	0.16	<0.15		
Total Arsenic (As)	mg/L	0.100*		<0.001			0.002			0.001		
Total Barium (Ba)	mg/L			0.028			0.031			0.027		
Total BOD	mg/L			<2			4			<2		
Total Boron (B)	mg/L	0.200	0.02	0.03	0.05	0.03	0.06	0.03	<0.02	0.04		
Total Cadmium (Cd)	mg/L	0.0002		<0.0001			<0.0001			<0.0001		
Total Calcium (Ca)	mg/L		36	64	97	32	49	45	13	56		
Total Chemical Oxygen Demand (COD)	mg/L			25			39			31		
Total Chromium (Cr)	mg/L	0.0089	**0.0090**	<0.005	0.0060	0.006	<0.005	<0.005	<0.005	<0.005		
Total Copper (Cu)	mg/L	0.005		0.003			0.005			0.003		
Total Dissolved Solids	mg/L		255	240	425	190	200	195	50	190		
Total Iron (Fe)	mg/L	0.300	**7.0**	**1.5**	**5.8**	**5.3**	**5.0**	**2.9**	**0.5**	**2.7**		
Total Kjeldahl Nitrogen (TKN)	mg/L		0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7		
Total Lead (Pb)	mg/L	0.005		0.001			0.0022			0.0012		
Total Magnesium (Mg)	mg/L		10	14	25	8	12	10	2.4	12		
Total Nickel (Ni)	mg/L	0.025	0.011	0.003	0.009	0.008	0.007	0.004	0.001	0.005		
Total Phosphorus	mg/L	0.02*	**0.22**	**0.07**	**0.22**	**0.20**	**0.21**	**0.15**	**0.10**	**0.08**		
Total Potassium (K)	mg/L		8.6	3.1	6.0	6.7	3.3	4.6	3.3	3.4		
Total Sodium (Na)	mg/L		4.5	4.2	7.3	1.6	2.4	3.4	1.1	3.1		
Total Suspended Solids	mg/L			21			95			40		
Total Un-ionized Ammonia	mg/L	0.02	<0.00061	<0.0018	0.0062	<0.0023	0.014	<0.00061	<0.00061	<0.0026		
Total Zinc (Zn)	mg/L	0.020	0.02	<0.01	0.02	0.02	0.01	0.01	<0.01	<0.01		
Ion Percentage	%		1.4	1.8	3.3	4.0	0.7	1.1	2.6	0.6		

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1									
Date			23-Nov-11	6-Dec-11	10-Jan-12	13-Mar-12	27-Mar-12	22-Jun-12	15-Aug-12	14-Oct-12	13-Jan-13	10-Apr-13
Laboratory			Maxxam	Maxxam	Lambton Sci	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	106	116		120	110	50	57	140	80	96
Conductivity	umho/cm		408	396		470	460	360	350	530	380	420
Dissolved Chloride (Cl)	mg/L		16	11	11	14	13	11	11	11	10	13
Dissolved Mercury (Hg)	mg/L	0.0002	<0.0001	<0.0001		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		71	61		110	110	120	99	110	85	85
Nitrate (N)	mg/L		0.80	0.30		0.75	<0.10	<0.10	<0.10	<0.10	0.91	0.78
Nitrite (N)	mg/L		0.02	<0.01		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.032
pH	(pH units)	6.5-8.5	8.0	8.0		8.0	8.4	**9.2**	**9.2**	7.7	7.6	7.9
Phenols-4AAP	mg/L	0.001	<0.001	**0.004**		**0.002**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		<0.15	<0.15		<0.15	<0.15	<0.15	0.21	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.004	0.004		0.003	0.001	0.003	0.003	0.004	0.001	0.003
Total Barium (Ba)	mg/L		0.069	0.130		0.066	0.034	0.024	0.013	0.038	0.033	0.063
Total BOD	mg/L		4.00	<2		4.00	4.00	<2.0	<2.0	3.00	<2.0	<2.0
Total Boron (B)	mg/L	0.200	0.170	**0.220**	0.160	**0.210**	**0.240**	0.190	**0.210**	0.190	0.120	0.200
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001		0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		61	52		63	52	35	28	52	46	57
Total Chemical Oxygen Demand (COD)	mg/L		33	27		27	32	34	25	35	20	37
Total Chromium (Cr)	mg/L	0.0089	**0.0130**	**0.0270**	<0.005	**0.0110**	<0.005	<0.005	<0.005	<0.005	0.0060	**0.0110**
Total Copper (Cu)	mg/L	0.005	**0.010**	**0.009**		**0.008**	0.003	0.003	0.002	<0.002	0.004	**0.010**
Total Dissolved Solids	mg/L		262	296		328	294	248	262	334	316	344
Total Iron (Fe)	mg/L	0.300	**13.000**	**14.000**		**11.000**	**1.300**	**1.200**	**1.300**	**2.700**	**4.400**	**12.000**
Total Kjeldahl Nitrogen (TKN)	mg/L		2.00	2.00		1.70	1.10	0.93	0.59	1.30	1.20	2.00
Total Lead (Pb)	mg/L	0.005	0.005	0.005		0.005	0.001	0.001	0.001	0.001	0.002	0.005
Total Magnesium (Mg)	mg/L		17	17		20	20	18	21	25	15	17
Total Nickel (Ni)	mg/L	0.025	0.017	0.016	<0.01	0.014	0.003	0.003	0.003	0.006	0.006	0.017
Total Phosphorus	mg/L	0.02*	**0.40**	**0.30**		**0.25**	**0.08**	**0.05**	**0.06**	**0.10**	**0.13**	**0.25**
Total Potassium (K)	mg/L		8.2	11.0		5.1	3.9	1.7	3.5	3.5	4.2	5.6
Total Sodium (Na)	mg/L		10.0	9.7		13.0	13.0	13.0	14.0	13.0	9.6	11.0
Total Suspended Solids	mg/L		200	120		130	34	25	26	60	73	170
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.003	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	**0.030**	**0.040**	0.012	**0.030**	<0.01	<0.01	<0.01	<0.01	0.010	**0.040**
Ion Percentage	%		5.9	4.9		1.9	0.2	0.0	2.0	0.6	2.6	4.7

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1									
Date			29-Apr-13	5-Jul-13	7-Oct-13	11-Jan-14	8-Apr-14	30-Apr-14	7-Jul-14	24-Nov-14	15-Dec-14	4-Jan-15
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event						Routine	Routine	Verification	Routine	Routine	Verification	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	120	50	130	190	130	130	65	110	110	130
Conductivity	umho/cm		430	260	460	720	470	480	260	430	420	560
Dissolved Chloride (Cl)	mg/L		9	5	18	25	16	14	7	16	13	13
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		83	65	71	140	79	94	52	76	73	140
Nitrate (N)	mg/L		<0.10	<0.10	0.14	0.9	0.44	1.34	<0.10	1.66	0.47	1.64
Nitrite (N)	mg/L		<0.010	<0.010	0.020	0.020	<0.010	0.025	<0.010	0.012	0.013	0.025
pH	(pH units)	6.5-8.5	8.3	**8.5**	8.0	8.1	8.1	8.1	**9.6**	7.8	8.1	7.7
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	**0.002**	<0.0010	0.0013	<0.001	<0.001	**0.004**
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	0.41	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	<0.001	0.003	0.003	<0.001	0.002	0.002	0.005	0.003	<0.001	0.001
Total Barium (Ba)	mg/L		0.030	0.014	0.06	0.061	0.037	0.052	0.023	0.068	0.036	0.048
Total BOD	mg/L		<2.0	<2.0	4.0	4.0	2.0	<2.0	<2.0	3.0	<2.0	3.0
Total Boron (B)	mg/L	0.200	**0.220**	0.180	**0.320**	**0.290**	0.170	**0.260**	**0.230**	0.140	0.100	0.120
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		50	23	55	110	63	71	22	59	50	77
Total Chemical Oxygen Demand (COD)	mg/L		37	18	34	32	30	30	40	33	10	25
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	0.0070	<0.005	**0.0100**	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	0.003	<0.002	0.002	0.003	0.004	**0.006**	<0.002	**0.009**	0.003	0.003
Total Dissolved Solids	mg/L		278	164	290	478	372	344	164	338	276	404
Total Iron (Fe)	mg/L	0.300	**0.670**	**0.380**	**3.000**	0.270	**3.400**	**6.300**	**0.590**	**9.900**	**0.970**	**1.600**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.10	0.75	1.60	1.30	1.20	1.20	1.30	1.90	0.79	0.87
Total Lead (Pb)	mg/L	0.005	<0.0005	<0.0005	0.0015	<0.0005	0.0013	0.0028	<0.0005	0.004	0.0005	0.0008
Total Magnesium (Mg)	mg/L		18	14	17	32	18	21	14	19	16	26
Total Nickel (Ni)	mg/L	0.025	0.002	<0.001	0.006	0.003	0.006	0.010	0.002	0.014	0.002	0.003
Total Phosphorus	mg/L	0.02*	**0.06**	**0.03**	**0.08**	**0.06**	**0.14**	**0.18**	**0.07**	**0.24**	**0.05**	**0.06**
Total Potassium (K)	mg/L		3.7	0.8	7.1	10.0	4.3	5.8	2.0	8.5	5.1	7.5
Total Sodium (Na)	mg/L		11.0	8.8	15.0	21.0	11.0	14.0	12.0	6.8	7.2	9.6
Total Suspended Solids	mg/L		21	9	85	7	68	82	15	150	21	33
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.097	<0.0085	0.0073	<0.0042	<0.0028	*<0.022*	<0.012	<0.012	<0.00079
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	**0.03**	<0.01	<0.01
Ion Percentage	%		0.9	1.9	2.1	8.2	5.4	7.5	4.7	6.9	3.8	5.0

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1									
Date			**10-Apr-15**	**30-Apr-15**	**3-Aug-15**	**25-Feb-16**	**7-Apr-16**	**1-Aug-16**	**3-Nov-16**	**24-Nov-16**	**12-Dec-16**	**12-Jan-17**
Laboratory			**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**
Routine/Verification Event			**Routine**	**Verification**	**Routine**	**Routine**	**Routine**	**Routine**	**Assessment**	**Assessment**	**Assessment**	**Routine**
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	98	110	68	110	120	39	190			110
Conductivity	umho/cm		310	410	330	420	420	460	620			410
Dissolved Chloride (Cl)	mg/L		14	8	5.4	8.5	6	2.3	13	13	11	11
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			<0.00010
Dissolved Sulphate (SO_4)	mg/L		54	78	86	78	74	180	100			74
Nitrate (N)	mg/L		1.23	<0.10	<0.10	1.29	0.65	0.013	0.21			0.86
Nitrite (N)	mg/L		0.03	<0.010	<0.010	0.013	<0.010	0.17	0.053			0.045
pH	(pH units)	6.5-8.5	7.0	8.1	8.1	8.0	7.7	8.8	8.1			7.9
Phenols-4AAP	mg/L	0.001	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0040	<0.0040	<0.0010	<0.0010	<0.0040
Total Ammonia-N	mg/L		0.15	<0.15	<0.15	<0.15	<0.15	<0.15	7.98	6.30	4.20	1.26
Total Arsenic (As)	mg/L	0.100*	0.009	<0.001	0.005	0.002	0.003	0.003	0.004			0.003
Total Barium (Ba)	mg/L		0.140	0.025	0.052	0.068	0.050	0.020	0.037			0.088
Total BOD	mg/L		<2.0	<2.0	4.0	<2.0	<2.0	<2.0	3.0			4.0
Total Boron (B)	mg/L	0.200	0.130	0.130	0.130	0.120	0.110	0.130	**2.300**	**2.200**	**1.900**	**0.410**
Total Cadmium (Cd)	mg/L	0.0002	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			<0.0001
Total Calcium (Ca)	mg/L		64	43	34	54	60	45	46			47
Total Chemical Oxygen Demand (COD)	mg/L		31	20	33	21	29	9.8	40			36
Total Chromium (Cr)	mg/L	0.0089	**0.0360**	<0.005	0.0070	**0.0130**	**0.0090**	<0.005	<0.005	<0.005	<0.005	**0.0160**
Total Copper (Cu)	mg/L	0.005	**0.026**	0.003	**0.006**	0.005	0.007	<0.002	0.003			**0.008**
Total Dissolved Solids	mg/L		262	238	284	292	282	390	432			300
Total Iron (Fe)	mg/L	0.300	**35.000**	**0.870**	**6.700**	**6.000**	**8.400**	**1.100**	**2.700**			**8.900**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.87	0.50	0.57	0.50	0.52	0.45	9.90			2.00
Total Lead (Pb)	mg/L	0.005	**0.015**	<0.0005	0.0034	0.0023	0.0035	0.0005	0.0012			0.0034
Total Magnesium (Mg)	mg/L		21	16	19	16	17	24	24			17
Total Nickel (Ni)	mg/L	0.025	**0.048**	0.002	0.010	0.007	0.012	<0.001	0.006	0.004	0.003	0.012
Total Phosphorus	mg/L	0.02*	**0.78**	**0.05**	**0.21**	**0.14**	**0.22**	**0.04**	**0.11**			0.30
Total Potassium (K)	mg/L		7.3	3.4	2.9	7.4	4.5	2.7	9.0			12.0
Total Sodium (Na)	mg/L		5.9	6.8	6.9	6.2	6.4	10.0	36.0			8.8
Total Suspended Solids	mg/L		530	32	170	18	98	31	59			140
Total Un-ionized Ammonia	mg/L	0.02	0.0059	<0.0005	*<0.074*	<0.00098	<0.0013	<0.00063	**0.610**	**0.290**	0.009	0.007
Total Zinc (Zn)	mg/L	0.020	**0.090**	<0.01	0.020	0.02	0.02	<0.01	<0.01	<0.005	0.006	0.020
Ion Percentage	%		13.4	1.5	4.4	2.5	4.0	0.5	0.9			2.4

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1									
Date			24-Jan-17	6-Apr-17	13-Jul-17	23-Jan-18	4-Apr-18	27-Aug-18	2-Oct-18	24-Jan-19	19-Apr-19	27-Oct-19
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Bureau Veritas
Routine/Verification Event			Verification	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	55	130	49	110	120	46	190	81	140	120
Conductivity	umho/cm		180	490	360	450	480	460	650	320	610	560
Dissolved Chloride (Cl)	mg/L		4.2	8.7	2.1	13	9.5	9.2	26	14	18	20
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		29	96	120	98	120	150	120	44	150	130
Nitrate (N)	mg/L		0.31	0.50	<0.10	2.09	0.94	0.81	2.33	0.79	0.75	1.31
Nitrite (N)	mg/L		0.016	0.040	<0.010	0.027	0.014	0.047	0.014	0.018	0.021	0.049
pH	(pH units)	6.5-8.5	7.7	8.1	8.1	7.7	8.1	8.7	8.2	7.6	8.2	8.2
Phenols-4AAP	mg/L	0.001	<0.0040	<0.0040	<0.0040	0.0025	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		0.590	<0.15	<0.15	0.160	0.110	0.064	<0.050	0.720	<0.050	<0.050
Total Arsenic (As)	mg/L	0.100*	<0.001	0.002	0.004	0.003	0.004	0.002	0.003	<0.001	0.001	0.002
Total Barium (Ba)	mg/L		0.023	0.041	0.050	0.050	0.072	0.009	0.025	0.017	0.039	0.023
Total BOD	mg/L		<2.0	3.0	2.0	<2	<2	<2	<2	4.0	4.0	<2
Total Boron (B)	mg/L	0.200	0.130	0.150	**0.210**	0.110	0.150	0.160	0.180	0.070	0.200	**0.230**
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		27	69	43	61	74	43	52	32	77	58
Total Chemical Oxygen Demand (COD)	mg/L		12	13	15	20	15	15	23	25	26	18
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	0.0050	**0.0100**	**0.0150**	<0.005	<0.005	<0.005	0.0050	<0.005
Total Copper (Cu)	mg/L	0.005	0.003	0.005	0.005	0.008	**0.011**	0.003	0.004	0.003	0.005	<0.002
Total Dissolved Solids	mg/L		116	296	236	225	200	235	450	195	440	325
Total Iron (Fe)	mg/L	0.300	**1.700**	**4.500**	**4.100**	**8.600**	**14.000**	**0.800**	**1.900**	**1.000**	**3.300**	**1.000**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.10	<0.70	0.49	0.35	0.35	0.40	0.70	1.40	0.57	0.50
Total Lead (Pb)	mg/L	0.005	0.0007	0.0024	0.0017	0.0034	**0.0057**	<0.0005	0.0009	0.0007	0.0013	<0.0005
Total Magnesium (Mg)	mg/L		8	20	20	19	25	25	23	11	28	27
Total Nickel (Ni)	mg/L	0.025	0.002	0.007	0.007	0.012	0.018	0.003	0.005	0.002	0.006	0.004
Total Phosphorus	mg/L	0.02*	**0.10**	<0.15	**0.20**	**0.26**	**0.31**	**0.04**	**0.16**	**0.17**	**0.08**	**0.05**
Total Potassium (K)	mg/L		5.6	4.9	3.1	5.5	5.9	3.8	4.9	7.3	5.0	4.7
Total Sodium (Na)	mg/L		3.6	7.6	8.6	7.5	8.9	12.0	11.0	6.9	12.0	17.0
Total Suspended Solids	mg/L		15	120	120	160	320	35	58	29	70	29
Total Un-ionized Ammonia	mg/L	0.02	0.004	<0.0005	<0.052	0.0015	<0.0005	0.0014	<0.00061	0.0013	<0.0036	<0.0069
Total Zinc (Zn)	mg/L	0.020	<0.01	0.01	0.01	0.02	**0.04**	<0.01	<0.01	0.01	<0.01	<0.01
Ion Percentage	%		6.4	3.5	4.5	2.5	5.1	2.8	8.7	0.5	1.4	1.3

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1									
Date			11-Jan-20	18-May-20	15-Nov-20	26-Mar-21	9-Jul-21	4-Oct-21	17-Feb-22	4-May-22	20-Jul-22	2-Aug-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Routine/Verification Event			Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Verification
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	160	89	110	130	63	57	82	160	52	42
Conductivity	umho/cm		762	600	930	750	700	660	320	730	760	850
Dissolved Chloride (Cl)	mg/L		44	25	18	48	40	21	17	29	28	26
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		170	180	350	160	220	250	44	190	280	310
Nitrate (N)	mg/L		2.34	0.10	0.21	2.66	<0.10	0.60	0.56	0.46	<0.10	0.24
Nitrite (N)	mg/L		0.024	<0.010	<0.010	0.032	<0.010	0.026	0.043	0.012	<0.010	<0.010
pH	(pH units)	6.5-8.5	8.3	8.1	8.0	8.0	8.3	8.2	7.8	8.2	**8.7**	8.2
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	**0.0012**	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		<0.050	<0.050	0.083	0.096	<0.15	<0.15	1.3	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.002	0.001	0.003	0.003	0.004	0.001	0.004	0.001	0.002	0.001
Total Barium (Ba)	mg/L		0.053	0.016	0.043	0.061	0.037	0.020	0.05	0.037	0.026	0.022
Total BOD	mg/L		3	<2	<2	4	<2	2	3	<2	<2	<2
Total Boron (B)	mg/L	0.200	**0.32**	**0.25**	**0.23**	**0.39**	**0.27**	**0.25**	0.08	**0.37**	**0.43**	**0.35**
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		99	46	110	84	53	64	41	76	53	67
Total Chemical Oxygen Demand (COD)	mg/L		19	37	11	27	29	14	30	22	20	19
Total Chromium (Cr)	mg/L	0.0089	0.0060	<0.005	**0.009**	**0.010**	<0.005	<0.005	**0.013**	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	**0.006**	0.003	**0.007**	**0.009**	0.002	0.003	**0.012**	0.004	<0.002	<0.002
Total Dissolved Solids	mg/L		530	395	585	465	470	450	195	375	510	545
Total Iron (Fe)	mg/L	0.300	**4.9**	**1.6**	**8.1**	**8.7**	**1.7**	**0.9**	**13**	**2.8**	**0.6**	**0.9**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.45	0.61	0.4	0.5	<0.7	<0.7	2.2	<0.7	<0.7	<0.7
Total Lead (Pb)	mg/L	0.005	0.002	0.0007	0.0032	0.0035	0.0007	<0.0005	**0.0052**	0.0011	<0.0005	<0.0005
Total Magnesium (Mg)	mg/L		35	32	56	32	35	33	14	34	45	48
Total Nickel (Ni)	mg/L	0.025	0.010	0.005	0.014	0.017	0.006	0.003	0.019	0.007	0.003	0.003
Total Phosphorus	mg/L	0.02*	**0.15**	**0.06**	**0.14**	**0.21**	**0.05**	**0.04**	**0.33**	**0.084**	0.015	0.009
Total Potassium (K)	mg/L		7.5	3.6	6.5	7.7	3.1	5.2	8.7	4.9	3.4	3.8
Total Sodium (Na)	mg/L		29	21	22	34	30	22	8.7	26	31	31
Total Suspended Solids	mg/L		150	42	250	220	46	39	250	19	13	81
Total Un-ionized Ammonia	mg/L	0.02	<0.0015	<0.0069	0.0022	0.00098	<0.0068	<0.013	0.0076	<0.0015	<0.082	<0.075
Total Zinc (Zn)	mg/L	0.020	0.02	<0.01	0.02	**0.03**	<0.01	<0.01	**0.04**	<0.01	<0.01	<0.01
Ion Percentage	%		15.2	5.7	11.1	15.5	1.6	0.2	23.3	2.2	0.8	7.7

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1									
Date			**18-Oct-22**									
Laboratory			**Bueau Veritas**									
Routine/Verification Event			**Routine**									
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	65									
Conductivity	umho/cm		810									
Dissolved Chloride (Cl)	mg/L		24									
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010									
Dissolved Sulphate (SO_4)	mg/L		320									
Nitrate (N)	mg/L		<0.10									
Nitrite (N)	mg/L		<0.010									
pH	(pH units)	6.5-8.5	8.1									
Phenols-4AAP	mg/L	0.001	<0.0010									
Total Ammonia-N	mg/L		<0.15									
Total Arsenic (As)	mg/L	0.100*	<0.001									
Total Barium (Ba)	mg/L		0.022									
Total BOD	mg/L		<2									
Total Boron (B)	mg/L	0.200	**0.33**									
Total Cadmium (Cd)	mg/L	0.0002	<0.0001									
Total Calcium (Ca)	mg/L		65									
Total Chemical Oxygen Demand (COD)	mg/L		9.3									
Total Chromium (Cr)	mg/L	0.0089	<0.005									
Total Copper (Cu)	mg/L	0.005	<0.002									
Total Dissolved Solids	mg/L		510									
Total Iron (Fe)	mg/L	0.300	0.3									
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7									
Total Lead (Pb)	mg/L	0.005	<0.0005									
Total Magnesium (Mg)	mg/L		50									
Total Nickel (Ni)	mg/L	0.025	0.002									
Total Phosphorus	mg/L	0.02*	0.006									
Total Potassium (K)	mg/L		3.5									
Total Sodium (Na)	mg/L		30									
Total Suspended Solids	mg/L		9									
Total Un-ionized Ammonia	mg/L	0.02	<0.0067									
Total Zinc (Zn)	mg/L	0.020	<0.01									
Ion Percentage	%		0.5									

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2									
Date			14-Sep-08	17-Oct-08	4-Nov-08	5-Dec-08	12-Feb-09	19-Feb-09	8-Mar-09	6-Apr-09	26-Apr-09	7-May-09
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	87	112	79	115	69		76	100	70	95
Conductivity	umho/cm		339	436	282	422	223		239	389	223	310
Dissolved Chloride (Cl)	mg/L		14	11	10	14	7	14	7	22	9	11
Dissolved Mercury (Hg)	mg/L	0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001		<0.0001	0.0001	<0.0001	<0.0001
Dissolved Sulphate (SO_4)	mg/L		54	98	41	76	27		37	66	30	51
Nitrate (N)	mg/L		0.6	<0.1	1.6	1.0	1.1		1.2	1.2	1.1	0.7
Nitrite (N)	mg/L		0.03	<0.01	0.01	0.01	0.02		0.01	0.01	0.03	0.03
pH	(pH units)	6.5-8.5	7.9	7.7	8.0	8.0	7.8		7.1	8.0	7.5	7.6
Phenols-4AAP	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Ammonia-N	mg/L		<0.15	<0.15	0.21	<0.15	<0.15		<0.15	<0.15	0.19	<0.15
Total Arsenic (As)	mg/L	0.100*	0.006	0.002	0.015	0.001	0.008		0.002	0.026	0.011	<0.001
Total Barium (Ba)	mg/L		0.075	0.042	0.200	0.038	0.110		0.032	0.360	0.140	0.022
Total BOD	mg/L		<2	2	<2	<2	<2		<2	<2	<2	<2
Total Boron (B)	mg/L	0.200	0.120	0.110	0.060	0.150	0.080		0.030	0.190	0.100	0.130
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	**0.0003**	<0.0001	<0.0001		<0.0001	**0.0005**	0.0001	<0.0001
Total Calcium (Ca)	mg/L		48	43	60	51	46		42	320	49	39
Total Chemical Oxygen Demand (COD)	mg/L		30	12	26	16	12		20	99	28	18
Total Chromium (Cr)	mg/L	0.0089	**0.0160**	0.0060	**0.0530**	0.0070	**0.0250**		<0.005	**0.1000**	**0.0370**	<0.005
Total Copper (Cu)	mg/L	0.005	**0.014**	**0.006**	**0.041**	0.004	**0.021**		0.005	**0.086**	**0.029**	0.003
Total Dissolved Solids	mg/L		246	275	185	272	140		155	250	142	200
Total Iron (Fe)	mg/L	0.300	**16.000**	**5.100**	**54.000**	**2.800**	**26.000**		**3.800**	**110.000**	**36.000**	**0.400**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.6	1.2	4.0	0.6	1.9		1.3	5.0	2.4	0.8
Total Lead (Pb)	mg/L	0.005	**0.006**	0.002	**0.021**	0.002	**0.010**		0.002	**0.047**	**0.013**	<0.0005
Total Magnesium (Mg)	mg/L		15	23	21	16	14		13	87	18	11
Total Nickel (Ni)	mg/L	0.025	0.022	0.008	**0.067**	0.004	**0.034**		0.006	**0.140**	**0.050**	0.002
Total Phosphorus	mg/L	0.02*	**0.32**	**0.26**	**1.30**	*<0.15*	**0.32**		*<0.15*	**2.00**	**0.57**	*<0.03*
Total Potassium (K)	mg/L		6.1	2.9	10.0	4.2	5.9		2.0	11.0	6.5	2.5
Total Sodium (Na)	mg/L		9.2	14.0	4.5	11.0	5.2		5.3	12.0	5.6	7.2
Total Suspended Solids	mg/L		140	190	1100	<10	450		45	5300	380	15
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	**0.039**	0.018	**0.140**	0.013	**0.060**		<0.01	**0.240**	**0.080**	<0.01
Ion Percentage	%		8.9	3.1	18.3	3.7	17.2		11.2	36.9	18.4	2.7

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2									
Date			24-Oct-09	25-Jan-10	6-Apr-10	14-Oct-10	28-Feb-11	20-Apr-11	8-Aug-11	20-Oct-11	13-Mar-12	27-Mar-12
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	75	84	82	91	105	98	52	75	110	84
Conductivity	umho/cm		574	543	487	509	510	472	428	417	620	640
Dissolved Chloride (Cl)	mg/L		28	34	35	22	32	35	25	18	60	61
Dissolved Mercury (Hg)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		160	120	100	120	87	76	110	95	120	130
Nitrate (N)	mg/L		2.00	1.60	0.20	<0.1	1.10	0.50	<0.1	0.30	0.91	<0.10
Nitrite (N)	mg/L		0.05	0.04	0.01	<0.01	0.03	0.01	<0.01	0.01	0.015	<0.010
pH	(pH units)	6.5-8.5	7.0	8.1	7.9	7.9	8.0	8.1	**9.3**	8.0	8.1	8.2
Phenols-4AAP	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	**0.002**	<0.0010
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	0.34	<0.15	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	<0.001	<0.001	<0.001	0.002	<0.001	0.001	0.004	0.003	0.001	0.001
Total Barium (Ba)	mg/L		0.032	0.025	0.026	0.040	0.027	0.037	0.008	0.046	0.037	0.034
Total BOD	mg/L		6.0	<2	<2	4.0	<2	<2	2.0	3.0	3.0	4.0
Total Boron (B)	mg/L	0.200	0.060	0.060	0.070	0.090	0.150	0.100	0.130	0.060	0.070	0.100
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		57	64	48	52	54	53	26	51	65	56
Total Chemical Oxygen Demand (COD)	mg/L		19	19	29	31	18	11	23	22	20	26
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0060	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	0.003	0.003	0.003	<0.002	0.003	0.003	<0.002	**0.008**	**0.006**	0.004
Total Dissolved Solids	mg/L		370	365	312	322	306	282	300	292	410	402
Total Iron (Fe)	mg/L	0.300	**1.300**	**1.000**	**1.000**	**0.800**	**0.900**	**2.300**	0.300	**6.200**	**3.600**	**1.300**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.4	1.2	1.0	1.2	1.1	1.0	0.6	1.0	1.3	1.1
Total Lead (Pb)	mg/L	0.005	0.001	<0.0005	0.001	0.001	<0.0005	0.001	<0.0005	0.003	0.002	0.001
Total Magnesium (Mg)	mg/L		24	22	18	23	19	17	23	17	22	26
Total Nickel (Ni)	mg/L	0.025	0.003	0.003	0.002	0.002	0.006	0.004	0.002	0.010	0.006	0.003
Total Phosphorus	mg/L	0.02*	**0.09**	**0.05**	**0.05**	**0.08**	**0.03**	**0.06**	**0.04**	**0.19**	**0.06**	**0.07**
Total Potassium (K)	mg/L		3.8	4.1	3.5	3.4	4.1	3.7	2.4	4.9	4.0	4.0
Total Sodium (Na)	mg/L		14	23	24	17	24	24	23	13	39	43
Total Suspended Solids	mg/L		30	18	18	19	8	27	9	150	69	30
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	0.010	<0.01
Ion Percentage	%		0.8	5.9	3.2	3.6	2.9	3.4	1.2	3.8	1.7	3.0

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2									
Date			30-Oct-12	15-Nov-12	13-Jan-13	10-Apr-13	5-Jul-13	7-Oct-13	11-Jan-14	28-Jan-14	8-Apr-14	30-Apr-14
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event									Routine	Verification	Routine	Verification
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	110	110	77	97	55	100	71	190	100	100
Conductivity	umho/cm		620	650	410	590	350	520	310	960	410	530
Dissolved Chloride (Cl)	mg/L		35	31	21	61	23	18	32	93	24	31
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		140	150	79	88	81	120	29	170	55	100
Nitrate (N)	mg/L		0.79	2.00	1.90	0.78	<0.10	<0.10	0.92	0.27	0.34	0.86
Nitrite (N)	mg/L		<0.010	0.078	<0.010	0.030	<0.010	<0.010	0.014	<0.010	<0.010	0.015
pH	(pH units)	6.5-8.5	7.2	7.8	7.7	7.9	8.4	7.9	8.0	7.3	8.0	8.0
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	**0.0013**	<0.0010	**0.002**	<0.0010
Total Ammonia-N	mg/L		0.36	0.25	<0.15	0.21	<0.15	0.18	0.45	0.52	0.17	0.17
Total Arsenic (As)	mg/L	0.100*	0.021	<0.001	0.001	0.001	0.004	0.004	0.004	<0.001	0.001	0.002
Total Barium (Ba)	mg/L		0.280	0.041	0.027	0.035	0.018	0.062	0.050	0.053	0.030	0.037
Total BOD	mg/L		4.0	5.0	<2.0	<2.0	<2.0	4.0	3.0	3.0	2.0	<2.0
Total Boron (B)	mg/L	0.200	0.130	0.080	0.060	0.080	0.070	0.110	0.050	0.090	0.050	0.100
Total Cadmium (Cd)	mg/L	0.0002	**0.0003**	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		200	73	48	60	34	63	37	100	50	61
Total Chemical Oxygen Demand (COD)	mg/L		74	22	17	10	11	32	13	20	18	18
Total Chromium (Cr)	mg/L	0.0089	**0.0800**	<0.005	<0.005	<0.005	<0.005	0.0050	**0.0170**	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	**0.066**	0.002	0.005	**0.006**	0.003	0.004	**0.014**	0.004	0.004	**0.006**
Total Dissolved Solids	mg/L		410	402	274	374	196	316	234	578	282	338
Total Iron (Fe)	mg/L	0.300	**83.000**	**0.580**	**2.700**	**3.000**	**1.100**	**5.200**	**13.000**	**0.640**	**2.800**	**2.700**
Total Kjeldahl Nitrogen (TKN)	mg/L		6.3	1.0	1.2	1.5	1.0	2.0	<2.0	2.1	1.2	1.3
Total Lead (Pb)	mg/L	0.005	**0.033**	<0.0005	0.0013	0.0014	0.0006	0.0024	**0.0056**	<0.0005	0.0013	0.0013
Total Magnesium (Mg)	mg/L		56	23	14	17	16	23	11	31	13	20
Total Nickel (Ni)	mg/L	0.025	**0.110**	0.002	0.005	0.006	0.002	0.009	0.019	0.004	0.006	0.006
Total Phosphorus	mg/L	0.02*	**1.40**	**0.04**	**0.07**	**0.07**	**0.07**	**0.18**	**0.28**	**0.05**	**0.09**	**0.09**
Total Potassium (K)	mg/L		12.0	3.8	3.0	3.4	0.8	5.2	6.6	5.8	3.4	3.9
Total Sodium (Na)	mg/L		30	25	15	35	20	16	21	62	15	25
Total Suspended Solids	mg/L		1600	18	38	61	24	150	52	13	47	44
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.022	0.011	0.0056	0.0014	0.003	0.002
Total Zinc (Zn)	mg/L	0.020	**0.210**	<0.01	0.010	0.010	<0.01	0.010	**0.050**	0.020	<0.01	0.010
Ion Percentage	%		24.0	3.7	5.1	4.0	4.7	5.9	9.2	2.9	5.6	6.2

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2									
Date			**7-Jul-14**	**24-Jul-14**	**24-Nov-14**	**15-Dec-14**	**4-Jan-15**	**10-Apr-15**	**30-Apr-15**	**3-Aug-15**	**25-Oct-15**	**25-Feb-16**
Laboratory			**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**
Routine/Verification Event			**Routine**	**Verification**	**Routine**	**Verification**	**Routine**	**Routine**	**Verification**	**Routine**	**Routine**	**Routine**
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	61	52	89	82	100	96	78	72	69	94
Conductivity	umho/cm		360	520	630	630	660	470	520	570	760	580
Dissolved Chloride (Cl)	mg/L		29	20	34	20	29	30	36	22	36	21
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		69	170	160	200	190	100	110	180	270	150
Nitrate (N)	mg/L		<0.10	<0.10	0.90	0.59	1.31	1.24	<0.10	<0.10	<0.10	1.49
Nitrite (N)	mg/L		<0.010	<0.010	0.026	0.022	0.047	0.104	<0.010	<0.010	<0.010	0.023
pH	(pH units)	6.5-8.5	**9.1**	**8.9**	7.8	8.2	7.7	7.0	7.8	7.9	7.5	8.0
Phenols-4AAP	mg/L	0.001	**0.002**	<0.0010	<0.001	<0.001	**0.004**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		<0.15	0.35	<0.15	0.26	0.24	0.58	<0.15	<0.15	<0.15	0.27
Total Arsenic (As)	mg/L	0.100*	0.006	0.005	0.002	<0.001	0.001	0.004	<0.001	0.003	0.002	<0.001
Total Barium (Ba)	mg/L		0.028	0.020	0.040	0.029	0.038	0.051	0.031	0.059	0.075	0.026
Total BOD	mg/L		<2.0	<2.0	3.0	5.0	3.0	<2.0	<2.0	<2.0	10	<2.0
Total Boron (B)	mg/L	0.200	0.080	0.090	0.080	0.080	0.080	0.060	0.070	0.110	0.140	0.050
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		28	44	65	52	67	60	39	54	67	62
Total Chemical Oxygen Demand (COD)	mg/L		37	15	22	11	18	15	12	16	63	17
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	**0.0110**	<0.005	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	0.004	<0.002	**0.008**	0.003	0.004	**0.011**	0.002	0.002	0.002	0.003
Total Dissolved Solids	mg/L		270	388	410	416	420	290	318	428	550	342
Total Iron (Fe)	mg/L	0.300	**2.500**	**0.440**	**2.900**	0.290	**0.980**	**11.000**	**0.640**	**1.700**	**0.500**	**1.200**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.20	0.88	1.30	1.20	1.00	1.60	0.43	0.46	1.30	0.81
Total Lead (Pb)	mg/L	0.005	0.001	<0.0005	0.001	<0.0005	0.001	0.004	<0.0005	0.001	<0.0005	0.001
Total Magnesium (Mg)	mg/L		17	28	27	30	29	20	20	27	38	21
Total Nickel (Ni)	mg/L	0.025	0.004	0.001	0.006	0.002	0.003	0.016	0.002	0.005	0.003	0.003
Total Phosphorus	mg/L	0.02*	**0.07**	0.02	**0.13**	**0.03**	**0.07**	**0.28**	**0.28**	**0.08**	**0.29**	**0.04**
Total Potassium (K)	mg/L		1.9	2.4	8.3	5.7	7.5	4.7	3.2	3.6	4.9	3.8
Total Sodium (Na)	mg/L		23	21	25	19	22	19	24	20	30	16
Total Suspended Solids	mg/L		42	9	100	6	14	180	24	50	38	21
Total Un-ionized Ammonia	mg/L	0.02	<0.0027	**0.060**	<0.01	**0.061**	0.001	**0.027**	<0.0019	*<0.039*	<0.0012	0.002
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	0.010	<0.01	<0.01	**0.030**	<0.01	<0.01	<0.01	<0.01
Ion Percentage	%		4.2	2.4	4.1	0.2	1.8	5.5	0.8	1.4	0.6	0.0

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2									
Date			7-Apr-16	1-Aug-16	21-Oct-16	12-Jan-17	6-Apr-17	13-Jul-17	12-Oct-17	23-Jan-18	4-Apr-18	2-Oct-18
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event			Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	110	47	60	86	110	55	110	110	120	77
Conductivity	umho/cm		540	710	800	470	670	580	800	680	670	680
Dissolved Chloride (Cl)	mg/L		22	27	26	21	23	17	27	47	33	21
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		130	260	320	100	190	190	270	130	100	250
Nitrate (N)	mg/L		1.03	0.03	<0.10	0.86	0.95	<0.10	<0.10	1.35	0.68	0.89
Nitrite (N)	mg/L		0.028	0.340	<0.010	0.054	0.046	<0.010	<0.010	0.030	0.017	0.050
pH	(pH units)	6.5-8.5	7.7	7.8	7.9	7.8	7.9	8.6	8.0	7.8	8.1	8.1
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0010	0.0023	<0.0010	<0.0010
Total Ammonia-N	mg/L		0.18	<0.15	<0.15	0.54	0.22	<0.15	<0.050	0.44	0.27	0.11
Total Arsenic (As)	mg/L	0.100*	0.002	0.002	0.002	0.003	0.002	0.004	0.003	<0.001	0.002	0.001
Total Barium (Ba)	mg/L		0.047	0.040	0.063	0.050	0.045	0.029	0.030	0.029	0.042	0.019
Total BOD	mg/L		<2.0	<2.0	3.0	4.0	3.0	<2.0	<2.0	<2	<2	<2
Total Boron (B)	mg/L	0.200	0.060	0.100	0.130	0.040	0.090	0.080	0.170	0.070	0.080	0.140
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		70	72	76	53	83	54	68	67	79	70
Total Chemical Oxygen Demand (COD)	mg/L		24	17	21	22	13	15	19	23	13	11
Total Chromium (Cr)	mg/L	0.0089	0.0080	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	**0.008**	0.003	<0.002	0.005	0.005	0.002	<0.002	**0.010**	**0.007**	0.003
Total Dissolved Solids	mg/L		298	606	562	236	414	380	570	335	305	405
Total Iron (Fe)	mg/L	0.300	**7.400**	**0.600**	**1.100**	**3.400**	**2.100**	**0.500**	**0.500**	**0.700**	**4.100**	**0.600**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.69	0.65	0.64	1.30	0.80	0.41	0.41	0.95	0.71	0.36
Total Lead (Pb)	mg/L	0.005	0.003	<0.0005	0.001	0.002	0.001	<0.0005	<0.0005	0.001	0.002	<0.0005
Total Magnesium (Mg)	mg/L		23	31	38	14	27	26	42	20	26	29
Total Nickel (Ni)	mg/L	0.025	0.012	0.001	0.003	0.005	0.006	0.002	0.003	0.003	0.007	0.003
Total Phosphorus	mg/L	0.02*	**0.18**	**0.04**	**0.05**	**0.19**	**0.05**	**0.04**	**0.04**	**0.07**	**0.12**	**0.03**
Total Potassium (K)	mg/L		4.0	4.3	4.9	7.1	5.1	1.3	6.5	5.4	4.7	4.8
Total Sodium (Na)	mg/L		17	24	23	22	19	19	26	35	30	19
Total Suspended Solids	mg/L		120	18	37	98	62	13	17	6.0	130	25
Total Un-ionized Ammonia	mg/L	0.02	0.0018	<0.0005	<0.002	0.0009	0.0014	<0.061	<0.0005	0.0019	0.0017	0.002
Total Zinc (Zn)	mg/L	0.020	0.020	<0.01	<0.01	0.020	<0.01	<0.01	<0.01	<0.01	0.020	<0.01
Ion Percentage	%		3.0	0.5	1.9	3.0	1.8	0.5	1.5	1.6	8.4	2.0

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2									
Date			7-Feb-19	17-Apr-19	31-Oct-19	11-Jan-20	18-May-20	4-Jun-20	15-Nov-20	26-Nov-20	26-Mar-21	9-Apr-21
Laboratory			Maxxam	Maxxam	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Routine/Verification Event			Routine	Routine	Routine	Routine	Routine	Verification	Routine	Verification	Routine	Verification
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	120	95	86	130	95	48	60	63	100	73
Conductivity	umho/cm		530	600	740	865	910	880	1100	1100	870	980
Dissolved Chloride (Cl)	mg/L		32	24	37	60	81	86	37	36	62	89
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		82	150	210	270	230	260	420	400	250	280
Nitrate (N)	mg/L		0.54	0.57	1.92	0.77	<0.10	<0.10	0.33	0.61	0.79	0.65
Nitrite (N)	mg/L		0.056	0.020	0.136	0.024	<0.010	<0.010	<0.010	0.024	0.025	0.031
pH	(pH units)	6.5-8.5	7.7	8.1	7.9	7.9	8.1	**9.5**	7.7	7.9	8.0	7.9
Phenols-4AAP	mg/L	0.001	0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		1.2	0.2	0.2	0.3	<0.050	<0.050	0.051	<0.050	0.12	<0.050
Total Arsenic (As)	mg/L	0.100*	<0.001	0.001	0.001	0.002	0.001	0.003	<0.001	<0.001	0.003	<0.001
Total Barium (Ba)	mg/L		0.024	0.030	0.050	0.049	0.016	0.022	0.029	0.028	0.053	0.027
Total BOD	mg/L		29	<2	<2	2	<2	<2	<2	<2	<2	<2
Total Boron (B)	mg/L	0.200	0.08	0.09	0.16	0.17	**0.24**	**0.43**	**0.22**	**0.22**	**0.21**	**0.33**
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		54	59	72	93	49	51	110	110	91	69
Total Chemical Oxygen Demand (COD)	mg/L		55.0	8.7	16.0	11.0	30	32	12	13	10	19
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.011**	<0.005
Total Copper (Cu)	mg/L	0.005	**0.006**	0.003	0.003	**0.006**	0.002	<0.002	<0.002	<0.002	**0.010**	0.003
Total Dissolved Solids	mg/L		360	350	440	590	620	545	765	750	500	615
Total Iron (Fe)	mg/L	0.300	**0.700**	**0.700**	**0.900**	**3.600**	**0.500**	**0.400**	0.2	0.1	**9.7**	**0.5**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.9	0.8	0.7	0.7	0.63	0.77	0.46	0.36	0.41	0.59
Total Lead (Pb)	mg/L	0.005	0.0005	0.0007	<0.0005	0.002	<0.0005	<0.0005	<0.0005	<0.0005	0.0041	<0.0005
Total Magnesium (Mg)	mg/L		18	26	25	41	39	39	53	52	37	36
Total Nickel (Ni)	mg/L	0.025	0.005	0.004	0.005	0.009	0.005	0.005	0.003	0.003	0.018	0.006
Total Phosphorus	mg/L	0.02*	**0.05**	**0.04**	**0.04**	**0.10**	**0.03**	**0.04**	0.018	**0.02**	**0.19**	**0.04**
Total Potassium (K)	mg/L		5.6	3.8	6.1	6.7	4.6	4.6	6.8	7.3	7	5.4
Total Sodium (Na)	mg/L		23	21	25	39	52	60	34	35	45	56
Total Suspended Solids	mg/L		17	23	24	83	16	13	7	5	290	13
Total Un-ionized Ammonia	mg/L	0.02	0.007	0.130	0.001	0.003	<0.0068	<0.058	0.0014	<0.00061	0.0012	<0.0017
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	**0.03**	<0.01
Ion Percentage	%		1.5	1.6	1.0	0.2	3.0	1.1	1.0	1.8	2.0	2.4

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2									
Date			26-Jun-21	9-Jul-21	30-Jul-21	4-Oct-21	15-Oct-21	17-Feb-22	4-May-22	16-May-22	20-Jul-22	2-Aug-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Routine/Verification Event			Routine	Verification	Routine	Routine	Verification	Routine	Routine	Verification	Routine	Verification
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	43	47	46	65	53	81	99	100	53	59
Conductivity	umho/cm		1096	1000	870	710	890	570	1000	952	1000	1000
Dissolved Chloride (Cl)	mg/L		85	48	23	24	28	34	84	70	71	70
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		410	360	390	280	310	140	280	330	330	330
Nitrate (N)	mg/L		<0.010	<0.10	0.93	1.03	0.72	0.55	0.12	<0.10	<0.10	<0.10
Nitrite (N)	mg/L		<0.10	<0.010	0.060	0.017	0.027	0.035	<0.010	<0.010	<0.010	<0.010
pH	(pH units)	6.5-8.5	8.1	7.8	7.8	8.0	7.6	7.9	8.1	7.9	8.0	8.0
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	**0.0011**	<0.0010	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	1.04	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.002	0.002	0.002	0.001	0.002	0.003	<0.001	0.001	0.002	0.003
Total Barium (Ba)	mg/L		0.043	0.034	0.038	0.026	0.044	0.043	0.032	0.033	0.028	0.025
Total BOD	mg/L		<2	<2	<2	<2	<2	2	<2	<2	<2	6
Total Boron (B)	mg/L	0.200	**0.31**	0.20	0.18	**0.26**	**0.30**	0.09	**0.39**	**0.50**	**0.40**	**0.39**
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		100	92	100	80	94	69	79	90	80	94
Total Chemical Oxygen Demand (COD)	mg/L		23	17	10	14	15	19	15	25	25	25
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	0.005	**0.013**	<0.005	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	0.002	<0.002	0.006	0.004	0.004	**0.015**	0.004	0.004	<0.002	<0.002
Total Dissolved Solids	mg/L		795	700	590	500	595	280	465	720	725	630
Total Iron (Fe)	mg/L	0.300	**0.5**	<0.1	**3.7**	**1.3**	**3.1**	**12**	0.3	**0.4**	<0.1	<0.1
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	1.9	<0.7	<0.7	<0.7	<0.7
Total Lead (Pb)	mg/L	0.005	<0.0005	<0.0005	0.0016	0.001	0.0014	0.0049	<0.0005	<0.0005	<0.0005	<0.0005
Total Magnesium (Mg)	mg/L		51	46	44	30	45	27	43	48	51	49
Total Nickel (Ni)	mg/L	0.025	0.004	0.002	0.007	0.004	0.007	0.021	0.005	0.005	0.003	0.003
Total Phosphorus	mg/L	0.02*	**0.04**	**0.04**	**0.10**	**0.05**	0.015	**0.20**	**0.029**	**0.052**	0.016	**0.028**
Total Potassium (K)	mg/L		4.7	4.8	6.6	6	7.5	7.2	5.4	6	2.5	2
Total Sodium (Na)	mg/L		61	45	26	22	28	25	60	59	56	56
Total Suspended Solids	mg/L		18	4	200	42	100	380	12	23	7	4
Total Un-ionized Ammonia	mg/L	0.02	<0.0074	<0.0068	<0.0017	<0.054	<0.016	0.0058	<0.0078	<0.0076	<0.013	<0.085
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	0.01	<0.01	<0.01	**0.04**	<0.01	<0.01	<0.01	<0.01
Ion Percentage	%		0.2	1.5	0.4	1.0	4.0	5.9	0.03	0.6	1.7	2.6

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2									
Date			18-Oct-22	13-Jan-22								
Laboratory			Bureau Veritas	Bureau Veritas								
Routine/Verification Event			Routine	Verification								
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	140	120								
Conductivity	umho/cm		740	980								
Dissolved Chloride (Cl)	mg/L		34	56								
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010								
Dissolved Sulphate (SO_4)	mg/L		210	320								
Nitrate (N)	mg/L		<0.10	3.65								
Nitrite (N)	mg/L		0.012	0.052								
pH	(pH units)	6.5-8.5	8.1	8.0								
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010								
Total Ammonia-N	mg/L		0.84	<0.15								
Total Arsenic (As)	mg/L	0.100*	0.005	0.002								
Total Barium (Ba)	mg/L		0.14	0.049								
Total BOD	mg/L		2	<2								
Total Boron (B)	mg/L	0.200	0.18	**0.28**								
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001								
Total Calcium (Ca)	mg/L		99	120								
Total Chemical Oxygen Demand (COD)	mg/L		11	20								
Total Chromium (Cr)	mg/L	0.0089	0.016	<0.005								
Total Copper (Cu)	mg/L	0.005	**0.013**	**0.008**								
Total Dissolved Solids	mg/L		375	620								
Total Iron (Fe)	mg/L	0.300	**15**	**3.3**								
Total Kjeldahl Nitrogen (TKN)	mg/L		1.2	<0.7								
Total Lead (Pb)	mg/L	0.005	**0.0063**	0.0018								
Total Magnesium (Mg)	mg/L		43	38								
Total Nickel (Ni)	mg/L	0.025	0.025	0.008								
Total Phosphorus	mg/L	0.02*	**0.27**	**0.081**								
Total Potassium (K)	mg/L		8.4	6.6								
Total Sodium (Na)	mg/L		30	44								
Total Suspended Solids	mg/L		440	160								
Total Un-ionized Ammonia	mg/L	0.02	**0.035**	<0.0057								
Total Zinc (Zn)	mg/L	0.020	**0.04**	0.01								
Ion Percentage	%		5.3	1.2								

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3									
Date			4-Nov-08	12-Feb-09	8-Mar-09	6-Apr-09	26-Apr-09	7-May-09	24-Oct-09	25-Jan-10	8-Apr-10	16-Jul-10
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	61	48	54	83	94	97	117	101	90	43
Conductivity	umho/cm		389	137	144	233	206	209	396	338	364	221
Dissolved Chloride (Cl)	mg/L		11	6	5	6	2	2	7	12	41	22
Dissolved Mercury (Hg)	mg/L	0.0002	<0.0002	*<0.0015*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Sulphate (SO_4)	mg/L		106	13	16	27	24	25	67	48	36	27
Nitrate (N)	mg/L		2.8	1.4	1.2	1.6	1.5	1.0	1.8	1.1	0.4	<0.1
Nitrite (N)	mg/L		0.02	0.02	0.02	0.02	0.04	0.05	0.03	0.03	0.04	0.02
pH	(pH units)	6.5-8.5	7.9	7.9	7.0	7.4	6.8	7.7	7.5	8.1	8.0	**9.7**
Phenols-4AAP	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Ammonia-N	mg/L		<0.15	0.37	<0.15	<0.15	0.19	<0.15	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.001	0.021	0.005	0.006	0.011	<0.001	0.001	<0.001	0.002	0.003
Total Barium (Ba)	mg/L		0.037	0.260	0.073	0.092	0.15	0.015	0.035	0.018	0.042	0.018
Total BOD	mg/L		<2	<2	<2	2	<2	<2	8	<2	<2	<2
Total Boron (B)	mg/L	0.200	0.02	0.05	<0.02	0.03	0.04	<0.02	0.02	<0.02	0.02	0.04
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	**0.0003**	<0.0001	0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		45	63	23	42	45	31	50	51	46	19
Total Chemical Oxygen Demand (COD)	mg/L		25	50	18	35	39	14	36	33	19	39
Total Chromium (Cr)	mg/L	0.0089	<0.005	**0.076**	**0.015**	**0.024**	**0.042**	<0.005	<0.005	<0.005	0.008	<0.005
Total Copper (Cu)	mg/L	0.005	0.004	**0.051**	**0.012**	**0.016**	**0.028**	0.002	0.003	0.003	**0.007**	0.002
Total Dissolved Solids	mg/L		250	87	94	155	118	30	255	220	250	140
Total Iron (Fe)	mg/L	0.300	**3.0**	**75.0**	**16.0**	**24.0**	**39.0**	**0.6**	**0.7**	**1.1**	**7.5**	**1.8**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.5	4.0	1.6	2.4	2.4	0.8	2.0	1.1	1.4	1.2
Total Lead (Pb)	mg/L	0.005	0.001	**0.028**	**0.006**	**0.008**	**0.014**	<0.0005	<0.0005	0.001	0.003	0.001
Total Magnesium (Mg)	mg/L		14.0	24.0	6.7	13.0	15.0	6.2	16.0	14.0	13.0	9.2
Total Nickel (Ni)	mg/L	0.025	0.004	**0.096**	0.021	**0.030**	**0.052**	0.001	0.002	0.002	0.010	0.003
Total Phosphorus	mg/L	0.02*	**0.18**	**0.99**	**0.17**	**0.42**	*<0.15*	**0.04**	**0.10**	*<0.06*	**0.15**	*<0.15*
Total Potassium (K)	mg/L		3.6	9.3	3.8	4.9	6.7	1.9	2.5	2.4	3.6	1.3
Total Sodium (Na)	mg/L		5.3	2.2	1.4	2.3	2.0	1.9	5.7	7.3	21.0	14.0
Total Suspended Solids	mg/L		57	720	140	560	410	30	23	13	150	37
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	0.010	**0.170**	**0.040**	**0.060**	**0.090**	<0.01	<0.01	<0.01	0.020	<0.01
Ion Percentage	%		1.4	31.9	8.1	12.2	14.4	0.7	4.3	7.9	6.6	5.6

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3									
Date			6-Nov-10	28-Feb-11	20-Apr-11	29-Jul-11	20-Oct-11	9-Nov-11	13-Mar-12	27-Mar-12	21-Dec-12	13-Jan-13
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	129	69	115	66	136	136	120	120	140	78
Conductivity	umho/cm		454	236	380	211	372	362	350	360	500	280
Dissolved Chloride (Cl)	mg/L		33	13	23	21	21	18	14	14	22	11
Dissolved Mercury (Hg)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		44	26	40	9	21	23	47	40	78	40
Nitrate (N)	mg/L		0.30	0.40	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	0.45	0.33
Nitrite (N)	mg/L		<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.010
pH	(pH units)	6.5-8.5	7.9	7.7	8.1	**9.5**	8.1	8.3	8.2	8.2	7.8	7.7
Phenols-4AAP	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	**0.003**	<0.001	**0.0020**	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		0.18	0.17	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.002	<0.001	<0.001	0.005	0.002	0.001	<0.001	0.002	0.001	<0.001
Total Barium (Ba)	mg/L		0.044	0.018	0.023	<0.005	0.017	0.005	0.009	0.007	0.032	0.019
Total BOD	mg/L		4.0	<2	<2	3.0	2.0	<2	<2.0	3.0	3.0	<2.0
Total Boron (B)	mg/L	0.200	0.03	<0.02	<0.02	0.02	0.03	0.05	<0.02	0.03	0.03	<0.02
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		55	31	55	24	50	50	49	49	65	37
Total Chemical Oxygen Demand (COD)	mg/L		43	15	17	39	31	27	26	30	25	19
Total Chromium (Cr)	mg/L	0.0089	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	0.005	**0.007**	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	0.002	0.004
Total Dissolved Solids	mg/L		282	138	234	186	274	216	240	256	296	178
Total Iron (Fe)	mg/L	0.300	**5.80**	**1.20**	**1.10**	0.20	**0.80**	0.30	**1.00**	**0.72**	**0.48**	**1.60**
Total Kjeldahl Nitrogen (TKN)	mg/L		2.3	0.8	0.9	1.5	1.0	0.8	0.83	0.9	1.1	1.0
Total Lead (Pb)	mg/L	0.005	0.002	<0.0005	0.001	<0.0005	0.001	<0.0005	0.001	<0.0005	<0.0005	0.001
Total Magnesium (Mg)	mg/L		18.0	6.7	12.0	8.1	12.0	11.0	11.0	12.0	17.0	9.3
Total Nickel (Ni)	mg/L	0.025	0.008	0.002	0.002	<0.001	0.002	0.001	0.002	0.001	0.002	0.003
Total Phosphorus	mg/L	0.02*	**0.22**	**0.08**	**0.06**	**0.18**	**0.11**	**0.03**	**0.05**	**0.05**	**0.05**	**0.08**
Total Potassium (K)	mg/L		3.5	2.9	2.3	0.3	4.3	4.2	3.2	3.4	4.6	2.9
Total Sodium (Na)	mg/L		19.0	7.9	12.0	12.0	14.0	12.0	8.8	8.5	16.0	7.5
Total Suspended Solids	mg/L		150	3	32	14	9	4	15	11	11	19
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Ion Percentage	%		6.8	2.5	3.5	3.5	3.0	2.2	0.3	1.8	2.0	2.8

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3									
Date			**10-Apr-13**	**5-Jul-13**	**7-Oct-13**	**11-Jan-14**	**8-Apr-14**	**30-Apr-14**	**7-Jul-14**	**15-Oct-14**	**4-Nov-14**	**4-Jan-15**
Laboratory			**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**
Routine/Verification Event						**Routine**	**Routine**	**Verification**	**Routine**	**Routine**	**Verification**	**Routine**
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	110	55	130	110	82	85	92	160	150	160
Conductivity	umho/cm		370	350	360	330	280	370	350	440	450	520
Dissolved Chloride (Cl)	mg/L		29	23	21	22	24	38	40	23	24	26
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		29	81	19	24	24	36	20	31	39	69
Nitrate (N)	mg/L		<0.10	<0.10	<0.10	0.68	<0.10	<0.10	<0.10	<0.10	<0.10	1.17
Nitrite (N)	mg/L		0.027	<0.010	<0.010	0.017	<0.010	<0.010	<0.010	<0.010	<0.010	0.028
pH	(pH units)	6.5-8.5	7.9	**8.8**	8.1	8.1	8.2	7.8	8.1	8.1	8.1	**8.6**
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	**0.003**	<0.0010	**0.0011**	<0.001	<0.001	**0.003**
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	0.17	<0.15	<0.15	<0.15	0.17	0.35	<0.15
Total Arsenic (As)	mg/L	0.100*	0.001	0.004	0.002	<0.001	0.001	0.002	0.007	0.002	0.001	0.001
Total Barium (Ba)	mg/L		0.029	0.018	0.015	0.018	0.009	0.040	0.026	0.030	0.033	0.039
Total BOD	mg/L		<2.0	<2.0	3.0	4.0	2.0	<2.0	<2.0	3.0	<2.0	3.0
Total Boron (B)	mg/L	0.200	0.020	0.070	0.030	0.020	<0.02	<0.02	0.020	0.040	0.050	0.040
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001
Total Calcium (Ca)	mg/L		45	34	42	45	34	39	30	60	53	71
Total Chemical Oxygen Demand (COD)	mg/L		16	11	24	27	21	34	36	21	20	27
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	0.003	0.003	<0.002	0.002	<0.002	0.003	<0.002	<0.002	<0.002	0.004
Total Dissolved Solids	mg/L		244	196	198	124	210	250	228	252	268	326
Total Iron (Fe)	mg/L	0.300	**1.700**	**1.100**	0.200	**0.310**	**0.850**	**2.200**	**1.400**	**0.380**	**0.390**	**0.750**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.10	0.98	1.20	1.30	1.00	1.20	1.10	0.91	0.94	1.10
Total Lead (Pb)	mg/L	0.005	0.001	0.001	<0.0005	<0.0005	<0.0005	0.001	0.001	<0.0005	<0.0005	0.001
Total Magnesium (Mg)	mg/L		9.9	16.0	12.0	12.0	7.9	12.0	14.0	15.0	13.0	17.0
Total Nickel (Ni)	mg/L	0.025	0.002	0.002	<0.001	0.001	0.002	0.004	0.003	0.002	0.002	0.004
Total Phosphorus	mg/L	0.02*	**0.05**	**0.07**	**0.04**	**0.11**	**0.05**	**0.09**	**0.07**	**0.04**	**0.03**	**0.06**
Total Potassium (K)	mg/L		3.7	0.8	4.9	7.1	3.6	4.4	2.3	8.0	5.9	7.6
Total Sodium (Na)	mg/L		16	20	13	13	14	22	25	16	15	17
Total Suspended Solids	mg/L		20	24	6	7	20	44	34	7	7	13
Total Un-ionized Ammonia	mg/L	0.02	<0.02	*<0.022*	<0.006	0.0029	<0.0045	<0.0005	<0.0019	0.011	**0.021**	<0.0057
Total Zinc (Zn)	mg/L	0.020	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ion Percentage	%		1.6	3.2	1.4	8.0	5.0	5.7	5.7	7.1	3.7	5.4

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3									
Date			10-Apr-15	20-Aug-15	25-Oct-15	25-Feb-16	7-Apr-16	1-Aug-16	21-Oct-16	12-Jan-17	6-Apr-17	13-Jul-17
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event			Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	120	82	160	120	130	100	110	160	130	74
Conductivity	umho/cm		330	240	450	530	380	350	340	510	420	220
Dissolved Chloride (Cl)	mg/L		26	23	29	41	21	38	35	36	22	17
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		31	7	27	61	40	13	12	35	42	14
Nitrate (N)	mg/L		0.29	<0.10	<0.10	1.21	0.59	0.015	<0.10	0.37	0.33	<0.10
Nitrite (N)	mg/L		0.016	<0.010	0.011	0.020	0.015	<0.10	<0.010	0.036	0.022	<0.010
pH	(pH units)	6.5-8.5	7.1	8.1	8.0	8.1	7.9	8.1	8.6	7.9	8.2	8.7
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Total Ammonia-N	mg/L		<0.15	<0.15	0.60	<0.15	0.27	0.48	<0.15	0.31	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.001	0.004	0.004	<0.001	0.002	0.009	0.005	0.002	0.001	0.007
Total Barium (Ba)	mg/L		0.026	0.008	0.045	0.029	0.035	0.023	0.017	0.048	0.027	0.007
Total BOD	mg/L		<2.0	<2.0	5.0	<2.0	<2.0	2.0	5.0	3.0	<2.0	3.0
Total Boron (B)	mg/L	0.200	0.020	0.020	0.060	0.020	0.020	0.030	0.050	0.040	0.020	<0.02
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		43	18	49	56	51	26	29	44	53	17
Total Chemical Oxygen Demand (COD)	mg/L		20	23	31	23	24	46	40	32	19	23
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	0.003	<0.002	0.003	0.002	0.005	<0.002	0.003	0.005	0.003	<0.002
Total Dissolved Solids	mg/L		214	146	244	292	224	240	216	242	226	132
Total Iron (Fe)	mg/L	0.300	**2.200**	0.300	**1.900**	**0.800**	**4.500**	**1.200**	**3.300**	**3.700**	**1.500**	**0.400**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.71	0.68	1.50	0.67	0.70	1.70	0.81	0.98	<0.7	0.66
Total Lead (Pb)	mg/L	0.005	0.001	<0.005	0.001	<0.0005	0.002	0.001	0.002	0.002	0.001	<0.0005
Total Magnesium (Mg)	mg/L		11.0	9.5	15.0	14.0	12.0	12.0	13.0	12.0	12.0	9.0
Total Nickel (Ni)	mg/L	0.025	0.004	0.001	0.004	0.002	0.007	<0.001	0.006	0.006	0.003	0.001
Total Phosphorus	mg/L	0.02*	**0.08**	**0.04**	**0.10**	**0.06**	**0.13**	**0.11**	**0.10**	**0.16**	**0.05**	**0.06**
Total Potassium (K)	mg/L		4.2	3.3	7.2	4.8	3.7	4.3	3.4	12.0	4.0	1.0
Total Sodium (Na)	mg/L		15.0	14.0	18.0	26.0	14.0	26.0	24.0	4.1	15.0	15.0
Total Suspended Solids	mg/L		32	3	49	12	52	22	88	39	40	10
Total Un-ionized Ammonia	mg/L	0.02	<0.0048	*<0.042*	0.02	<0.0015	0.0026	0.0031	<0.0005	0.001	<0.0012	<0.012
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01
Ion Percentage	%		3.6	3.0	0.4	1.9	1.4	1.4	1.6	8.3	8.3	0.1

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3									
Date			**12-Oct-17**	**23-Jan-18**	**4-Apr-18**	**8-Aug-18**	**2-Oct-18**	**24-Jan-19**	**17-Apr-19**	**27-Oct-19**	**3-Dec-19**	**11-Jan-20**
Laboratory			**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Routine/Verification Event			**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Verification**	**Routine**
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	160	130	140	84	110	130	97	80	110	93
Conductivity	umho/cm		420	420	470	300	460	690	540	830	880	881
Dissolved Chloride (Cl)	mg/L		26	31	36	37	16	42	49	19	25	26
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		24.0	35.0	41.0	7.1	98.0	140.0	70.0	310.0	310.0	320.0
Nitrate (N)	mg/L		<0.10	0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	0.18
Nitrite (N)	mg/L		0.017	0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	(pH units)	6.5-8.5	8.1	7.9	8.1	8.4	8.2	8.1	8.5	8.2	8.1	8.4
Phenols-4AAP	mg/L	0.001	<0.0010	0.0036	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		0.280	0.290	0.087	<0.050	<0.050	0.057	0.052	**0.280**	<0.050	<0.050
Total Arsenic (As)	mg/L	0.100*	0.003	0.002	0.002	0.009	0.002	<0.001	<0.001	0.001	<0.001	<0.001
Total Barium (Ba)	mg/L		0.042	0.043	0.046	0.010	0.024	0.025	0.022	0.035	0.031	0.032
Total BOD	mg/L		<2.0	4.0	<2	<2	<2	<2	<2	<2	<2	<2
Total Boron (B)	mg/L	0.200	0.050	0.030	0.030	0.030	0.070	0.030	0.030	0.100	0.090	0.090
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		43	51	59	19	44	59	46	81	90	87
Total Chemical Oxygen Demand (COD)	mg/L		30.0	30.0	13.0	40.0	7.7	14.0	15.0	8.5	<4.0	<4.0
Total Chromium (Cr)	mg/L	0.0089	<0.005	0.0070	0.0060	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	<0.002	**0.013**	**0.006**	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	0.002
Total Dissolved Solids	mg/L		290	195	165	180	230	375	305	545	640	695
Total Iron (Fe)	mg/L	0.300	**0.400**	**5.900**	**4.600**	0.100	0.100	0.100	0.300	0.200	0.200	**0.900**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.00	0.68	0.31	1.10	0.27	0.37	0.35	0.29	0.44	0.31
Total Lead (Pb)	mg/L	0.005	<0.0005	0.005	0.0021	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Total Magnesium (Mg)	mg/L		14	12	14	10	18	24	16	41	48	54
Total Nickel (Ni)	mg/L	0.025	0.002	0.010	0.006	<0.001	<0.001	0.001	0.001	0.001	0.002	0.003
Total Phosphorus	mg/L	0.02*	**0.07**	**0.26**	**0.10**	**0.04**	0.02	0.01	0.02	0.02	0.01	**0.03**
Total Potassium (K)	mg/L		5.3	6.1	5.5	3.6	3.6	4.1	2.3	4	4	4
Total Sodium (Na)	mg/L		21	21	23	25	17	30	35	25	27	30
Total Suspended Solids	mg/L		7	130	80	3	4	5	8	5	6	30
Total Un-ionized Ammonia	mg/L	0.02	0.001	*0.0065*	<0.0005	<0.0005	<0.0014	<0.00061	0.015	**0.021**	<0.0034	<0.0019
Total Zinc (Zn)	mg/L	0.020	<0.01	**0.04**	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ion Percentage	%		0.6	2.4	3.1	0.6	1.2	1.6	2.1	0.1	0.8	2.3

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3									
Date			18-May-20	15-Nov-20	26-Mar-21	3-Jun-21	9-Jul-21	4-Oct-21	15-Oct-21	17-Feb-22	4-May-22	2-Aug-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Routine/Verification Event			Routine	Routine	Routine	Routine	Routine	Routine	Verification	Routine	Routine	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	53	99	100	54	61	68	82	100	71	120
Conductivity	umho/cm		760	880	690	740	890	710	700	680	740	900
Dissolved Chloride (Cl)	mg/L		29	36	32	31	43	21	16	71	37	60
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		270	290	190	310	320	260	250	130	250	250
Nitrate (N)	mg/L		<0.10	<0.10	0.13	<0.10	<0.10	<0.10	<0.10	0.28	<0.10	<0.10
Nitrite (N)	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.02	<0.010	<0.010
pH	(pH units)	6.5-8.5	8.2	8.0	8.1	**9.9**	**9.1**	8.1	7.9	8.0	8.2	8.3
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		<0.050	0.056	<0.050	<0.050	<0.15	<0.15	<0.15	0.46	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.002	0.001	0.002	0.004	0.004	0.002	0.002	0.002	0.001	0.008
Total Barium (Ba)	mg/L		0.016	0.054	0.04	0.028	0.03	0.02	0.03	0.041	0.021	0.041
Total BOD	mg/L		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Boron (B)	mg/L	0.200	0.11	0.1	0.07	0.13	0.14	**0.22**	0.20	0.06	0.11	0.18
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		44	86	60	48	58	74	77	64	58	61
Total Chemical Oxygen Demand (COD)	mg/L		22	11	14	18	22	18	15	20	8.8	37
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	**0.009**	<0.002	<0.002
Total Dissolved Solids	mg/L		560	515	395	490	635	480	435	325	420	560
Total Iron (Fe)	mg/L	0.300	0.300	**0.6**	**1.9**	<0.1	<0.1	0.20	0.30	**6.6**	0.3	0.2
Total Kjeldahl Nitrogen (TKN)	mg/L		0.48	0.33	0.35	0.47	<0.7	<0.7	<0.7	0.9	<0.7	0.8
Total Lead (Pb)	mg/L	0.005	<0.0005	<0.0005	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	0.0050	<0.0005	<0.0005
Total Magnesium (Mg)	mg/L		46	41	29	42	48	33	33	24	36	46
Total Nickel (Ni)	mg/L	0.025	0.002	0.002	0.004	0.002	0.001	0.001	0.002	0.012	0.002	0.002
Total Phosphorus	mg/L	0.02*	0.02	**0.03**	**0.06**	0.02	<0.030	0.02	0.02	**0.17**	0.02	**0.027**
Total Potassium (K)	mg/L		2	5.1	3.3	2.1	3.9	4.3	4.0	4.8	2.7	12
Total Sodium (Na)	mg/L		36	33	27	38	45	25	23	45	36	43
Total Suspended Solids	mg/L		8	19	60	11	2	3	8	95	12	10
Total Un-ionized Ammonia	mg/L	0.02	<0.026	0.002	<0.00065	<0.055	<0.097	<0.031	<0.0068	0.003	<0.033	<0.045
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**0.03**	<0.01	<0.01
Ion Percentage	%		0.1	0.4	1.0	2.9	0.77	0.6	1.1	1.9	0.8	1.0

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3										
Date			**18-Oct-22**										
Laboratory			**Bureau Veritas**										
Routine/Verification Event			**Routine**										
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	44										
Conductivity	umho/cm		840										
Dissolved Chloride (Cl)	mg/L		33										
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010										
Dissolved Sulphate (SO_4)	mg/L		340										
Nitrate (N)	mg/L		<0.10										
Nitrite (N)	mg/L		<0.010										
pH	(pH units)	6.5-8.5	**8.8**										
Phenols-4AAP	mg/L	0.001	<0.0010										
Total Ammonia-N	mg/L		<0.15										
Total Arsenic (As)	mg/L	0.100*	0.001										
Total Barium (Ba)	mg/L		0.023										
Total BOD	mg/L		<2										
Total Boron (B)	mg/L	0.200	0.15										
Total Cadmium (Cd)	mg/L	0.0002	<0.0001										
Total Calcium (Ca)	mg/L		73										
Total Chemical Oxygen Demand (COD)	mg/L		16										
Total Chromium (Cr)	mg/L	0.0089	<0.005										
Total Copper (Cu)	mg/L	0.005	<0.002										
Total Dissolved Solids	mg/L		525										
Total Iron (Fe)	mg/L	0.300	0.1										
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7										
Total Lead (Pb)	mg/L	0.005	<0.0005										
Total Magnesium (Mg)	mg/L		46										
Total Nickel (Ni)	mg/L	0.025	0.001										
Total Phosphorus	mg/L	0.02*	0.008										
Total Potassium (K)	mg/L		4.9										
Total Sodium (Na)	mg/L		33										
Total Suspended Solids	mg/L		2										
Total Un-ionized Ammonia	mg/L	0.02	*<0.06*										
Total Zinc (Zn)	mg/L	0.020	<0.01										
Ion Percentage	%		0.1										

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP4									
Date			**6-May-10**	**16-Jul-10**	**1-Dec-10**	**28-Feb-11**	**20-Apr-11**	**9-Aug-11**	**13-Oct-11**	**13-Mar-12**	**27-Mar-12**	**21-Dec-12**
Laboratory			**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	107	142	99	72	82	46	82	92	85	160
Conductivity	umho/cm		475	489	402	381	446	301	342	360	350	570
Dissolved Chloride (Cl)	mg/L		30	31	24	39	46	42	38	26	27	39
Dissolved Mercury (Hg)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		85	62	62	42	55	23	19	54	45	62
Nitrate (N)	mg/L		0.2	<0.1	0.2	0.4	<0.1	<0.1	<0.1	<0.10	<0.10	0.22
Nitrite (N)	mg/L		0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010
pH	(pH units)	6.5-8.5	7.9	8.0	8.0	7.8	7.9	**9.7**	8.3	8.1	8.2	8.0
Phenols-4AAP	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	**0.0017**	<0.0010	<0.0010
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.15
Total Arsenic (As)	mg/L	0.100*	0.002	0.002	<0.001	<0.001	<0.001	0.004	0.002	<0.001	0.001	0.001
Total Barium (Ba)	mg/L		0.031	0.030	0.033	0.020	0.028	<0.005	0.005	0.019	0.015	0.048
Total BOD	mg/L		<2	<2	3	<2	<2	<2	<2	<2.0	<2.0	5.0
Total Boron (B)	mg/L	0.200	0.040	0.060	0.030	<0.02	0.020	0.020	0.040	0.020	0.030	0.050
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		56	48	50	38	42	18	26	38	34	63
Total Chemical Oxygen Demand (COD)	mg/L		25	31	22	15	20	20	26	14	17	16
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	0.004	0.003	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.002
Total Dissolved Solids	mg/L		300	310	274	234	262	220	224	222	234	294
Total Iron (Fe)	mg/L	0.300	**3.000**	**2.100**	**1.400**	**0.700**	**0.700**	<0.1	0.300	**0.370**	**0.390**	**1.100**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.9	1.1	0.7	0.6	0.7	0.6	0.6	0.5	0.48	1.6
Total Lead (Pb)	mg/L	0.005	0.001	0.001	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001
Total Magnesium (Mg)	mg/L		18.0	23.0	14.0	8.1	12.0	7.9	9.6	12.0	12.0	18.0
Total Nickel (Ni)	mg/L	0.025	0.005	0.004	0.003	0.002	0.002	<0.001	0.001	<0.001	0.001	0.003
Total Phosphorus	mg/L	0.02*	**0.13**	**0.09**	**0.06**	*<0.03*	**0.03**	**0.03**	**0.02**	0.02	0.02	**0.07**
Total Potassium (K)	mg/L		2.60	3.20	2.50	2.10	1.90	0.60	1.30	1.50	0.87	4.40
Total Sodium (Na)	mg/L		19	22	15	25	30	27	24	19	22	29
Total Suspended Solids	mg/L		50	60	30	3	16	2	5	9	3	32
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Zinc (Zn)	mg/L	0.020	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ion Percentage	%		4.3	4.5	5.1	2.1	2.1	1.4	0.4	0.3	1.9	1.8

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP4									
Date			**13-Jan-13**	**10-Apr-13**	**5-Jul-13**	**7-Oct-13**	**11-Jan-14**	**8-Apr-14**	**7-Jul-14**	**24-Nov-14**	**15-Dec-14**	**4-Jan-15**
Laboratory			**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**
Routine/Verification Event							**Routine**	**Routine**	**Routine**	**Routine**	**Verification**	**Routine**
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	69	130	110	100	120	87	130	110	64	98
Conductivity	umho/cm		240	450	360	430	470	330	590	730	360	600
Dissolved Chloride (Cl)	mg/L		12	33	33	25	26	19	72	95	36	68
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		28	41	19	60	61	45	52	110	44	92
Nitrate (N)	mg/L		0.38	0.17	<0.10	0.44	0.61	0.45	<0.10	0.36	0.19	0.35
Nitrite (N)	mg/L		<0.010	<0.010	<0.010	0.01	0.022	<0.010	<0.010	<0.010	0.013	0.012
pH	(pH units)	6.5-8.5	7.6	7.9	**8.9**	8.0	7.9	7.9	8.0	7.9	7.6	8.1
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001	<0.0010	<0.001	<0.001	**0.005**
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	0.45	0.19	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	<0.001	0.001	0.005	0.004	0.002	0.002	0.007	0.002	<0.001	<0.001
Total Barium (Ba)	mg/L		0.013	0.044	0.043	0.068	0.038	0.032	0.086	0.052	0.027	0.032
Total BOD	mg/L		<2.0	<2.0	<2.0	5.0	6.0	4.0	10.0	<2.0	<2.0	5.0
Total Boron (B)	mg/L	0.200	<0.02	0.030	0.060	0.050	0.030	0.020	0.070	0.040	0.030	0.040
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		23	58	37	57	59	47	64	74	46	59
Total Chemical Oxygen Demand (COD)	mg/L		42	20	35	30	24	20	44	21	8.7	24
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	0.0060	<0.005	<0.005	**0.0100**	0.0050	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	<0.002	0.004	0.002	0.005	0.002	0.004	**0.007**	**0.008**	0.002	0.003
Total Dissolved Solids	mg/L		126	276	204	258	210	248	382	456	220	378
Total Iron (Fe)	mg/L	0.300	**0.450**	**2.400**	**3.100**	**6.600**	**1.800**	**4.100**	**10.000**	**4.900**	**0.460**	**0.610**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.72	1.40	1.50	2.00	1.60	1.50	2.50	1.10	0.58	0.87
Total Lead (Pb)	mg/L	0.005	0.001	0.002	0.002	0.004	0.001	0.002	**0.006**	0.002	<0.0005	<0.0005
Total Magnesium (Mg)	mg/L		5	13	13	15	14	10	19	20	12	16
Total Nickel (Ni)	mg/L	0.025	0.001	0.004	0.004	0.009	0.003	0.006	0.014	0.009	0.001	0.002
Total Phosphorus	mg/L	0.02*	**0.02**	**0.10**	**0.18**	**0.13**	**0.10**	**0.11**	**0.32**	**0.13**	**0.06**	**0.07**
Total Potassium (K)	mg/L		1.8	3.5	3.8	4.3	4.7	3.0	4.5	5.7	3.7	5.9
Total Sodium (Na)	mg/L		6.5	23.0	27.0	16.0	4.7	12.0	45.0	56.0	31.0	41.0
Total Suspended Solids	mg/L		4	68	52	150	39	73	260	99	61	21
Total Un-ionized Ammonia	mg/L	0.02	<0.02	<0.02	*<0.49*	<0.011	0.0055	0.0035	<0.0014	*<0.034*	<0.017	<0.0033
Total Zinc (Zn)	mg/L	0.020	<0.01	0.01	**0.03**	0.02	<0.01	0.01	**0.03**	**0.02**	<0.01	<0.01
Ion Percentage	%		1.8	6.6	7.5	7.8	0.1	4.1	4.6	2.5	9.8	1.7

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP4									
Date			10-Apr-15	3-Aug-15	25-Oct-15	25-Feb-16	7-Apr-16	14-Jul-16	21-Oct-16	12-Jan-17	6-Apr-17	13-Jul-17
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Routine/Verification Event			Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	100	130	150	93	120	120	140	110	120	130
Conductivity	umho/cm		490	460	540	420	430	450	460	390	440	320
Dissolved Chloride (Cl)	mg/L		47	39	49	20	15	28	31	26	16	15
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		62	40	42	75	74	53	45	41	69	23
Nitrate (N)	mg/L		0.33	<0.10	<0.10	0.56	0.30	<0.010	<0.10	0.33	0.17	<0.10
Nitrite (N)	mg/L		0.034	<0.010	0.023	0.025	<0.010	<0.10	<0.010	0.018	0.025	<0.010
pH	(pH units)	6.5-8.5	7.0	7.9	8.2	8.1	7.9	8.0	8.0	7.9	8.1	7.9
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.16	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.004	0.004	0.003	<0.001	0.001	0.004	0.003	0.002	0.001	0.004
Total Barium (Ba)	mg/L		0.058	0.064	0.057	0.022	0.034	0.056	0.054	0.055	0.035	0.045
Total BOD	mg/L		<2.0	3.0	<2.0	<2.0	<2.0	<2.0	<2.0	4.0	<2.0	2.0
Total Boron (B)	mg/L	0.200	0.040	0.060	0.060	0.020	0.040	0.060	0.050	0.040	0.030	0.050
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		58	55	54	49	60	50	54	45	59	41
Total Chemical Oxygen Demand (COD)	mg/L		20	28	29	13	21	48	23	29	20	30
Total Chromium (Cr)	mg/L	0.0089	**0.0120**	0.0070	0.0050	<0.005	<0.005	<0.005	<0.005	**0.0090**	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	**0.011**	0.005	0.004	0.003	0.005	0.004	0.003	**0.007**	0.005	0.003
Total Dissolved Solids	mg/L		292	332	256	222	264	328	272	210	272	188
Total Iron (Fe)	mg/L	0.300	**11.000**	**6.200**	**4.100**	**1.600**	**3.700**	**4.500**	**3.700**	**4.700**	**2.900**	**3.400**
Total Kjeldahl Nitrogen (TKN)	mg/L		1.40	0.50	0.77	0.33	0.44	<0.7	0.53	0.67	<0.7	0.48
Total Lead (Pb)	mg/L	0.005	0.005	0.003	0.003	0.001	0.002	0.003	0.003	0.003	0.002	0.002
Total Magnesium (Mg)	mg/L		16	14	17	13	16	17	16	11	16	13
Total Nickel (Ni)	mg/L	0.025	0.016	0.010	0.008	0.003	0.006	0.008	0.006	0.007	0.005	0.006
Total Phosphorus	mg/L	0.02*	**0.24**	**0.20**	**0.15**	**0.05**	**0.10**	**0.20**	**0.13**	**0.18**	*<0.060*	**0.16**
Total Potassium (K)	mg/L		4.8	3.8	4.1	3.1	3.3	3.5	3.2	8.5	3.9	3.4
Total Sodium (Na)	mg/L		32	26	35	13	12	22	21	13	13	13
Total Suspended Solids	mg/L		180	180	110	31	67	140	110	120	73	100
Total Un-ionized Ammonia	mg/L	0.02	<0.0057	<0.011	<0.0033	<0.0024	<0.0012	<0.014	<0.0025	<0.0005	<0.0005	<0.015
Total Zinc (Zn)	mg/L	0.020	**0.040**	0.020	<0.01	<0.01	0.010	0.010	<0.01	0.020	0.010	0.010
Ion Percentage	%		5.5	3.2	2.2	1.1	3.1	3.7	2.2	1.0	1.0	2.0

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

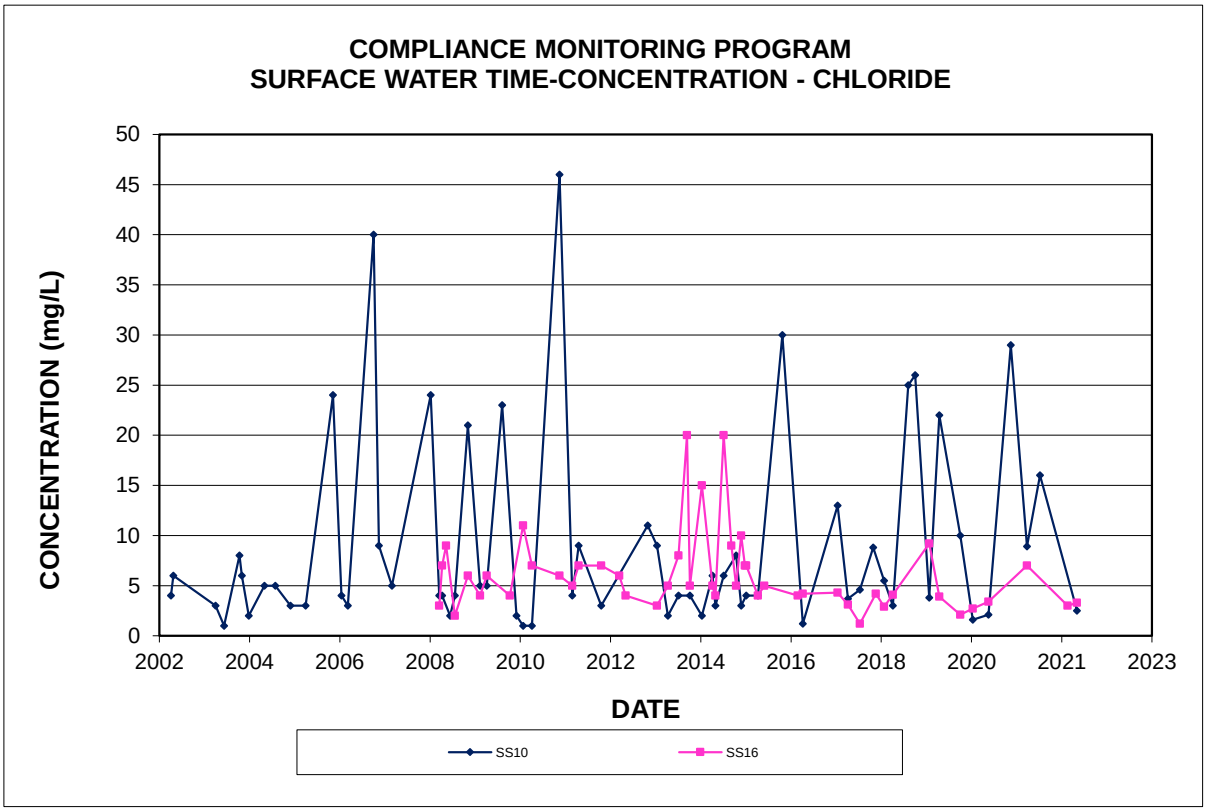
Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP4									
Date			**12-Oct-17**	**23-Jan-18**	**4-Apr-18**	**8-Aug-18**	**31-Oct-18**	**24-Jan-19**	**19-Apr-19**	**2-Oct-19**	**11-Jan-20**	**18-May-20**
Laboratory			**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Routine/Verification Event			**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	160	87	120	130	150	97	150	160	130	150
Conductivity	umho/cm		430	310	490	380	450	360	590	440	583	700
Dissolved Chloride (Cl)	mg/L		23	11	20	20	17	17	25	21	27	34
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Sulphate (SO_4)	mg/L		34	46	96	37	54	50	110	39	140	150
Nitrate (N)	mg/L		<0.10	0.46	0.24	<0.10	<0.10	0.47	0.33	<0.10	<0.10	<0.10
Nitrite (N)	mg/L		<0.010	0.015	<0.010	<0.010	<0.010	0.014	<0.010	<0.010	<0.010	<0.010
pH	(pH units)	6.5-8.5	8.2	7.8	8.0	8.0	8.0	7.8	8.2	8.3	8.3	8.2
Phenols-4AAP	mg/L	0.001	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Ammonia-N	mg/L		<0.050	0.260	0.062	<0.050	0.093	0.750	<0.050	0.051	<0.050	<0.050
Total Arsenic (As)	mg/L	0.100*	0.002	<0.001	0.003	0.006	0.002	0.001	<0.001	0.004	<0.001	0.001
Total Barium (Ba)	mg/L		0.053	0.025	0.058	0.063	0.045	0.027	0.034	0.045	0.042	0.047
Total BOD	mg/L		<2.0	<2	<2	<2	<2	5	8	4	<2	3
Total Boron (B)	mg/L	0.200	0.070	0.020	0.040	0.070	0.050	0.030	0.050	0.110	0.040	0.050
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		51	37	73	46	56	43	70	46	74	77
Total Chemical Oxygen Demand (COD)	mg/L		24	20	14	28	21	28	22	29	15	30
Total Chromium (Cr)	mg/L	0.0089	*<0.005*	<0.005	**0.0090**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005	*<0.002*	**0.006**	**0.013**	0.003	0.003	**0.007**	0.004	<0.002	0.004	0.003
Total Dissolved Solids	mg/L		270	170	190	265	415	215	370	280	395	450
Total Iron (Fe)	mg/L	0.300	**1.800**	**2.300**	**8.800**	**3.900**	**2.000**	**2.400**	**0.900**	**2.300**	**1.300**	**2.200**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.52	0.55	0.35	0.64	0.32	1.30	0.55	0.68	0.32	0.43
Total Lead (Pb)	mg/L	0.005	0.001	0.002	**0.005**	0.003	0.002	0.002	0.001	0.003	0.001	0.0012
Total Magnesium (Mg)	mg/L		16	10	21	16	13	12	22	18	24	25
Total Nickel (Ni)	mg/L	0.025	0.004	0.004	0.012	0.006	0.004	0.005	0.003	0.004	0.003	0.004
Total Phosphorus	mg/L	0.02*	**0.09**	**0.10**	**0.21**	**0.19**	**0.08**	**0.11**	**0.05**	**0.12**	**0.04**	**0.09**
Total Potassium (K)	mg/L		3.9	3.4	5.2	3.8	4.0	7.2	4.7	3.0	4.8	3.7
Total Sodium (Na)	mg/L		17.0	7.2	14.0	16.0	10.0	9.1	16.0	18.0	17	23
Total Suspended Solids	mg/L		49	36	230	97	33	41	26	61	35	69
Total Un-ionized Ammonia	mg/L	0.02	<0.0005	0.01	<0.0005	<0.0005	<0.00061	<0.00061	<0.0033	0.01	<0.0015	<0.0043
Total Zinc (Zn)	mg/L	0.020	*<0.01*	0.010	**0.030**	<0.01	<0.01	0.020	<0.01	<0.01	<0.01	<0.01
Ion Percentage	%		0.8	0.5	5.4	3.0	1.2	1.9	0.5	0.1	0.9	0.4

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas Laboratories

Table I-2
Precipitation Event Surface Water Quality - General Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP4									
Date			15-Nov-20	26-Mar-21	3-Jun-21	9-Jul-21	4-Oct-21	17-Feb-22	4-May-22	18-Oct-22		
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureaus Veritas		
Routine/Verification Event			Routine	Routine	Routine	Routine	Routine	Routine	Routine	Routine		
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	160	120	47	99	140	82	150	140		
Conductivity	umho/cm		550	540	450	570	500	570	650	570		
Dissolved Chloride (Cl)	mg/L		26	32	37	79	45	34	37	29		
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Dissolved Sulphate (SO_4)	mg/L		78	92	120	58	43	140	130	110		
Nitrate (N)	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10	0.54	0.18	<0.10		
Nitrite (N)	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	0.034	<0.010	<0.010		
pH	(pH units)	6.5-8.5	8.1	8.1	**9.6**	8.5	8.1	8.0	8.2	8.1		
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	**0.0011**	<0.0010	<0.0010		
Total Ammonia-N	mg/L		0.058	<0.050	<0.050	<0.15	<0.15	1.05	<0.15	<0.15		
Total Arsenic (As)	mg/L	0.100*	0.002	0.001	0.001	0.005	0.002	0.003	0.001	0.003		
Total Barium (Ba)	mg/L		0.037	0.039	0.019	0.008	0.032	0.042	0.037	0.041		
Total BOD	mg/L		<2	<2	<2	3	6	2	2	3		
Total Boron (B)	mg/L	0.200	0.07	0.04	0.06	0.07	0.07	0.09	0.07	0.07		
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		
Total Calcium (Ca)	mg/L		68	65	32	35	52	67	74	65		
Total Chemical Oxygen Demand (COD)	mg/L		19	17	21	42	47	20	21	5.1		
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	**0.012**	<0.005	<0.005		
Total Copper (Cu)	mg/L	0.005	<0.002	0.004	<0.002	<0.002	<0.002	**0.015**	0.004	<0.002		
Total Dissolved Solids	mg/L		300	310	280	355	275	315	350	305		
Total Iron (Fe)	mg/L	0.300	**1.2**	**2.0**	**0.6**	**0.5**	**1.4**	**12**	**2**	**1.8**		
Total Kjeldahl Nitrogen (TKN)	mg/L		0.44	0.32	0.95	<0.7	<0.7	1.9	<0.7	<0.7		
Total Lead (Pb)	mg/L	0.005	0.0009	0.0013	<0.0005	<0.0005	0.00	0.0048	0.0011	0.0011		
Total Magnesium (Mg)	mg/L		17	17	19	19	13	26	26	20		
Total Nickel (Ni)	mg/L	0.025	0.003	0.004	0.003	0.002	0.003	0.020	0.006	0.004		
Total Phosphorus	mg/L	0.02*	**0.06**	**0.07**	**0.03**	**0.05**	**0.17**	**0.19**	**0.077**	**0.047**		
Total Potassium (K)	mg/L		3.5	4.1	1.7	2.6	5.5	6.9	4.7	4.1		
Total Sodium (Na)	mg/L		18	22	26	51	33	25	25	20		
Total Suspended Solids	mg/L		38	64	16	11	45	360	41	32		
Total Un-ionized Ammonia	mg/L	0.02	0.002	<0.00061	<0.048	<0.03	<0.014	0.0019	<0.0054	<0.0034		
Total Zinc (Zn)	mg/L	0.020	*<0.01*	0.01	<0.01	<0.01	<0.01	**0.03**	<0.01	<0.01		
Ion Percentage	%		0.5	2.3	1.0	0.76	1.4	5.1	1.0	0.3		

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) *** denotes change from background concentrations.
4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
6) umho/cm denotes microsiemens per centimeter.
7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
10) **Bolded** text and shading denotes concentration exceeds PWQO.
11) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.
12) "BV" denotes Bureau Veritas Laboratories


COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - CHLORIDE
CONCENTRATION (mg/L)
50
45
40
35
30
25
20
15
10
5
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
DATE
SS10
SS16

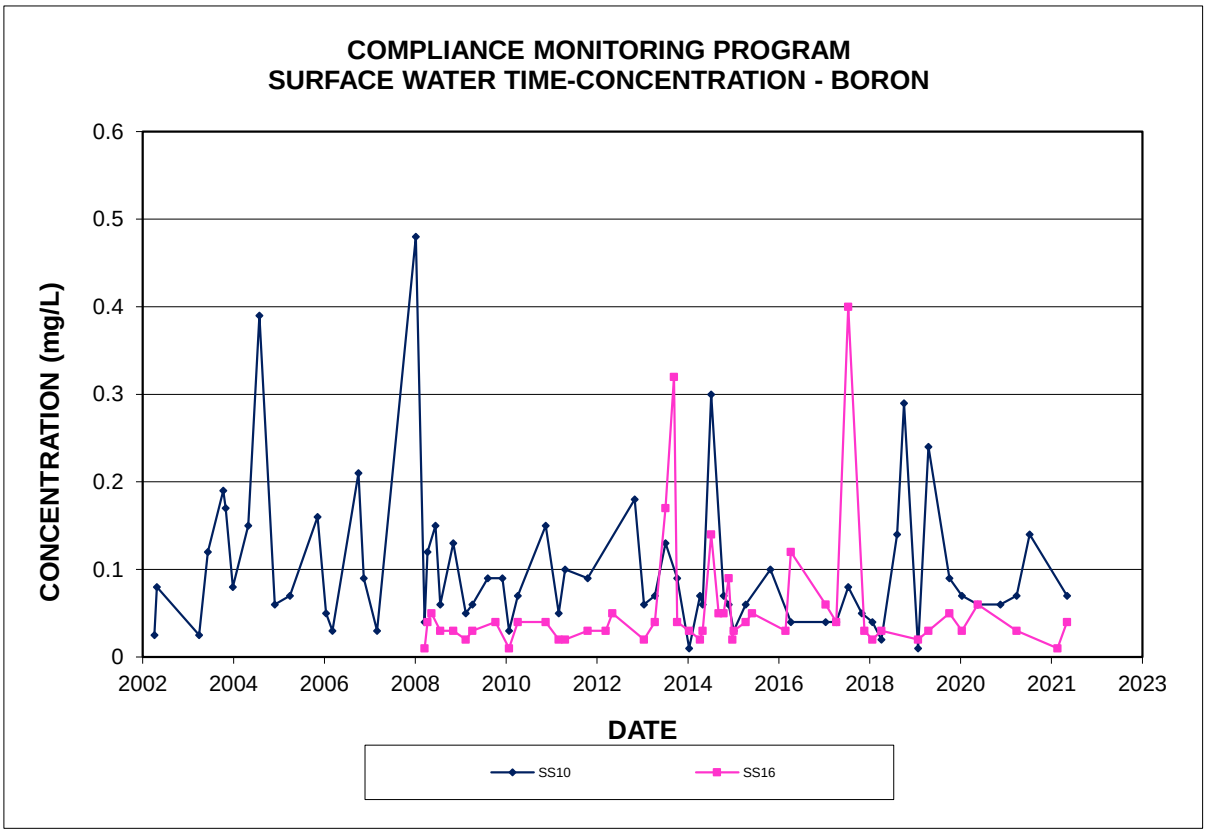
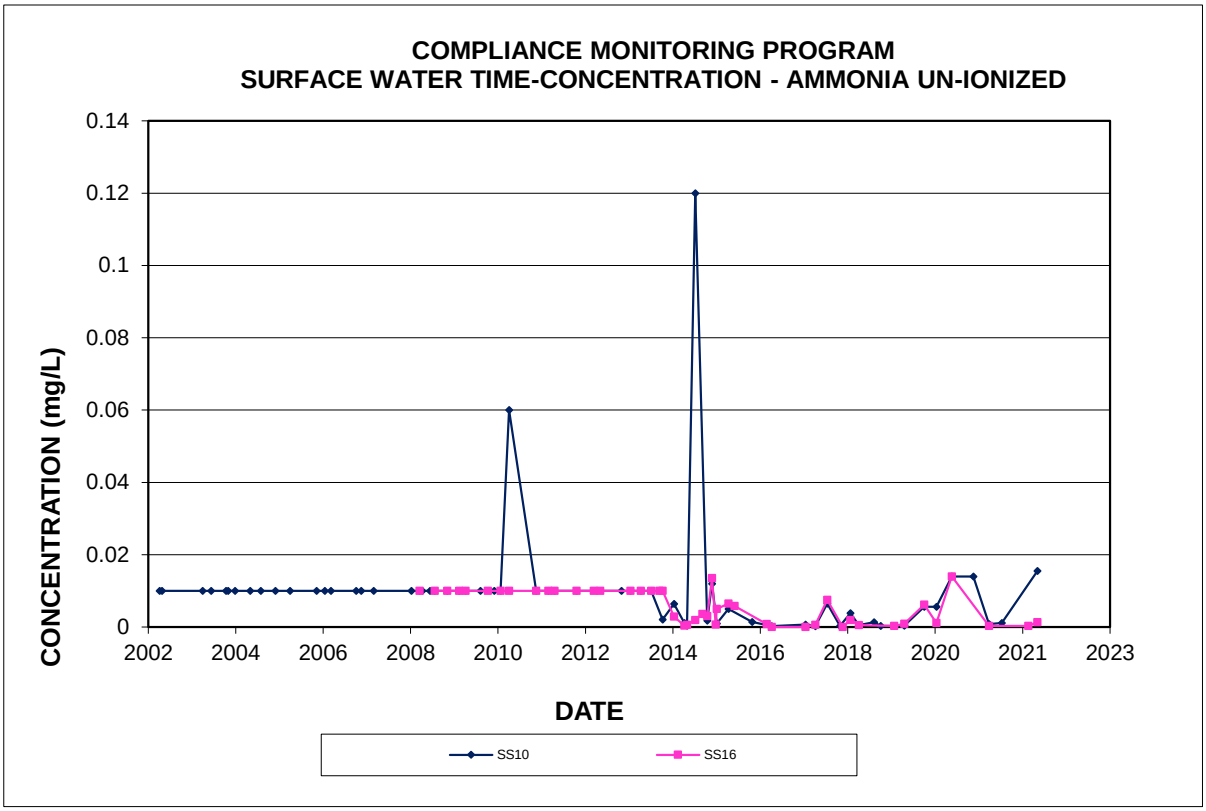

COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - BORON
CONCENTRATION (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
DATE
SS10
SS16

FIGURE I-1


COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - AMMONIA UN-IONIZED
CONCENTRATION (mg/L)
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
DATE
SS10
SS16

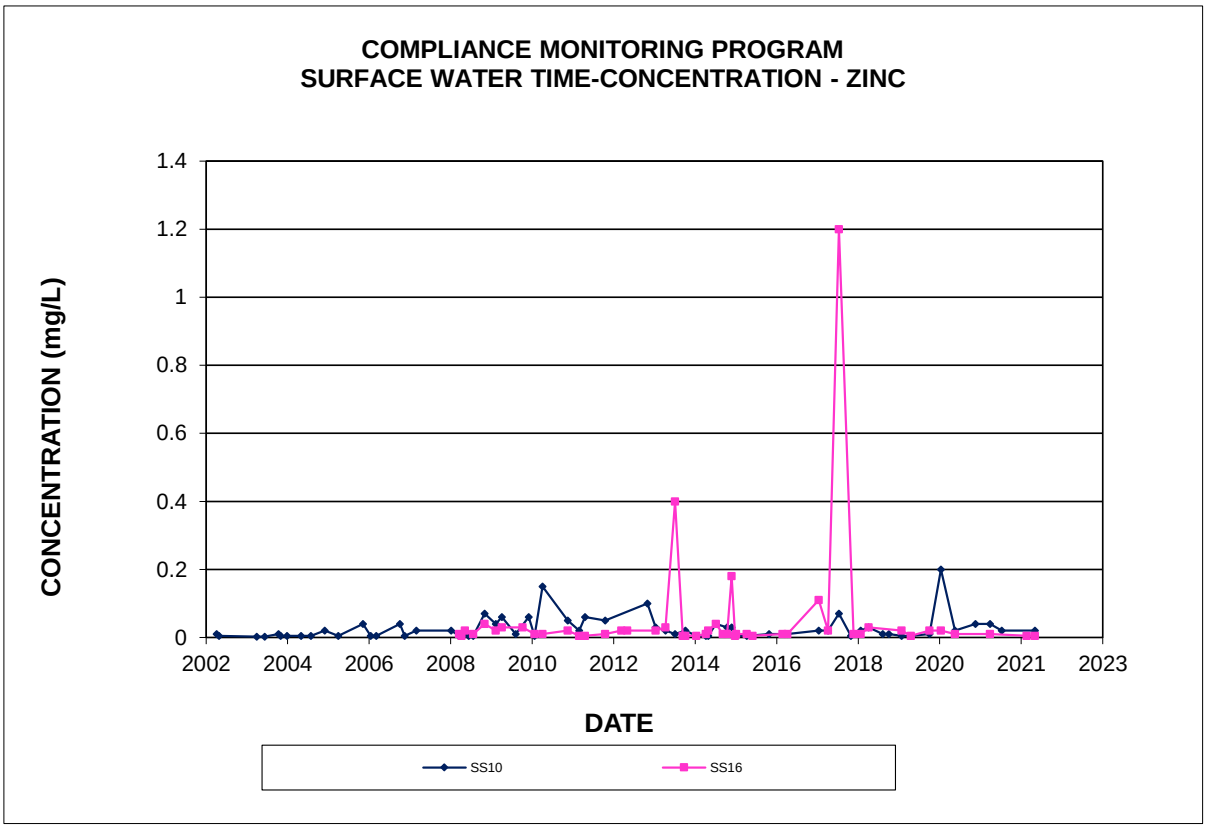
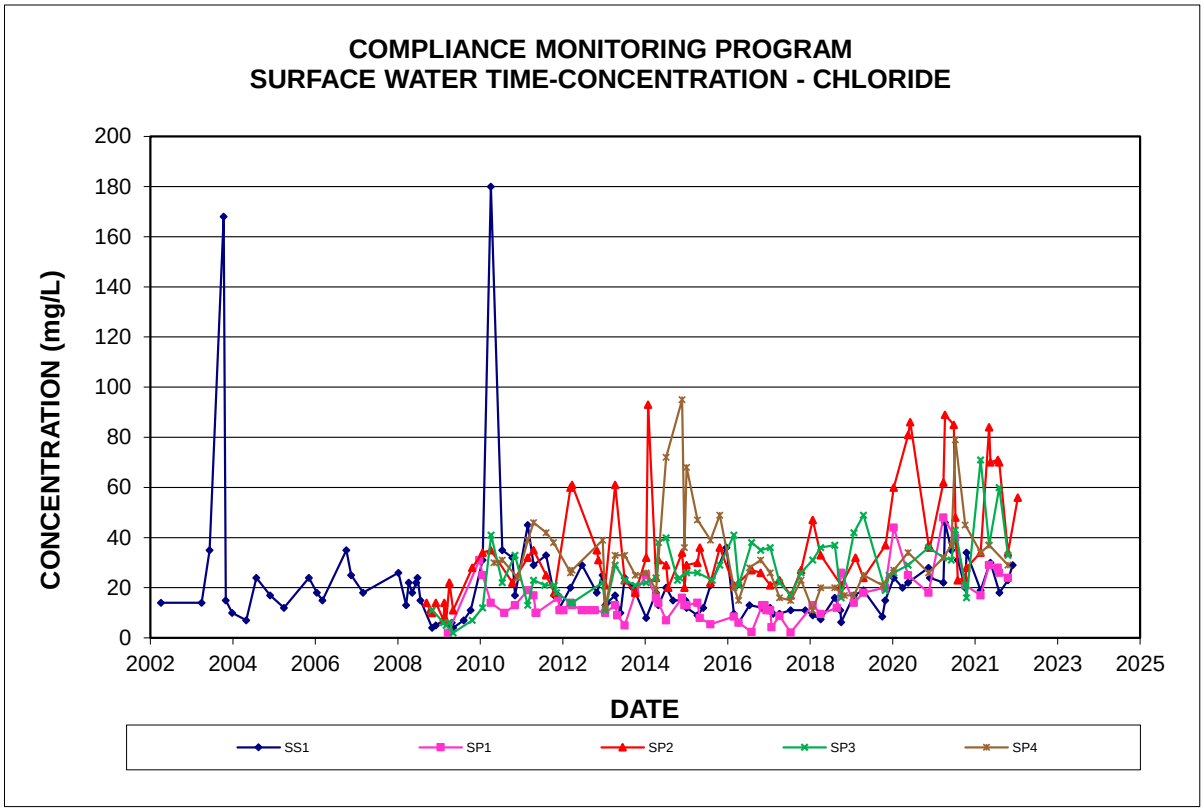

COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - ZINC
CONCENTRATION (mg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
DATE
SS10
SS16

FIGURE I-2


COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - CHLORIDE
CONCENTRATION (mg/L)
200
180
160
140
120
100
80
60
40
20
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
2025
DATE
SS1
SP1
SP2
SP3
SP4

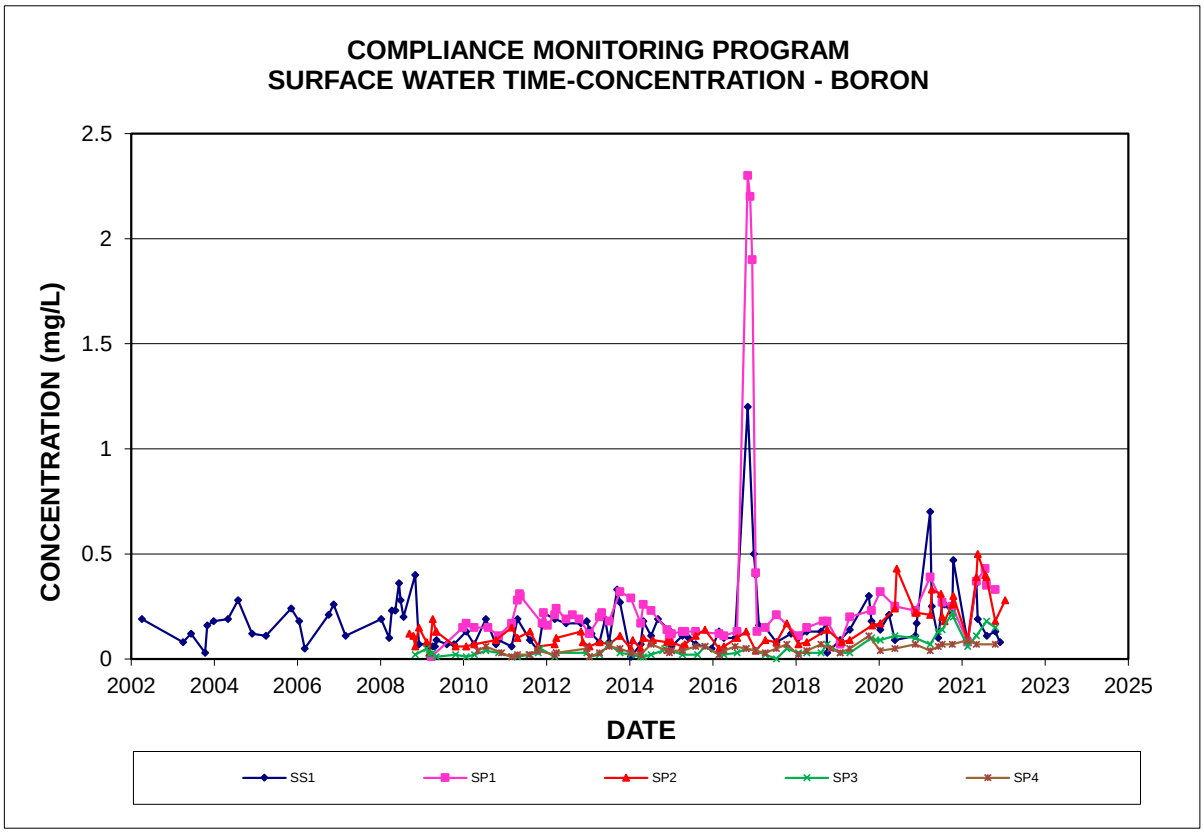
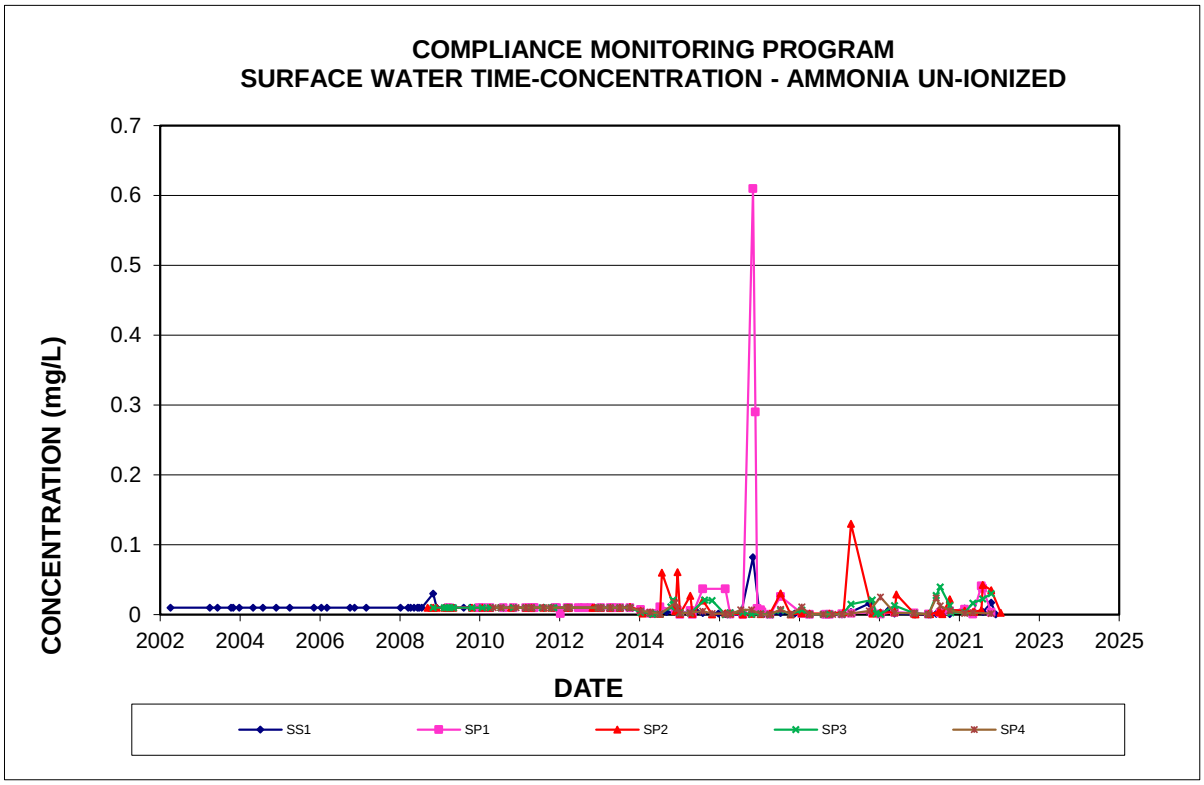

COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - BORON
CONCENTRATION (mg/L)
2.5
2
1.5
1
0.5
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
2025
DATE
SS1
SP1
SP2
SP3
SP4

FIGURE I-3


COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - AMMONIA UN-IONIZED
CONCENTRATION (mg/L)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
2025
DATE
SS1
SP1
SP2
SP3
SP4

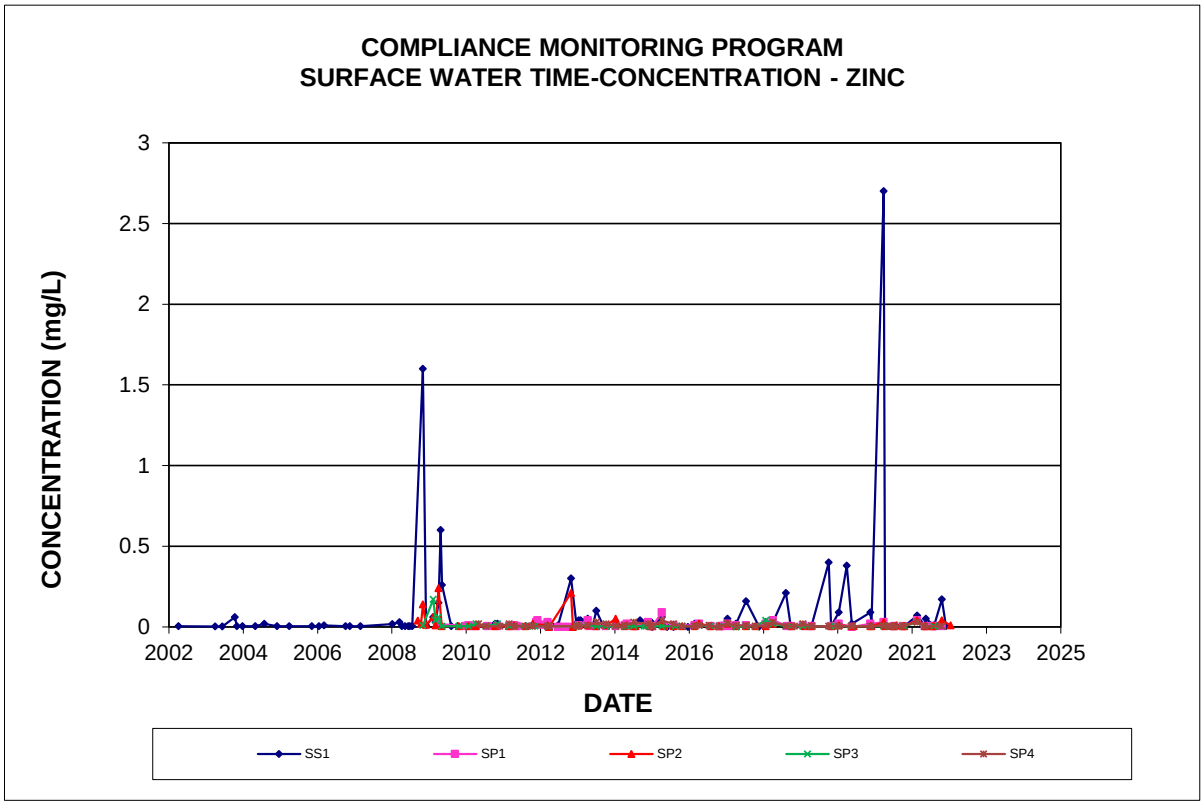

COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - ZINC
CONCENTRATION (mg/L)
3
2.5
2
1.5
1
0.5
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
2025
DATE
SS1
SP1
SP2
SP3
SP4

FIGURE I-4

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60m East of Lambton Rd 79 - SS1										
Date			19-Mar-08	11-Apr-08	12-May-08	14-Jun-08	29-Jun-08	23-Jul-08	4-Nov-08	5-Dec-08	12-Feb-09	8-Mar-09	6-Apr-09
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	**1.7**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-N-butyl phthalate	µg/L	4	<2	<2		<2			<2	<2	<2	<2	<2
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	µg/L	4	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	µg/L	8*	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichloromethane	µg/L	100*	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.8*	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Vinyl Chloride	µg/L	600*	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p+m-Xylene	µg/L	32*	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o-Xylene	µg/L	40*	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (Total)	µg/L		<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60m East of Lambton Rd 79 - SS1										
Date			26-Apr-09	9-May-09	9-Aug-09	10-Oct-09	25-Jan-10	6-Apr-10	16-Jul-10	14-Oct-10	28-Feb-11	20-Apr-11	9-Aug-11
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2
1,4-Dichlorobenzene	µg/L	4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.4
Ethylbenzene	µg/L	8*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2
Dichloromethane	µg/L	100*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1
Toluene	µg/L	0.8*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.4
Vinyl Chloride	µg/L	600*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.4
p+m-Xylene	µg/L	32*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2
o-Xylene	µg/L	40*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2
Xylene (Total)	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60m East of Lambton Rd 79 - SS1										
Date			20-Oct-11	23-Nov-11	6-Dec-11	13-Mar-12	22-Jun-12	30-Oct-12	21-Dec-12	13-Jan-13	30-Jan-13	10-Apr-13	29-May-13
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.1	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.5	<0.10	<0.20	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.2	<1	<0.20	<0.40	<0.20	<0.20	<0.50	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.1	<0.5	<0.10	<0.20	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.5	<3	<0.50	<1.0	<0.50	<0.50	<1.3	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.2	<1	<0.20	<0.40	<0.20	<0.20	<0.50	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.2	<1	<0.20	<0.40	<0.20	<0.20	<0.50	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.1	<0.5	<0.10	<0.20	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.1	<0.5	<0.10	<0.20	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.1	<0.5	<0.10	<0.20	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60m East of Lambton Rd 79 - SS1										
Date			5-Jul-13	12-Sep-13	7-Oct-13	11-Jan-14	8-Apr-14	30-Apr-14	7-Jul-14	6-Sep-14	25-Dec-14	4-Jan-15	10-Apr-15
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.50*	*<0.50*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	*<0.50*	*<0.50*	*<0.50*
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.30*	*<0.30*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*	*<1.0*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<1.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60m East of Lambton Rd 79 - SS1										
Date			1-Jun-15	3-Aug-15	25-Feb-16	7-Apr-16	14-Jul-16	3-Nov-16	27-Dec-16	12-Jan-17	6-Apr-17	13-Jul-17	19-Nov-17
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.80	<0.20	<0.80	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*	*<2.0*	*<0.50*	*<0.50*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	*<2.0*	*<0.50*	*<2.0*	*<0.50*	*<0.50*	*<0.50*
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*	*<1.2*	*<0.30*	*<0.30*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	<2.0	<2.0	<8.0	<2.0	<8.0	<2.0	<2.0	<2.0
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.20
Ethylbenzene	µg/L	8*	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60m East of Lambton Rd 79 - SS1										
Date			23-Jan-18	4-Apr-18	8-Aug-18	26-Sep-18	2-Oct-18	24-Jan-19	17-Apr-19	2-Oct-19	27-Oct-19	11-Jan-20	29-Mar-20
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.80	<0.20	<0.80	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	4	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene	µg/L	0.0065	*<2.0*	*<0.50*	*<2.0*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<2.0	<0.50	<2.0	<0.50	<0.50	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*
2,4-Dichlorophenol	µg/L	0.2	*<1.2*	*<0.30*	*<1.2*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Phenol	µg/L	5*	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,4,6-Trichlorophenol	µg/L	18	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Di-N-butyl phthalate	µg/L	4	<8.0	<2.0	<8.0	<2.0	<2.0	**4.4**	<2.0	<2.0	<2.0	<2.0	<2.0
Diethyl phthalate	µg/L	0.2	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	4	<0.20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.40
Ethylbenzene	µg/L	8*	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	100*	<0.50	<0.50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	40*	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene (Total)	µg/L		<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) µg/L denotes micrograms per litre.
4) Blank denotes parameter not analyzed.
5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).
6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60m East of Lambton Rd 79 - SS1										
Date			18-May-20	15-Nov-20	26-Nov-20	26-Mar-21	9-Apr-21	3-Jun-21	9-Jul-21	30-Jul-21	4-Oct-21	15-Oct-21	17-Feb-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20	<0.80	<0.20	<0.80	<0.20	<0.20	<0.20	<0.20	<0.80
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<2.0
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<2.0
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<2.0
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*	*<2.0*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.0*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	*<2.0*	<0.50	*<2.0*	<0.50	<0.50	<0.50	<0.50	*<2.0*
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*	*<1.2*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.2*
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<2.0	**0.63**	<2.0	<0.50	<0.50	<0.50	<0.50	<2.0
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<2.0
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	*<8.0*	<2.0	<8.0	<2.0	<2.0	<2.0	<2.0	*<8.0*
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*
Volatile Organics													
Benzene	µg/L	100*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	4	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylbenzene	µg/L	8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	100*	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	40*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene (Total)	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Downstream of Landfill 60m East of Lambton Rd 79 - SS1										
Date			4-May-22	16-May-22	4-Aug-22	18-Oct-22	28-Nov-22						
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas						
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20	<0.80	<0.80						
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<2.0	<2.0						
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<2.0	<2.0						
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<2.0	<2.0						
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<2.0*						
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	*<2.0*	<2.0						
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<1.2*						
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*						
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<2.0	<2.0						
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<2.0	<2.0						
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	*<8.0*	<8.0						
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*						
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*						
Volatile Organics													
Benzene	µg/L	100*	<0.20	<0.20	<0.20	<0.20	<0.20						
1,4-Dichlorobenzene	µg/L	4	<0.40	<0.40	<0.40	<0.40	<0.40						
Ethylbenzene	µg/L	8*	<0.20	<0.20	<0.20	<0.20	<0.20						
Dichloromethane	µg/L	100*	<2.0	<2.0	<2.0	<2.0	<2.0						
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20						
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20						
p+m-Xylene	µg/L	32*	<0.20	<0.20	<0.20	<0.20	<0.20						
o-Xylene	µg/L	40*	<0.20	<0.20	<0.20	<0.20	<0.20						
Xylene (Total)	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20						

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) µg/L denotes micrograms per litre.
4) Blank denotes parameter not analyzed.
5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).
6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1										
Date			25-Mar-09	26-Dec-09	25-Jan-10	6-Apr-10	5-Aug-10	6-Nov-10	28-Feb-11	20-Apr-11	9-May-11	16-May-11	23-Nov-11
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*7*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3
1,4-Dichlorobenzene	µg/L	4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.5
Ethylbenzene	µg/L	8*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3
Dichloromethane	µg/L	100*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<1
Toluene	µg/L	0.8*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.5
Vinyl Chloride	µg/L	600*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.5
p+m-Xylene	µg/L	32*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3
o-Xylene	µg/L	40*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3
Xylene (Total)	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.3

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1										
Date			6-Dec-11	13-Mar-12	27-Mar-12	22-Jun-12	15-Aug-12	14-Oct-12	13-Jan-13	10-Apr-13	29-Apr-13	5-Jul-13	7-Oct-13
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.6**	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Volatile Organics													
Benzene	µg/L	100*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.50	<0.50	<0.50	<0.50	<0.50	<1.3	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1										
Date			11-Jan-14	8-Apr-14	30-Apr-14	7-Jul-14	24-Nov-14	15-Dec-14	4-Jan-15	10-Apr-15	30-Apr-15	3-Aug-15	25-Feb-16
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.8	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<2	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<2	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	4	<2	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene	µg/L	0.0065	*<2*	*<0.5*	*<0.5*	*<0.5*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	*<2*	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<1*	<0.3	*<0.3*	*<0.3*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<4*	<1	*<1*	*<1*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Phenol	µg/L	5*	<2	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,4,6-Trichlorophenol	µg/L	18	<2	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Di-N-butyl phthalate	µg/L	4	*<8*	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Diethyl phthalate	µg/L	0.2	*<4*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<4*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1										
Date			7-Apr-16	1-Aug-16	3-Nov-16	12-Jan-17	8-Feb-17	6-Apr-17	13-Jul-17	23-Jan-18	4-Apr-18	27-Aug-18	2-Oct-18
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.80	<0.80	<0.20	<0.20	<0.20	<0.80	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<2.0*	*<2.0*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*	*<0.50*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	*<2.0*	*<2.0*	*<0.50*	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<1.2*	*<1.2*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*	*<0.30*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*
Phenol	µg/L	5*	<0.50	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	*<8.0*	*<8.0*	*<2.0*	<2.0	<2.0	<8.0	<2.0	<2.0	<2.0
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.20	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	8*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
Dichloromethane	µg/L	100*	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
o-Xylene	µg/L	40*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20
Xylene (Total)	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1										
Date			24-Jan-19	19-Apr-19	27-Oct-19	11-Jan-20	18-May-20	15-Nov-20	26-Mar-21	9-Jul-21	4-Oct-21	17-Feb-22	4-May-22
Laboratory			Maxxam	Maxxam	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.80	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	*<2.0*	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	*<8.0*	<2.0
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylbenzene	µg/L	8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	100*	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	40*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene (Total)	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP1											
Date			20-Jul-22	4-Aug-22	18-Oct-22									
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas									
Semivolatile Organics														
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20									
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50									
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50									
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50									
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*									
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50									
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*									
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*									
Phenol	µg/L	5*	<0.50	<0.50	<0.50									
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50									
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0									
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*									
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*									
Volatile Organics														
Benzene	µg/L	100*	<0.20	<0.20	<0.20									
1,4-Dichlorobenzene	µg/L	4	<0.40	<0.40	<0.40									
Ethylbenzene	µg/L	8*	<0.20	<0.20	<0.20									
Dichloromethane	µg/L	100*	<2.0	<2.0	<2.0									
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20									
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20									
p+m-Xylene	µg/L	32*	<0.20	<0.20	<0.20									
o-Xylene	µg/L	40*	<0.20	<0.20	<0.20									
Xylene (Total)	µg/L		<0.20	<0.20	<0.20									

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) µg/L denotes micrograms per litre.
4) Blank denotes parameter not analyzed.
5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).
6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2										
Date			14-Sep-08	17-Oct-08	4-Nov-08	5-Dec-08	12-Feb-09	8-Mar-09	6-Apr-09	26-Apr-09	7-May-09	24-Oct-09	25-Jan-10
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	,0.5	,0.5	,0.5	,0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	µg/L	4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	µg/L	8*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichloromethane	µg/L	100*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.8*	<0.2	<0.2	<0.2	<0.2	<.02	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Vinyl Chloride	µg/L	600*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p+m-Xylene	µg/L	32*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o-Xylene	µg/L	40*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (Total)	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2										
Date			6-Apr-10	14-Oct-10	28-Feb-11	20-Apr-11	8-Aug-11	20-Oct-11	13-Mar-12	27-Mar-12	30-Oct-12	15-Nov-12	13-Jan-13
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2										
Date			10-Apr-13	5-Jul-13	7-Oct-13	11-Jan-14	28-Jan-14	8-Apr-14	30-Apr-14	7-Jul-14	24-Jul-14	24-Nov-14	15-Dec-14
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.50*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.30*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*
Phenol	µg/L	5*	<0.5	**0.6**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.2	<0.20	<0.20	**0.48**	<0.20	**0.29**	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.1	<0.10	<0.10	**0.12**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.1	<0.10	<0.10	**0.12**	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2										
Date			4-Jan-15	10-Apr-15	30-Apr-15	3-Aug-15	25-Oct-15	25-Feb-16	7-Apr-16	1-Aug-16	21-Oct-16	12-Jan-17	6-Apr-17
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20	<0.80	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.5*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.5*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*
Pentachlorophenol	µg/L	0.5	<1.0	*<1.0*	*<1.0*	*<1.0*	*<5.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	<2.0	<10	**3.0**	<2.0	<2.0	<2.0	<8.0	<2.0
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<5.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<5.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2										
Date			13-Jul-17	12-Oct-17	23-Jan-18	4-Apr-18	2-Oct-18	7-Feb-19	17-Apr-19	31-Oct-19	11-Jan-20	18-May-20	4-Jun-20
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*
Pentachlorophenol	µg/L	0.5	<1.0	<1.0	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<0.50	<0.50	0.51	<0.50	<0.50	<0.50	<0.50	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0	**4.9**	<2.0	<2.0	<2.0	<2.0
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40
Ethylbenzene	µg/L	8*	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	100*	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	40*	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene (Total)	µg/L		<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2										
Date			15-Nov-20	26-Nov-20	26-Mar-21	9-Apr-21	26-Jun-21	9-Jul-21	30-Jul-21	4-Oct-21	15-Oct-21	17-Feb-22	4-May-22
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.80	<0.80	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<2.0*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	*<2.0*	*<2.0*	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<1.2*	*<0.30*
Pentachlorophenol	µg/L	0.5	<1.0	<1.0	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	*<8.0*	*<8.0*	<2.0
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	4	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylbenzene	µg/L	8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	100*	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	40*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene (Total)	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP2										
Date			16-May-22	20-Jul-22	4-Aug-22	18-Oct-22	13-Jan-23						
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas						
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20	<0.80	<0.80						
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<2.0	<2.0						
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<2.0	<2.0						
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<2.0	<2.0						
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<2.0*						
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	<2.0	<2.0						
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<1.2*						
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*						
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<2.0	<2.0						
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<2.0	<2.0						
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	<8.0	<8.0						
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<4.0*	<4.0						
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<4.0*	<4.0						
Volatile Organics													
Benzene	µg/L	100*	<0.20	<0.20	<0.20	<0.20	<0.20						
1,4-Dichlorobenzene	µg/L	4	<0.40	<0.40	<0.40	<0.40	<0.40						
Ethylbenzene	µg/L	8*	<0.20	<0.20	<0.20	<0.20	<0.20						
Dichloromethane	µg/L	100*	<2.0	<2.0	<2.0	<2.0	<2.0						
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20						
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20						
p+m-Xylene	µg/L	32*	<0.20	<0.20	<0.20	<0.20	<0.20						
o-Xylene	µg/L	40*	<0.20	<0.20	<0.20	<0.20	<0.20						
Xylene (Total)	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20						

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) µg/L denotes micrograms per litre.
4) Blank denotes parameter not analyzed.
5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).
6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3										
Date			4-Nov-08	12-Feb-09	8-Mar-09	6-Apr-09	17-Apr-09	26-Apr-09	7-May-09	24-Oct-09	25-Jan-10	8-Apr-10	16-Jul-10
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	µg/L	4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	µg/L	8*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dichloromethane	µg/L	100*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.8*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Vinyl Chloride	µg/L	600*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p+m-Xylene	µg/L	32*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o-Xylene	µg/L	40*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (Total)	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3										
Date			6-Nov-10	28-Feb-11	20-Apr-11	29-Jul-11	20-Oct-11	9-Nov-11	13-Mar-12	27-Mar-12	21-Dec-12	13-Jan-13	10-Apr-13
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3										
Date			5-Jul-13	7-Oct-13	11-Jan-14	8-Apr-14	30-Apr-14	7-Jul-14	15-Oct-14	4-Nov-14	4-Jan-15	10-Apr-15	20-Aug-15
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<2*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.50*	*<0.50*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	*<2*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<1*	<0.3	<0.3	<0.3	*<0.3*	*<0.3*	*<0.30*	*<0.30*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<4*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*	*<1.0*
Phenol	µg/L	5*	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50
Di-N-butyl phthalate	µg/L	4	<2	<2	*<8*	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<4*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<4*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1.0*	*<1.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3										
Date			25-Oct-15	25-Feb-16	7-Apr-16	1-Aug-16	21-Oct-16	12-Jan-17	6-Apr-17	13-Jul-17	12-Oct-17	23-Jan-18	4-Apr-18
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.80	<0.20	<0.20	<0.20	<0.80	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*	*<1.0*	<1.0	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	<2.0	<2.0	*<8.0*	<2.0	<2.0	<2.0	<8.0	<2.0
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.20	<0.50	<0.50
Ethylbenzene	µg/L	8*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10
Dichloromethane	µg/L	100*	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.3	<0.50
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.20
p+m-Xylene	µg/L	32*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10
o-Xylene	µg/L	40*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10
Xylene (Total)	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.25	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP3										
Date			8-Aug-18	2-Oct-18	24-Jan-19	17-Apr-19	27-Oct-19	11-Jan-20	18-May-20	15-Nov-20	26-Mar-21	3-Jun-21	9-Jul-21
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.80	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.80	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
1,4-Dichlorobenzene	µg/L	4	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
Hexachlorobenzene	µg/L	0.0065	*<2.0*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	*<2.0*	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<1.2*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Phenol	µg/L	5*	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
2,4,6-Trichlorophenol	µg/L	18	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
Di-N-butyl phthalate	µg/L	4	<8.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<8.0	<2.0
Diethyl phthalate	µg/L	0.2	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylbenzene	µg/L	8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	100*	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	40*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene (Total)	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) µg/L denotes micrograms per litre.
4) Blank denotes parameter not analyzed.
5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).
6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	Oct-	Sedimentation Pond Surface Water Quality - SP3										
Date			4-Oct-21	15-Oct-21	17-Feb-22	4-May-22	4-Aug-22	18-Oct-22					
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas					
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.80	<0.20	<0.20	<0.20					
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50					
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50					
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50					
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<2.0*	*<0.50*	*<0.50*	*<0.50*					
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	*<2.0*	<0.50	<0.50	<0.50					
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<1.2*	*<0.30*	*<0.30*	*<0.30*					
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*					
Phenol	µg/L	5*	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50					
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50					
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	*<8.0*	<2.0	<2.0	<2.0					
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*					
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*					
Volatile Organics													
Benzene	µg/L	100*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20					
1,4-Dichlorobenzene	µg/L	4	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40					
Ethylbenzene	µg/L	8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20					
Dichloromethane	µg/L	100*	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0					
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20					
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20					
p+m-Xylene	µg/L	32*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20					
o-Xylene	µg/L	40*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20					
Xylene (Total)	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20					

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP4										
Date			6-May-10	16-Jul-10	1-Dec-10	28-Feb-11	20-Apr-11	9-Aug-11	13-Oct-11	13-Mar-12	27-Mar-12	21-Dec-12	13-Jan-13
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*	*<0.5*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*	*<0.3*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Phenol	µg/L	5*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*	*<1*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP4										
Date			10-Apr-13	5-Jul-13	7-Oct-13	11-Jan-14	8-Apr-14	7-Jul-14	24-Nov-14	15-Dec-14	4-Jan-15	10-Apr-15	3-Aug-15
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.2	<0.2	<0.2	<0.8	<0.2	<1	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<2	<0.5	*<3*	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.5	<0.5	<0.5	<2	<0.5	*<3*	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.5	<0.5	<0.5	<2	<0.5	<3	<0.50	<0.50	<0.50	<0.50	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.5*	*<0.5*	*<0.5*	*<2*	*<0.5*	*<3*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<2	<0.5	*<3*	<0.50	<0.50	<0.50	<0.50	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.3*	*<0.3*	*<0.3*	*<1*	*<0.3*	*<2*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1*	*<1*	*<1*	*<4*	*<1*	*<5*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Phenol	µg/L	5*	<0.5	**0.6**	<0.5	<2	<0.5	<3	<0.50	<0.50	<0.50	<0.50	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.5	<0.5	<0.5	<2	<0.5	<3	<0.50	<0.50	<0.50	<0.50	<0.50
Di-N-butyl phthalate	µg/L	4	<2	<2	<2	*<8*	*<2*	*<10*	<2.0	<2.0	<2.0	<2.0	<2.0
Diethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<4*	*<1*	*<5*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1*	*<1*	*<1*	*<4*	*<1*	*<5*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	8*	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.2	<0.20	<0.20	<0.20	**0.21**	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

7) VOC's sampled on December 17, 2014 for SP4.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP4										
Date			25-Oct-15	25-Feb-16	7-Apr-16	14-Jul-16	21-Oct-16	12-Jan-17	6-Apr-17	13-Jul-17	12-Oct-17	23-Jan-18	4-Apr-18
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.80	<0.20	<0.80	<0.20	<0.80	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	*<2.0*	<0.50	<2.0	<0.50	<2.0	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	*<2.0*	<0.50	<2.0	<0.50	<2.0	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*	*<2.0*	*<0.50*	*<2.0*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	*<2.0*	<0.50	*<2.0*	*<0.50*	<2.0	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*	*<1.2*	*<0.30*	*<1.2*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<0.50
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	<2.0	<2.0	*<8.0*	<2.0	*<8.0*	*<2.0*	<8.0	<2.0
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	<4.0	<1.0	*<4.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	**1.2**	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	<4.0	<1.0	*<4.0*	**1.3**
Volatile Organics													
Benzene	µg/L	100*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<2.0	<0.20	<0.20	<0.50
Ethylbenzene	µg/L	8*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dichloromethane	µg/L	100*	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L	40*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene (Total)	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP4										
Date			8-Aug-18	31-Oct-18	24-Jan-19	19-Apr-19	2-Oct-19	11-Jan-20	18-May-20	15-Nov-20	26-Mar-21	3-Jun-21	9-Jul-21
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.80	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.80	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
1,4-Dichlorobenzene	µg/L	4	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
Hexachlorobenzene	µg/L	0.0065	*<2.0*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	*<2.0*	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	*<0.50*	<0.50	<2.0	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<1.2*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*
Phenol	µg/L	5*	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**3.7**	<0.50
2,4,6-Trichlorophenol	µg/L	18	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50
Di-N-butyl phthalate	µg/L	4	<8.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<8.0	<2.0
Diethyl phthalate	µg/L	0.2	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	<1.0	*<1.0*	*<4.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<4.0*	<1.0	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	<1.0	*<1.0*	*<4.0*	*<1.0*
Volatile Organics													
Benzene	µg/L	100*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylbenzene	µg/L	8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichloromethane	µg/L	100*	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	µg/L	32*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	40*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene (Total)	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.

2) * denotes interim PWQO.

3) µg/L denotes micrograms per litre.

4) Blank denotes parameter not analyzed.

5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).

6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-3
Precipitation Event Surface Water Quality - Organic Analytical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	PWQO	Sedimentation Pond Surface Water Quality - SP4										
Date			4-Oct-21	17-Feb-22	4-May-22	18-Oct-22							
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas							
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20	<0.80	<0.20	<0.80							
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<2.0	<0.50	<2.0							
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<2.0	<0.50	<2.0							
1,4-Dichlorobenzene	µg/L	4	<0.50	<2.0	<0.50	<2.0							
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<2.0*	*<0.50*	*<2.0*							
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	*<2.0*	<0.50	<2.0							
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<1.2*	*<0.30*	*<1.2*							
Pentachlorophenol	µg/L	0.5	*<1.0*	*<4.0*	*<1.0*	*<4.0*							
Phenol	µg/L	5*	<0.50	<2.0	<0.50	<2.0							
2,4,6-Trichlorophenol	µg/L	18	<0.50	<2.0	<0.50	<2.0							
Di-N-butyl phthalate	µg/L	4	<2.0	*<8.0*	<2.0	<8.0							
Diethyl phthalate	µg/L	0.2	*<1.0*	*<4.0*	*<1.0*	*<4.0*							
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<4.0*	*<1.0*	*<4.0*							
Volatile Organics													
Benzene	µg/L	100*	<0.20	<0.20	<0.20	<0.20							
1,4-Dichlorobenzene	µg/L	4	<0.40	<0.40	<0.40	<0.40							
Ethylbenzene	µg/L	8*	<0.20	<0.20	<0.20	<0.20							
Dichloromethane	µg/L	100*	<2.0	<2.0	<2.0	<2.0							
Toluene	µg/L	0.8*	<0.20	<0.20	<0.20	<0.20							
Vinyl Chloride	µg/L	600*	<0.20	<0.20	<0.20	<0.20							
p+m-Xylene	µg/L	32*	<0.20	<0.20	<0.20	<0.20							
o-Xylene	µg/L	40*	<0.20	<0.20	<0.20	<0.20							
Xylene (Total)	µg/L		<0.20	<0.20	<0.20	<0.20							

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
3) µg/L denotes micrograms per litre.
4) Blank denotes parameter not analyzed.
5) **Bold** indicates select parameter was detected at concentration greater than the laboratory reportable detection limit (RDL).
6) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant PWQO.

Table I-4
Trigger Concentration Comparison - Surface Water
Twin Creeks Environmental Centre - 2022 Monitoring Report

Quarter Sampled	Event Type		Chloride	Ammonia (Unionized)	Phenols	Boron	Nickel	Chromium	Zinc	Biological
		PLIL Trigger Concentration →	**210**	**0.020**	**0.004**	**0.20 0.39 ***	**0.028**	**0.025**	**0.06**	**<50% Survival**
SS1 (Compliance)										
Q1	Routine	17-Feb-22	19	0.0089	0.0010	0.08	**0.039**	**0.026**	**0.07**	NR
Q1	Verification	4-May-22	29	<0.0047	<0.0010	**0.36**	0.009	<0.005	0.01	PASS
Q2	Routine	4-May-22	29	<0.0047	<0.0010	**0.36**	0.009	<0.005	0.01	PASS
Q2	Verification	16-May-22	30	0.0028	<0.0010	0.19	**0.032**	0.019	0.05	PASS
Q3	Routine	4-Aug-22	18	<0.0074	<0.0010	0.11	0.006	<0.005	0.01	NR
Q4	Routine	18-Oct-22	23	0.017	<0.0010	0.13	**0.092**	**0.062**	**0.17**	NR
Q4	Verification	28-Nov-22	29	<0.00051	<0.0010	0.08	0.005	<0.005	<0.01	PASS
SP1 (Internal Assessment Point)										
Q1	Routine	17-Feb-22	17	0.0076	0.0012	0.08	0.019	0.013	0.04	NR
Q2	Routine	4-May-22	29	<0.0015	<0.0010	0.37	0.007	<0.005	<0.01	PASS
Q3	Routine	20-Jul-22	28	*<0.082*	<0.0010	**0.43**	0.003	<0.005	<0.01	NR
Q3	Verification	2-Aug-22	26	*<0.075*	<0.0010	0.35	0.003	<0.005	<0.01	PASS
Q4	Routine	18-Oct-22	24	<0.0067	<0.0010	0.33	0.002	<0.005	<0.01	NR
SP2 (Compliance)										
Q1	Routine	17-Feb-22	34	0.0058	0.0011	0.09	0.021	0.013	0.04	NR
Q2	Routine	4-May-22	84	<0.0078	<0.0010	**0.39**	0.005	<0.005	<0.01	PASS
Q2	Verification	16-May-22	70	<0.0076	<0.0010	**0.50**	0.005	<0.005	<0.01	PASS
Q3	Routine	20-Jul-22	71	<0.013	<0.0010	**0.40**	0.003	<0.005	<0.01	NR
Q3	Verification	2-Aug-22	70	*<0.085*	<0.0010	**0.39**	0.003	<0.005	<0.01	PASS
Q4	Routine	18-Oct-22	34	**0.035**	<0.0010	0.18	0.025	0.016	0.04	NR
Q4	Verification	13-Jan-22	56	<0.0057	<0.0010	**0.28**	0.008	<0.005	0.01	PASS
SP3 (Compliance)										
Q1	Routine	17-Feb-22	71	0.003	<0.0010	0.06	0.012	0.007	0.03	NR
Q2	Routine	4-May-22	37	*<0.033*	<0.0010	0.11	0.002	<0.005	<0.01	PASS
Q3	Routine	2-Aug-22	60	*<0.045*	<0.0010	0.18	0.002	<0.005	<0.01	NR
Q4	Routine	18-Oct-22	33	*<0.06*	<0.0010	0.15	0.001	<0.005	<0.01	NR
SP4 (Compliance)										
Q1	Routine	17-Feb-22	34	0.0019	0.0011	0.09	0.020	0.012	0.03	NR
Q2	Routine	4-May-22	37	<0.0054	<0.0010	0.07	0.006	<0.005	<0.01	PASS
Q4	Routine	18-Oct-22	29	<0.0034	<0.0010	0.07	0.004	<0.005	<0.01	NR
SS10 (Background)										
Q2	Routine	4-May-22	2.5	*<0.031*	<0.0010	0.07	0.013	0.010	0.02	PASS
SS16 (Background)										
Q1	Routine	17-Feb-22	3.0	<0.00061	<0.0010	<0.02	0.001	<0.005	<0.01	NR
Q2	Routine	4-May-22	3.3	<0.0026	<0.0010	0.04	0.005	<0.005	<0.01	PASS

Notes: 1) Trigger Concentrations are Post 2019 Criteria per the Sewage ECA.

2) **Bold** and Shaded denotes parameter exceeds Primary Leachate Indicator List trigger concentration at a compliance monitoring station

3) *Italics* denotes parameter concentration's RDL is greater than the trigger value

4) All units are in mg/L unless otherwise noted

5) NR (Pass) denotes biological not required, but was completed as input to the assessment process.

6) NR denotes not required.

7) * it is noted that the boron trigger concentration for SP1 is 0.39 mg/L, as per the MOE letter dated May 18, 2012.

APPENDIX I5:

Chemical Laboratory Reports

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/03/01
Report #: R7023752
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C245955
Received: 2022/02/22, 12:09

Sample Matrix: Surface Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	2	2022/02/23	2022/02/24	CAM SOP-00301	EPA 8270 m
Alkalinity	2	N/A	2022/02/23	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	2	2022/02/22	2022/02/27	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	2	N/A	2022/02/23	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	2	N/A	2022/02/23	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	2	N/A	2022/02/25		
Conductivity	2	N/A	2022/02/23	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	2	N/A	2022/02/25		
Dissolved Mercury in Water by CVAA	2	2022/02/24	2022/02/24	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	2	N/A	2022/02/28	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2022/02/25	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2022/02/23	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2022/02/22	2022/02/23	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2022/02/24	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	2	N/A	2022/02/22		Field pH Meter
Sulphate by Automated Colourimetry	2	N/A	2022/02/23	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	2	2022/02/22	2022/02/23	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	2	N/A	2022/02/22		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2022/02/23	2022/02/25	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2022/02/24	2022/02/25	CAM SOP-00407	SM 23 4500 B F m
Low Level Total Suspended Solids	2	2022/02/22	2022/02/23	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	2	N/A	2022/02/25		
Un-ionized Ammonia	2	2022/02/22	2022/02/25	Auto Calc.	PWQO
Volatile Organic Compounds in Water	2	N/A	2022/02/23	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/03/01
Report #: R7023752
Version: 1 - Final

CERTIFICATE OF ANALYSIS

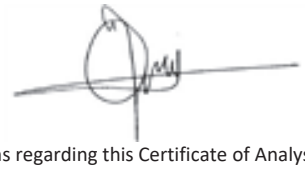
BUREAU VERITAS JOB #: C245955
Received: 2022/02/22, 12:09

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key



Patricia Legette
Project Manager
01 Mar 2022 14:08:29

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C245955
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		RXG701	RXG702		
Sampling Date		2022/02/17	2022/02/17		
COC Number		n/a	n/a		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Calculated Parameters					
Total Un-ionized Ammonia	mg/L	0.0089	0.0087	0.0011	7845052
Field Measurements					
Field Conductivity	uS/cm	312	312	N/A	ONSITE
Field Dissolved Oxygen	mg/L	10.9	10.9	N/A	ONSITE
Field Temperature	Celsius	2.2	2.2	N/A	ONSITE
Field Turbidity	NTU	512.0	512.0	N/A	ONSITE
Field Measured pH	pH	7.8	7.8		ONSITE
Inorganics					
Total Ammonia-N	mg/L	1.17	1.14	0.15	7842519
Total BOD	mg/L	3	4	2	7845244
Total Chemical Oxygen Demand (COD)	mg/L	27	27	4.0	7845680
Conductivity	umho/cm	370	390	1.0	7845501
Total Dissolved Solids	mg/L	230	210	10	7845044
Total Kjeldahl Nitrogen (TKN)	mg/L	2.0	1.9	0.7	7848604
pH	pH	7.96	7.95		7845499
Phenols-4AAP	mg/L	0.0010	0.0011	0.0010	7849340
Total Phosphorus	mg/L	0.48	0.54	0.10	7850007
Total Suspended Solids	mg/L	660	680	5	7845593
Dissolved Sulphate (SO4)	mg/L	58	64	1.0	7845707
Alkalinity (Total as CaCO3)	mg/L	90	94	1.0	7845495
Dissolved Chloride (Cl-)	mg/L	19	20	1.0	7845703
Nitrite (N)	mg/L	0.045	0.050	0.010	7845684
Nitrate (N)	mg/L	0.58	0.58	0.10	7845684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245955
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		RXG701	RXG702		
Sampling Date		2022/02/17	2022/02/17		
COC Number		n/a	n/a		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Metals					
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	0.10	7849492
Total Arsenic (As)	mg/L	0.007	0.009	0.001	7852081
Total Barium (Ba)	mg/L	0.083	0.096	0.005	7852081
Total Boron (B)	mg/L	0.08	0.08	0.02	7852081
Total Cadmium (Cd)	mg/L	0.0001	0.0001	0.0001	7852081
Total Calcium (Ca)	mg/L	75	89	0.2	7852081
Total Chromium (Cr)	mg/L	0.026	0.031	0.005	7852081
Total Copper (Cu)	mg/L	0.023	0.027	0.002	7852081
Total Iron (Fe)	mg/L	26	32	0.1	7852081
Total Lead (Pb)	mg/L	0.011	0.013	0.0005	7852081
Total Magnesium (Mg)	mg/L	23	26	0.05	7852081
Total Nickel (Ni)	mg/L	0.039	0.046	0.001	7852081
Total Potassium (K)	mg/L	9.6	10	0.2	7852081
Total Sodium (Na)	mg/L	11	11	0.1	7852081
Total Zinc (Zn)	mg/L	0.07	0.08	0.01	7852081

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

SEMI-VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		RXG701	RXG702		
Sampling Date		2022/02/17	2022/02/17		
COC Number		n/a	n/a		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Semivolatile Organics					
Benzo(a)pyrene	ug/L	<0.80	<0.80	0.80	7846656
1,2-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	7846656
1,3-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	7846656
1,4-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	7846656
Hexachlorobenzene	ug/L	<2.0	<2.0	2.0	7846656
1,2,4-Trichlorobenzene	ug/L	<2.0	<2.0	2.0	7846656
2,4-Dichlorophenol	ug/L	<1.2	<1.2	1.2	7846656
Pentachlorophenol	ug/L	<4.0	<4.0	4.0	7846656
Phenol	ug/L	<2.0	<2.0	2.0	7846656
2,4,6-Trichlorophenol	ug/L	<2.0	<2.0	2.0	7846656
Di-N-butyl phthalate	ug/L	<8.0	<8.0	8.0	7846656
Diethyl phthalate	ug/L	<4.0	<4.0	4.0	7846656
Dimethyl phthalate	ug/L	<4.0	<4.0	4.0	7846656
Surrogate Recovery (%)					
2,4,6-Tribromophenol	%	42	57		7846656
2-Fluorobiphenyl	%	37	69		7846656
2-Fluorophenol	%	14	28		7846656
D14-Terphenyl	%	99	107		7846656
D5-Nitrobenzene	%	46	87		7846656
D5-Phenol	%	12	26		7846656

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245955
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		RXG701	RXG702		
Sampling Date		2022/02/17	2022/02/17		
COC Number		n/a	n/a		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	7846842
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	7846842
Ethylbenzene	ug/L	<0.20	<0.20	0.20	7846842
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	7846842
Toluene	ug/L	<0.20	<0.20	0.20	7846842
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	7846842
p+m-Xylene	ug/L	<0.20	<0.20	0.20	7846842
o-Xylene	ug/L	<0.20	<0.20	0.20	7846842
Total Xylenes	ug/L	<0.20	<0.20	0.20	7846842
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	91	90		7846842
D4-1,2-Dichloroethane	%	116	116		7846842
D8-Toluene	%	97	98		7846842

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

ABN analysis: Due to the nature of the sample matrix, a smaller than usual portion of the sample was used for extraction. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7846656	2,4,6-Tribromophenol	2022/02/23	98	10 - 130	94	10 - 130	75	%				
7846656	2-Fluorobiphenyl	2022/02/23	78	30 - 130	62	30 - 130	63	%				
7846656	2-Fluorophenol	2022/02/23	43	10 - 130	45	10 - 130	37	%				
7846656	D14-Terphenyl	2022/02/23	108	30 - 130	110	30 - 130	106	%				
7846656	D5-Nitrobenzene	2022/02/23	89	30 - 130	85	30 - 130	80	%				
7846656	D5-Phenol	2022/02/23	30	10 - 130	29	10 - 130	25	%				
7846842	4-Bromofluorobenzene	2022/02/23	93	70 - 130	94	70 - 130	92	%				
7846842	D4-1,2-Dichloroethane	2022/02/23	118	70 - 130	112	70 - 130	112	%				
7846842	D8-Toluene	2022/02/23	100	70 - 130	102	70 - 130	100	%				
7842519	Total Ammonia-N	2022/02/25	93	75 - 125	101	80 - 120	<0.15	mg/L	1.1 (1)	20		
7845044	Total Dissolved Solids	2022/02/23					<10	mg/L	9.4 (1)	25	95	90 - 110
7845244	Total BOD	2022/02/27					<2	mg/L	NC (1)	30	93	80 - 120
7845495	Alkalinity (Total as CaCO3)	2022/02/23			96	85 - 115	<1.0	mg/L	1.8 (1)	20		
7845499	pH	2022/02/23			102	98 - 103			0.67 (1)	N/A		
7845501	Conductivity	2022/02/23			102	85 - 115	<1.0	umho/cm	0.27 (1)	25		
7845593	Total Suspended Solids	2022/02/23					<1	mg/L	8.2 (1)	25	95	85 - 115
7845680	Total Chemical Oxygen Demand (COD)	2022/02/23	103	80 - 120	102	80 - 120	<4.0	mg/L	NC (1)	20		
7845684	Nitrate (N)	2022/02/23	95	80 - 120	97	80 - 120	<0.10	mg/L	2.0 (1)	20		
7845684	Nitrite (N)	2022/02/23	104	80 - 120	108	80 - 120	<0.010	mg/L	14 (1)	20		
7845703	Dissolved Chloride (Cl-)	2022/02/23	NC	80 - 120	102	80 - 120	<1.0	mg/L	1.0 (1)	20		
7845707	Dissolved Sulphate (SO4)	2022/02/23	NC	75 - 125	98	80 - 120	<1.0	mg/L	0.043 (1)	20		
7846656	1,2,4-Trichlorobenzene	2022/02/23	50	30 - 130	40	30 - 130	<0.50	ug/L				
7846656	1,2-Dichlorobenzene	2022/02/23	56	30 - 130	46	30 - 130	<0.50	ug/L				
7846656	1,3-Dichlorobenzene	2022/02/23	50	30 - 130	39	30 - 130	<0.50	ug/L				
7846656	1,4-Dichlorobenzene	2022/02/23	54	30 - 130	43	30 - 130	<0.50	ug/L				
7846656	2,4,6-Trichlorophenol	2022/02/23	92	10 - 130	92	10 - 130	<0.50	ug/L	NC (1)	40		
7846656	2,4-Dichlorophenol	2022/02/23	84	10 - 130	79	10 - 130	<0.30	ug/L	NC (1)	40		
7846656	Benzo(a)pyrene	2022/02/23	97	30 - 130	99	30 - 130	<0.20	ug/L				
7846656	Diethyl phthalate	2022/02/23	97	30 - 130	97	30 - 130	<1.0	ug/L				

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7846656	Dimethyl phthalate	2022/02/23	99	30 - 130	97	30 - 130	<1.0	ug/L				
7846656	Di-N-butyl phthalate	2022/02/23	102	30 - 130	103	30 - 130	<2.0	ug/L				
7846656	Hexachlorobenzene	2022/02/23	89	30 - 130	87	30 - 130	<0.50	ug/L	NC (1)	40		
7846656	Pentachlorophenol	2022/02/23	77	10 - 130	89	10 - 130	<1.0	ug/L	NC (1)	40		
7846656	Phenol	2022/02/23	30	10 - 130	29	10 - 130	<0.50	ug/L	NC (1)	40		
7846842	1,4-Dichlorobenzene	2022/02/23	110	70 - 130	110	70 - 130	<0.40	ug/L	NC (1)	30		
7846842	Benzene	2022/02/23	103	70 - 130	100	70 - 130	<0.20	ug/L	NC (1)	30		
7846842	Ethylbenzene	2022/02/23	91	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
7846842	Methylene Chloride(Dichloromethane)	2022/02/23	117	70 - 130	111	70 - 130	<2.0	ug/L	NC (1)	30		
7846842	o-Xylene	2022/02/23	92	70 - 130	96	70 - 130	<0.20	ug/L	NC (1)	30		
7846842	p+m-Xylene	2022/02/23	94	70 - 130	96	70 - 130	<0.20	ug/L	NC (1)	30		
7846842	Toluene	2022/02/23	99	70 - 130	100	70 - 130	<0.20	ug/L	NC (1)	30		
7846842	Total Xylenes	2022/02/23					<0.20	ug/L	NC (1)	30		
7846842	Vinyl Chloride	2022/02/23	114	70 - 130	111	70 - 130	<0.20	ug/L	1.3 (1)	30		
7848604	Total Kjeldahl Nitrogen (TKN)	2022/02/25	107	80 - 120	102	80 - 120	<0.7	mg/L	NC (1)	20	100	80 - 120
7849340	Phenols-4AAP	2022/02/24	103	80 - 120	102	80 - 120	<0.0010	mg/L	NC (1)	20		
7849492	Dissolved Mercury (Hg)	2022/02/24	88 (2)	75 - 125	91	80 - 120	<0.10	ug/L	NC (3)	20		
7850007	Total Phosphorus	2022/02/25	98 (4)	80 - 120	98	80 - 120	<0.030	mg/L	3.1 (5)	25	99	80 - 120
7852081	Total Arsenic (As)	2022/02/28	103	80 - 120	105	80 - 120	<0.001	mg/L	8.9 (1)	20		
7852081	Total Barium (Ba)	2022/02/28	104	80 - 120	103	80 - 120	<0.005	mg/L	4.0 (1)	20		
7852081	Total Boron (B)	2022/02/28	102	80 - 120	94	80 - 120	<0.02	mg/L	1.2 (1)	20		
7852081	Total Cadmium (Cd)	2022/02/28	103	80 - 120	103	80 - 120	<0.0001	mg/L	NC (1)	20		
7852081	Total Calcium (Ca)	2022/02/28	NC	80 - 120	105	80 - 120	<0.2	mg/L	0.99 (1)	20		
7852081	Total Chromium (Cr)	2022/02/28	97	80 - 120	99	80 - 120	<0.005	mg/L	0.19 (1)	20		
7852081	Total Copper (Cu)	2022/02/28	97	80 - 120	96	80 - 120	<0.002	mg/L	1.7 (1)	20		
7852081	Total Iron (Fe)	2022/02/28	105	80 - 120	104	80 - 120	<0.1	mg/L	0.57 (1)	20		
7852081	Total Lead (Pb)	2022/02/28	101	80 - 120	102	80 - 120	<0.0005	mg/L	1.4 (1)	20		
7852081	Total Magnesium (Mg)	2022/02/28	NC	80 - 120	103	80 - 120	<0.05	mg/L	0.91 (1)	20		
7852081	Total Nickel (Ni)	2022/02/28	97	80 - 120	100	80 - 120	<0.001	mg/L	1.5 (1)	20		
7852081	Total Potassium (K)	2022/02/28	117	80 - 120	104	80 - 120	<0.2	mg/L	2.0 (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7852081	Total Sodium (Na)	2022/02/28	NC	80 - 120	103	80 - 120	<0.1	mg/L	1.3 (1)	20		
7852081	Total Zinc (Zn)	2022/02/28	99	80 - 120	103	80 - 120	<0.01	mg/L	3.9 (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [RXG702-12]

(3) Duplicate Parent ID [RXG702-12]

(4) Matrix Spike Parent ID [RXG701-04]

(5) Duplicate Parent ID [RXG701-04]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245955
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Patricia Legette, Project Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/03/01
Report #: R7023747
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C245944
Received: 2022/02/22, 12:09

Sample Matrix: Surface Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2022/02/23	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2022/02/23	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2022/02/23		
Conductivity	1	N/A	2022/02/23	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2022/02/23		
Total Metals by ICPMS	1	N/A	2022/02/28	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2022/02/25	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2022/02/23	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2022/02/22	2022/02/23	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/02/24	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2022/02/22		Field pH Meter
Sulphate by Automated Colourimetry	1	N/A	2022/02/23	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	1	2022/02/22	2022/02/23	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2022/02/22		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2022/02/23	2022/02/25	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2022/02/24	2022/02/25	CAM SOP-00407	SM 23 4500 P B H m
Turbidity - On-site	1	N/A	2022/02/23		
Un-ionized Ammonia	1	2022/02/22	2022/02/25	Auto Calc.	PWQO

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/03/01
Report #: R7023747
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C245944
Received: 2022/02/22, 12:09

otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Patricia Legette
Project Manager
01 Mar 2022 13:58:37

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245944
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		RXG673		
Sampling Date		2022/02/17		
COC Number		n/a		
	UNITS	**SS16**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.00061	0.00061	7845052
Field Measurements				
Field Conductivity	uS/cm	224	N/A	ONSITE
Field Dissolved Oxygen	mg/L	9.8	N/A	ONSITE
Field Temperature	Celsius	2.0	N/A	ONSITE
Field Turbidity	NTU	126.0	N/A	ONSITE
Field Measured pH	pH	7.4		ONSITE
Inorganics				
Total Ammonia-N	mg/L	0.16	0.15	7842519
Conductivity	umho/cm	100	1.0	7845501
Total Dissolved Solids	mg/L	50	10	7845044
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	7848604
pH	pH	7.56		7845499
Phenols-4AAP	mg/L	<0.0010	0.0010	7849340
Total Phosphorus	mg/L	0.10	0.02	7850010
Dissolved Sulphate (SO4)	mg/L	<1.0	1.0	7845707
Alkalinity (Total as CaCO3)	mg/L	40	1.0	7845495
Dissolved Chloride (Cl-)	mg/L	3.0	1.0	7845703
Nitrite (N)	mg/L	0.012	0.010	7845684
Nitrate (N)	mg/L	0.29	0.10	7845684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245944
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		RXG673		
Sampling Date		2022/02/17		
COC Number		n/a		
	UNITS	SS16	RDL	QC Batch
Metals				
Total Boron (B)	mg/L	<0.02	0.02	7852081
Total Calcium (Ca)	mg/L	13	0.2	7852081
Total Chromium (Cr)	mg/L	<0.005	0.005	7852081
Total Iron (Fe)	mg/L	0.5	0.1	7852081
Total Magnesium (Mg)	mg/L	2.4	0.05	7852081
Total Nickel (Ni)	mg/L	0.001	0.001	7852081
Total Potassium (K)	mg/L	3.3	0.2	7852081
Total Sodium (Na)	mg/L	1.1	0.1	7852081
Total Zinc (Zn)	mg/L	<0.01	0.01	7852081

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245944
Report Date: 2022/03/01

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7842519	Total Ammonia-N	2022/02/25	93	75 - 125	101	80 - 120	<0.15	mg/L	1.1 (1)	20		
7845044	Total Dissolved Solids	2022/02/23					<10	mg/L	9.4 (1)	25	95	90 - 110
7845495	Alkalinity (Total as CaCO3)	2022/02/23			96	85 - 115	<1.0	mg/L	1.8 (1)	20		
7845499	pH	2022/02/23			102	98 - 103			0.67 (1)	N/A		
7845501	Conductivity	2022/02/23			102	85 - 115	<1.0	umho/cm	0.27 (1)	25		
7845684	Nitrate (N)	2022/02/23	95	80 - 120	97	80 - 120	<0.10	mg/L	2.0 (1)	20		
7845684	Nitrite (N)	2022/02/23	104	80 - 120	108	80 - 120	<0.010	mg/L	14 (1)	20		
7845703	Dissolved Chloride (Cl-)	2022/02/23	NC	80 - 120	102	80 - 120	<1.0	mg/L	1.0 (1)	20		
7845707	Dissolved Sulphate (SO4)	2022/02/23	NC	75 - 125	98	80 - 120	<1.0	mg/L	0.043 (1)	20		
7848604	Total Kjeldahl Nitrogen (TKN)	2022/02/25	107 (2)	80 - 120	102	80 - 120	<0.7	mg/L	NC (3)	20	100	80 - 120
7849340	Phenols-4AAP	2022/02/24	103	80 - 120	102	80 - 120	<0.0010	mg/L	NC (1)	20		
7850010	Total Phosphorus	2022/02/25	88	80 - 120	93	80 - 120	<0.004	mg/L	NC (1)	20	93	80 - 120
7852081	Total Boron (B)	2022/02/28	102	80 - 120	94	80 - 120	<0.02	mg/L	1.2 (1)	20		
7852081	Total Calcium (Ca)	2022/02/28	NC	80 - 120	105	80 - 120	<0.2	mg/L	0.99 (1)	20		
7852081	Total Chromium (Cr)	2022/02/28	97	80 - 120	99	80 - 120	<0.005	mg/L	0.19 (1)	20		
7852081	Total Iron (Fe)	2022/02/28	105	80 - 120	104	80 - 120	<0.1	mg/L	0.57 (1)	20		
7852081	Total Magnesium (Mg)	2022/02/28	NC	80 - 120	103	80 - 120	<0.05	mg/L	0.91 (1)	20		
7852081	Total Nickel (Ni)	2022/02/28	97	80 - 120	100	80 - 120	<0.001	mg/L	1.5 (1)	20		
7852081	Total Potassium (K)	2022/02/28	117	80 - 120	104	80 - 120	<0.2	mg/L	2.0 (1)	20		
7852081	Total Sodium (Na)	2022/02/28	NC	80 - 120	103	80 - 120	<0.1	mg/L	1.3 (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7852081	Total Zinc (Zn)	2022/02/28	99	80 - 120	103	80 - 120	<0.01	mg/L	3.9 (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [RXG673-02]

(3) Duplicate Parent ID [RXG673-02]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

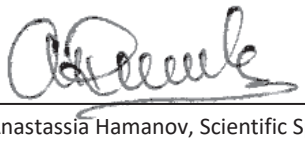
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245944
Report Date: 2022/03/01

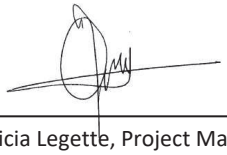
RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist



Patricia Legette, Project Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: n/s

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/03/01
Report #: R7023759
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C245975
Received: 2022/02/22, 12:09

Sample Matrix: Surface Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	5	2022/02/23	2022/02/24	CAM SOP-00301	EPA 8270 m
Alkalinity	5	N/A	2022/02/23	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	5	2022/02/22	2022/02/27	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	5	N/A	2022/02/23	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	5	N/A	2022/02/23	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	5	N/A	2022/02/25		
Conductivity	5	N/A	2022/02/23	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	5	N/A	2022/02/25		
Dissolved Mercury in Water by CVAA	5	2022/02/24	2022/02/24	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	5	N/A	2022/02/28	CAM SOP-00447	EPA 6020B m
Ammonia-N	5	N/A	2022/02/25	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	5	N/A	2022/02/23	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2022/02/22	2022/02/23	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	5	N/A	2022/02/24	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	5	N/A	2022/02/22		Field pH Meter
Sulphate by Automated Colourimetry	5	N/A	2022/02/23	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	5	2022/02/22	2022/02/23	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	5	N/A	2022/02/22		Field Thermometer
Total Kjeldahl Nitrogen in Water	5	2022/02/23	2022/02/25	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	5	2022/02/24	2022/02/24	CAM SOP-00407	SM 23 4500 P B H m
Low Level Total Suspended Solids	5	2022/02/22	2022/02/23	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	5	N/A	2022/02/25		
Un-ionized Ammonia	5	2022/02/22	2022/02/25	Auto Calc.	PWQO
Volatile Organic Compounds in Water	5	N/A	2022/02/23	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: n/s

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/03/01
Report #: R7023759
Version: 1 - Final

CERTIFICATE OF ANALYSIS

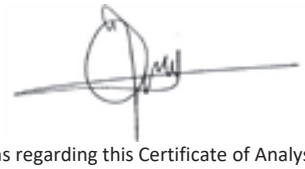
BUREAU VERITAS JOB #: C245975
Received: 2022/02/22, 12:09

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key



Patricia Legette
Project Manager
01 Mar 2022 14:12:50

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245975
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		RXG856			RXG857		RXG858		
Sampling Date		2022/02/17			2022/02/17		2022/02/17		
COC Number		n/s			n/s		n/s		
	UNITS	SP1	RDL	QC Batch	SP2	RDL	SP3	RDL	QC Batch
Calculated Parameters									
Total Un-ionized Ammonia	mg/L	0.0076	0.00087	7845052	0.0058	0.00085	0.003	0.001	7845052
Field Measurements									
Field Conductivity	uS/cm	299	N/A	ONSITE	237	N/A	175	N/A	ONSITE
Field Dissolved Oxygen	mg/L	10.7	N/A	ONSITE	9.9	N/A	10.4	N/A	ONSITE
Field Temperature	Celsius	4.6	N/A	ONSITE	1.4	N/A	1.0	N/A	ONSITE
Field Turbidity	NTU	525.0	N/A	ONSITE	315	N/A	312	N/A	ONSITE
Field Measured pH	pH	7.6		ONSITE	7.7		7.8		ONSITE
Inorganics									
Total Ammonia-N	mg/L	1.30	0.15	7842519	1.04	0.15	0.46	0.15	7842519
Total BOD	mg/L	3	2	7845244	2	2	<2	2	7845244
Total Chemical Oxygen Demand (COD)	mg/L	30	4.0	7845680	19	4.0	20	4.0	7845680
Conductivity	umho/cm	320	1.0	7845501	570	1.0	680	1.0	7845501
Total Dissolved Solids	mg/L	195	10	7845044	280	10	325	10	7845044
Total Kjeldahl Nitrogen (TKN)	mg/L	2.2	0.7	7848604	1.9	0.7	0.9	0.7	7848604
pH	pH	7.80		7845499	7.94		7.97		7845499
Phenols-4AAP	mg/L	0.0012	0.0010	7849340	0.0011	0.0010	<0.0010	0.0010	7849340
Total Phosphorus	mg/L	0.33	0.04	7849531	0.20	0.04	0.17	0.04	7849531
Total Suspended Solids	mg/L	250	3	7845593	380	5	95	1	7845593
Dissolved Sulphate (SO4)	mg/L	44	1.0	7845707	140	1.0	130	1.0	7845707
Alkalinity (Total as CaCO3)	mg/L	82	1.0	7845495	81	1.0	100	1.0	7845495
Dissolved Chloride (Cl-)	mg/L	17	1.0	7845703	34	1.0	71	1.0	7845703
Nitrite (N)	mg/L	0.043	0.010	7845267	0.035	0.010	0.024	0.010	7845684
Nitrate (N)	mg/L	0.56	0.10	7845267	0.55	0.10	0.28	0.10	7845684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245975
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		RXG859			RXG860		
Sampling Date		2022/02/17			2022/02/17		
COC Number		n/s			n/s		
	UNITS	SP4	RDL	QC Batch	SPDUP	RDL	QC Batch
Calculated Parameters							
Total Un-ionized Ammonia	mg/L	0.0019	0.00061	7845052	0.0075	0.00087	7845052
Field Measurements							
Field Conductivity	uS/cm	147	N/A	ONSITE	299	N/A	ONSITE
Field Dissolved Oxygen	mg/L	11.4	N/A	ONSITE	10.7	N/A	ONSITE
Field Temperature	Celsius	1.2	N/A	ONSITE	4.6	N/A	ONSITE
Field Turbidity	NTU	185	N/A	ONSITE	525.0	N/A	ONSITE
Field Measured pH	pH	7.2		ONSITE	7.6		ONSITE
Inorganics							
Total Ammonia-N	mg/L	1.05	0.15	7842519	1.29	0.15	7842519
Total BOD	mg/L	2	2	7845244	3	2	7845244
Total Chemical Oxygen Demand (COD)	mg/L	20	4.0	7845680	27	4.0	7845680
Conductivity	umho/cm	570	1.0	7845501	330	1.0	7845501
Total Dissolved Solids	mg/L	315	10	7845044	200	10	7845044
Total Kjeldahl Nitrogen (TKN)	mg/L	1.9	0.7	7848604	2.2	0.7	7848604
pH	pH	7.99		7845499	7.91		7845499
Phenols-4AAP	mg/L	0.0011	0.0010	7849340	<0.0010	0.0010	7849340
Total Phosphorus	mg/L	0.19	0.04	7849531	0.33	0.04	7849531
Total Suspended Solids	mg/L	360	5	7845593	260	3	7845593
Dissolved Sulphate (SO4)	mg/L	140	1.0	7845707	44	1.0	7845707
Alkalinity (Total as CaCO3)	mg/L	82	1.0	7845495	85	1.0	7845495
Dissolved Chloride (Cl-)	mg/L	34	1.0	7845703	17	1.0	7845703
Nitrite (N)	mg/L	0.034	0.010	7845684	0.045	0.010	7845267
Nitrate (N)	mg/L	0.54	0.10	7845684	0.55	0.10	7845267

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245975
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		RXG856	RXG857	RXG858	RXG859	RXG860		
Sampling Date		2022/02/17	2022/02/17	2022/02/17	2022/02/17	2022/02/17		
COC Number		n/s	n/s	n/s	n/s	n/s		
	UNITS	SP1	SP2	SP3	SP4	SPDUP	RDL	QC Batch
Metals								
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7849492
Total Arsenic (As)	mg/L	0.004	0.003	0.002	0.003	0.004	0.001	7852081
Total Barium (Ba)	mg/L	0.050	0.043	0.041	0.042	0.048	0.005	7852081
Total Boron (B)	mg/L	0.08	0.09	0.06	0.09	0.08	0.02	7852081
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	7852081
Total Calcium (Ca)	mg/L	41	69	64	67	41	0.2	7852081
Total Chromium (Cr)	mg/L	0.013	0.013	0.007	0.012	0.013	0.005	7852081
Total Copper (Cu)	mg/L	0.012	0.015	0.009	0.015	0.012	0.002	7852081
Total Iron (Fe)	mg/L	13	12	6.6	12	12	0.1	7852081
Total Lead (Pb)	mg/L	0.0052	0.0049	0.0050	0.0048	0.0050	0.0005	7852081
Total Magnesium (Mg)	mg/L	14	27	24	26	14	0.05	7852081
Total Nickel (Ni)	mg/L	0.019	0.021	0.012	0.020	0.018	0.001	7852081
Total Potassium (K)	mg/L	8.7	7.2	4.8	6.9	8.7	0.2	7852081
Total Sodium (Na)	mg/L	8.7	25	45	25	8.7	0.1	7852081
Total Zinc (Zn)	mg/L	0.04	0.04	0.03	0.03	0.03	0.01	7852081

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245975
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

SEMI-VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		RXG856	RXG857	RXG858	RXG859	RXG860		
Sampling Date		2022/02/17	2022/02/17	2022/02/17	2022/02/17	2022/02/17		
COC Number		n/s	n/s	n/s	n/s	n/s		
	UNITS	SP1	SP2	SP3	SP4	SPDUP	RDL	QC Batch
Semivolatile Organics								
Benzo(a)pyrene	ug/L	<0.80	<0.80	<0.80	<0.80	<0.80	0.80	7846656
1,2-Dichlorobenzene	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7846656
1,3-Dichlorobenzene	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7846656
1,4-Dichlorobenzene	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7846656
Hexachlorobenzene	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7846656
1,2,4-Trichlorobenzene	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7846656
2,4-Dichlorophenol	ug/L	<1.2	<1.2	<1.2	<1.2	<1.2	1.2	7846656
Pentachlorophenol	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	4.0	7846656
Phenol	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7846656
2,4,6-Trichlorophenol	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7846656
Di-N-butyl phthalate	ug/L	<8.0	<8.0	<8.0	<8.0	<8.0	8.0	7846656
Diethyl phthalate	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	4.0	7846656
Dimethyl phthalate	ug/L	<4.0	<4.0	<4.0	<4.0	<4.0	4.0	7846656
Surrogate Recovery (%)								
2,4,6-Tribromophenol	%	58	60	59	56	66		7846656
2-Fluorobiphenyl	%	65	67	65	62	60		7846656
2-Fluorophenol	%	27	27	26	25	29		7846656
D14-Terphenyl	%	102	105	102	101	103		7846656
D5-Nitrobenzene	%	82	84	87	79	86		7846656
D5-Phenol	%	21	23	22	22	23		7846656

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245975
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		RXG856	RXG857	RXG858	RXG859	RXG860		
Sampling Date		2022/02/17	2022/02/17	2022/02/17	2022/02/17	2022/02/17		
COC Number		n/s	n/s	n/s	n/s	n/s		
	UNITS	SP1	SP2	SP3	SP4	SPDUP	RDL	QC Batch
Volatile Organics								
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7846842
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7846842
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7846842
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7846842
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7846842
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7846842
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7846842
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7846842
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7846842
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	90	90	89	90	88		7846842
D4-1,2-Dichloroethane	%	118	118	118	119	117		7846842
D8-Toluene	%	98	98	98	97	97		7846842

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

ABN analysis: Due to the nature of the sample matrix, a smaller than usual portion of the sample was used for extraction. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7846656	2,4,6-Tribromophenol	2022/02/23	98	10 - 130	94	10 - 130	75	%				
7846656	2-Fluorobiphenyl	2022/02/23	78	30 - 130	62	30 - 130	63	%				
7846656	2-Fluorophenol	2022/02/23	43	10 - 130	45	10 - 130	37	%				
7846656	D14-Terphenyl	2022/02/23	108	30 - 130	110	30 - 130	106	%				
7846656	D5-Nitrobenzene	2022/02/23	89	30 - 130	85	30 - 130	80	%				
7846656	D5-Phenol	2022/02/23	30	10 - 130	29	10 - 130	25	%				
7846842	4-Bromofluorobenzene	2022/02/23	93	70 - 130	94	70 - 130	92	%				
7846842	D4-1,2-Dichloroethane	2022/02/23	118	70 - 130	112	70 - 130	112	%				
7846842	D8-Toluene	2022/02/23	100	70 - 130	102	70 - 130	100	%				
7842519	Total Ammonia-N	2022/02/25	93	75 - 125	101	80 - 120	<0.15	mg/L	1.1 (1)	20		
7845044	Total Dissolved Solids	2022/02/23					<10	mg/L	9.4 (1)	25	95	90 - 110
7845244	Total BOD	2022/02/27					<2	mg/L	NC (1)	30	93	80 - 120
7845267	Nitrate (N)	2022/02/23	90	80 - 120	98	80 - 120	<0.10	mg/L	NC (1)	20		
7845267	Nitrite (N)	2022/02/23	101	80 - 120	106	80 - 120	<0.010	mg/L	NC (1)	20		
7845495	Alkalinity (Total as CaCO3)	2022/02/23			96	85 - 115	<1.0	mg/L	1.8 (1)	20		
7845499	pH	2022/02/23			102	98 - 103			0.67 (1)	N/A		
7845501	Conductivity	2022/02/23			102	85 - 115	<1.0	umho/cm	0.27 (1)	25		
7845593	Total Suspended Solids	2022/02/23					<1	mg/L	8.2 (1)	25	95	85 - 115
7845680	Total Chemical Oxygen Demand (COD)	2022/02/23	103	80 - 120	102	80 - 120	<4.0	mg/L	NC (1)	20		
7845684	Nitrate (N)	2022/02/23	95 (2)	80 - 120	97	80 - 120	<0.10	mg/L	2.0 (3)	20		
7845684	Nitrite (N)	2022/02/23	104 (2)	80 - 120	108	80 - 120	<0.010	mg/L	14 (3)	20		
7845703	Dissolved Chloride (Cl-)	2022/02/23	NC	80 - 120	102	80 - 120	<1.0	mg/L	1.0 (1)	20		
7845707	Dissolved Sulphate (SO4)	2022/02/23	NC	75 - 125	98	80 - 120	<1.0	mg/L	0.043 (1)	20		
7846656	1,2,4-Trichlorobenzene	2022/02/23	50	30 - 130	40	30 - 130	<0.50	ug/L				
7846656	1,2-Dichlorobenzene	2022/02/23	56	30 - 130	46	30 - 130	<0.50	ug/L				
7846656	1,3-Dichlorobenzene	2022/02/23	50	30 - 130	39	30 - 130	<0.50	ug/L				
7846656	1,4-Dichlorobenzene	2022/02/23	54	30 - 130	43	30 - 130	<0.50	ug/L				
7846656	2,4,6-Trichlorophenol	2022/02/23	92	10 - 130	92	10 - 130	<0.50	ug/L	NC (1)	40		
7846656	2,4-Dichlorophenol	2022/02/23	84	10 - 130	79	10 - 130	<0.30	ug/L	NC (1)	40		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7846656	Benzo(a)pyrene	2022/02/23	97	30 - 130	99	30 - 130	<0.20	ug/L				
7846656	Diethyl phthalate	2022/02/23	97	30 - 130	97	30 - 130	<1.0	ug/L				
7846656	Dimethyl phthalate	2022/02/23	99	30 - 130	97	30 - 130	<1.0	ug/L				
7846656	Di-N-butyl phthalate	2022/02/23	102	30 - 130	103	30 - 130	<2.0	ug/L				
7846656	Hexachlorobenzene	2022/02/23	89	30 - 130	87	30 - 130	<0.50	ug/L	NC (1)	40		
7846656	Pentachlorophenol	2022/02/23	77	10 - 130	89	10 - 130	<1.0	ug/L	NC (1)	40		
7846656	Phenol	2022/02/23	30	10 - 130	29	10 - 130	<0.50	ug/L	NC (1)	40		
7846842	1,4-Dichlorobenzene	2022/02/23	110	70 - 130	110	70 - 130	<0.40	ug/L	NC (1)	30		
7846842	Benzene	2022/02/23	103	70 - 130	100	70 - 130	<0.20	ug/L	NC (1)	30		
7846842	Ethylbenzene	2022/02/23	91	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
7846842	Methylene Chloride(Dichloromethane)	2022/02/23	117	70 - 130	111	70 - 130	<2.0	ug/L	NC (1)	30		
7846842	o-Xylene	2022/02/23	92	70 - 130	96	70 - 130	<0.20	ug/L	NC (1)	30		
7846842	p+m-Xylene	2022/02/23	94	70 - 130	96	70 - 130	<0.20	ug/L	NC (1)	30		
7846842	Toluene	2022/02/23	99	70 - 130	100	70 - 130	<0.20	ug/L	NC (1)	30		
7846842	Total Xylenes	2022/02/23					<0.20	ug/L	NC (1)	30		
7846842	Vinyl Chloride	2022/02/23	114	70 - 130	111	70 - 130	<0.20	ug/L	1.3 (1)	30		
7848604	Total Kjeldahl Nitrogen (TKN)	2022/02/25	107	80 - 120	102	80 - 120	<0.7	mg/L	NC (1)	20	100	80 - 120
7849340	Phenols-4AAP	2022/02/24	103	80 - 120	102	80 - 120	<0.0010	mg/L	NC (1)	20		
7849492	Dissolved Mercury (Hg)	2022/02/24	88	75 - 125	91	80 - 120	<0.10	ug/L	NC (1)	20		
7849531	Total Phosphorus	2022/02/24	NC	80 - 120	93	80 - 120	<0.004	mg/L	0.12 (1)	20	96	80 - 120
7852081	Total Arsenic (As)	2022/02/28	103 (4)	80 - 120	105	80 - 120	<0.001	mg/L	8.9 (5)	20		
7852081	Total Barium (Ba)	2022/02/28	104 (4)	80 - 120	103	80 - 120	<0.005	mg/L	4.0 (5)	20		
7852081	Total Boron (B)	2022/02/28	102 (4)	80 - 120	94	80 - 120	<0.02	mg/L	1.2 (5)	20		
7852081	Total Cadmium (Cd)	2022/02/28	103 (4)	80 - 120	103	80 - 120	<0.0001	mg/L	NC (5)	20		
7852081	Total Calcium (Ca)	2022/02/28	NC (4)	80 - 120	105	80 - 120	<0.2	mg/L	0.99 (5)	20		
7852081	Total Chromium (Cr)	2022/02/28	97 (4)	80 - 120	99	80 - 120	<0.005	mg/L	0.19 (5)	20		
7852081	Total Copper (Cu)	2022/02/28	97 (4)	80 - 120	96	80 - 120	<0.002	mg/L	1.7 (5)	20		
7852081	Total Iron (Fe)	2022/02/28	105 (4)	80 - 120	104	80 - 120	<0.1	mg/L	0.57 (5)	20		
7852081	Total Lead (Pb)	2022/02/28	101 (4)	80 - 120	102	80 - 120	<0.0005	mg/L	1.4 (5)	20		
7852081	Total Magnesium (Mg)	2022/02/28	NC (4)	80 - 120	103	80 - 120	<0.05	mg/L	0.91 (5)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7852081	Total Nickel (Ni)	2022/02/28	97 (4)	80 - 120	100	80 - 120	<0.001	mg/L	1.5 (5)	20		
7852081	Total Potassium (K)	2022/02/28	117 (4)	80 - 120	104	80 - 120	<0.2	mg/L	2.0 (5)	20		
7852081	Total Sodium (Na)	2022/02/28	NC (4)	80 - 120	103	80 - 120	<0.1	mg/L	1.3 (5)	20		
7852081	Total Zinc (Zn)	2022/02/28	99 (4)	80 - 120	103	80 - 120	<0.01	mg/L	3.9 (5)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [RXG857-05]

(3) Duplicate Parent ID [RXG857-05]

(4) Matrix Spike Parent ID [RXG857-08]

(5) Duplicate Parent ID [RXG857-08]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C245975
Report Date: 2022/03/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: SGW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Patricia Legette, Project Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/13
Report #: R7124182
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2C2681
Received: 2022/05/06, 09:14

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2022/05/10	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	2	2022/05/07	2022/05/12	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	4	N/A	2022/05/09	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	2	N/A	2022/05/11	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	4	N/A	2022/05/12		
Conductivity	4	N/A	2022/05/10	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	4	N/A	2022/05/12		
Dissolved Mercury in Water by CVAA	2	2022/05/09	2022/05/09	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	4	N/A	2022/05/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	4	N/A	2022/05/11	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	3	N/A	2022/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2022/05/09	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	4	2022/05/07	2022/05/10	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	4	N/A	2022/05/11	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	4	N/A	2022/05/06		Field pH Meter
Sulphate by Automated Colourimetry	4	N/A	2022/05/12	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	3	2022/05/10	2022/05/11	CAM SOP-00428	SM 23 2540C m
Total Dissolved Solids	1	2022/05/11	2022/05/11	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	4	N/A	2022/05/06		Field Thermometer
Total Kjeldahl Nitrogen in Water	4	2022/05/10	2022/05/11	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	4	2022/05/10	2022/05/11	CAM SOP-00407	SM 23 4500 P B H m
Total Suspended Solids	2	2022/05/10	2022/05/11	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	4	N/A	2022/05/12		
Un-ionized Ammonia	4	2022/05/06	2022/05/12	Auto Calc.	PWQO

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/13
Report #: R7124182
Version: 1 - Final

CERTIFICATE OF ANALYSIS

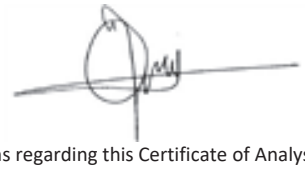
BUREAU VERITAS JOB #: C2C2681
Received: 2022/05/06, 09:14

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key



Patricia Legette
Project Manager
13 May 2022 18:24:02

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2681
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOC750			SOC751		
Sampling Date		2022/05/04			2022/05/04		
COC Number		TCEC-SWCM-MAY			TCEC-SWCM-MAY		
	UNITS	SS10	RDL	QC Batch	SS10	RDL	QC Batch
Calculated Parameters							
Total Un-ionized Ammonia	mg/L	<0.031	0.031	7979874	<0.031	0.031	7979874
Field Measurements							
Field Conductivity	uS/cm	229	N/A	ONSITE	229	N/A	ONSITE
Field Dissolved Oxygen	mg/L	8.75	N/A	ONSITE	8.75	N/A	ONSITE
Field Temperature	Celsius	17.0	N/A	ONSITE	17.0	N/A	ONSITE
Field Turbidity	NTU	334	N/A	ONSITE	334	N/A	ONSITE
Field Measured pH	pH	8.8		ONSITE	8.8		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	0.15	7986953	<0.15	0.15	7986953
Total BOD	mg/L				<2	2	7982228
Total Chemical Oxygen Demand (COD)	mg/L				42	4.0	7986231
Conductivity	umho/cm	200	1.0	7982589	200	1.0	7982589
Total Dissolved Solids	mg/L	140	10	7986646	120	10	7989391
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	7986878	<0.7	0.7	7986246
pH	pH	8.27		7982587	8.22		7982587
Phenols-4AAP	mg/L	<0.0010	0.0010	7986226	<0.0010	0.0010	7986226
Total Phosphorus	mg/L	0.22	0.02	7986580	0.22	0.02	7986580
Total Suspended Solids	mg/L				94	10	7985928
Dissolved Sulphate (SO4)	mg/L	<1.0	1.0	7982690	<1.0	1.0	7982690
Alkalinity (Total as CaCO3)	mg/L	95	1.0	7982588	96	1.0	7982588
Dissolved Chloride (Cl-)	mg/L	2.4	1.0	7982689	2.5	1.0	7982689
Nitrite (N)	mg/L	<0.010	0.010	7982664	0.016	0.010	7982668
Nitrate (N)	mg/L	0.29	0.10	7982664	0.30	0.10	7982668

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2681
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOC752			SOC753		
Sampling Date		2022/05/04			2022/05/04		
COC Number		TCEC-SWCM-MAY			TCEC-SWCM-MAY		
	UNITS	SS16	RDL	QC Batch	SS16	RDL	QC Batch
Calculated Parameters							
Total Un-ionized Ammonia	mg/L	<0.0026	0.0026	7979874	<0.0026	0.0026	7979874
Field Measurements							
Field Conductivity	uS/cm	395	N/A	ONSITE	395	N/A	ONSITE
Field Dissolved Oxygen	mg/L	9.16	N/A	ONSITE	9.16	N/A	ONSITE
Field Temperature	Celsius	12.5	N/A	ONSITE	12.5	N/A	ONSITE
Field Turbidity	NTU	81.1	N/A	ONSITE	81.1	N/A	ONSITE
Field Measured pH	pH	7.8		ONSITE	7.8		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	0.15	7986953	<0.15	0.15	7986953
Total BOD	mg/L				<2	2	7982228
Total Chemical Oxygen Demand (COD)	mg/L				31	4.0	7986231
Conductivity	umho/cm	370	1.0	7982593	370	1.0	7982589
Total Dissolved Solids	mg/L	180	10	7986646	190	10	7986069
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	7986878	<0.7	0.7	7986878
pH	pH	8.00		7982590	8.20		7982587
Phenols-4AAP	mg/L	<0.0010	0.0010	7986787	<0.0010	0.0010	7986787
Total Phosphorus	mg/L	0.08	0.02	7986580	0.08	0.02	7986580
Total Suspended Solids	mg/L				40	10	7985928
Dissolved Sulphate (SO4)	mg/L	8.5	1.0	7982690	9.4	1.0	7982690
Alkalinity (Total as CaCO3)	mg/L	180	1.0	7982591	190	1.0	7982588
Dissolved Chloride (Cl-)	mg/L	2.9	1.0	7982689	3.3	1.0	7982689
Nitrite (N)	mg/L	<0.010	0.010	7982664	<0.010	0.010	7982664
Nitrate (N)	mg/L	<0.10	0.10	7982664	<0.10	0.10	7982664

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2681
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOC750			SOC751			SOC752		
Sampling Date		2022/05/04			2022/05/04			2022/05/04		
COC Number		TCEC-SWCM-MAY			TCEC-SWCM-MAY			TCEC-SWCM-MAY		
	UNITS	SS10	RDL	QC Batch	SS10	RDL	QC Batch	SS16	RDL	QC Batch
Metals										
Dissolved Mercury (Hg)	ug/L				<0.10	0.10	7983530			
Total Arsenic (As)	mg/L				0.003	0.001	7986435			
Total Barium (Ba)	mg/L				0.048	0.005	7986435			
Total Boron (B)	mg/L	0.07	0.02	7986435				0.04	0.02	7986435
Total Cadmium (Cd)	mg/L				0.0001	0.0001	7986435			
Total Calcium (Ca)	mg/L	33	0.2	7986435				56	0.2	7986435
Total Chromium (Cr)	mg/L	0.010	0.005	7986435				<0.005	0.005	7986435
Total Copper (Cu)	mg/L				0.007	0.002	7986435			
Total Iron (Fe)	mg/L	9.7	0.1	7986435				2.7	0.1	7986435
Total Lead (Pb)	mg/L				0.0034	0.0005	7986435			
Total Magnesium (Mg)	mg/L	8.3	0.05	7986435				12	0.05	7986435
Total Nickel (Ni)	mg/L	0.013	0.001	7986435				0.005	0.001	7986435
Total Potassium (K)	mg/L	3.6	0.2	7986435				3.4	0.2	7986435
Total Sodium (Na)	mg/L	2.1	0.1	7986435				3.1	0.1	7986435
Total Zinc (Zn)	mg/L	0.02	0.01	7986435				<0.01	0.01	7986435

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOC753		
Sampling Date		2022/05/04		
COC Number		TCEC-SWCM-MAY		
	UNITS	SS16	RDL	QC Batch
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	7983530
Total Arsenic (As)	mg/L	0.001	0.001	7986435
Total Barium (Ba)	mg/L	0.027	0.005	7986435
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	7986435
Total Copper (Cu)	mg/L	0.003	0.002	7986435
Total Lead (Pb)	mg/L	0.0012	0.0005	7986435

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2681
Report Date: 2022/05/13

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7982228	Total BOD	2022/05/12					<2	mg/L	NC (1)	30	98	80 - 120
7982587	pH	2022/05/10			102	98 - 103			1.1 (1)	N/A		
7982588	Alkalinity (Total as CaCO3)	2022/05/10			94	85 - 115	<1.0	mg/L	1.6 (1)	20		
7982589	Conductivity	2022/05/10			99	85 - 115	<1.0	umho/cm	0.28 (1)	25		
7982590	pH	2022/05/10			102	98 - 103			0.81 (2)	N/A		
7982591	Alkalinity (Total as CaCO3)	2022/05/10			94	85 - 115	<1.0	mg/L	1.4 (2)	20		
7982593	Conductivity	2022/05/10			99	85 - 115	<1.0	umho/cm	0.28 (2)	25		
7982664	Nitrate (N)	2022/05/10	96	80 - 120	103	80 - 120	<0.10	mg/L	1.3 (1)	20		
7982664	Nitrite (N)	2022/05/10	98	80 - 120	107	80 - 120	<0.010	mg/L				
7982668	Nitrate (N)	2022/05/09	114	80 - 120	111	80 - 120	<0.10	mg/L	0.017 (1)	20		
7982668	Nitrite (N)	2022/05/09	103	80 - 120	105	80 - 120	<0.010	mg/L	1.6 (1)	20		
7982689	Dissolved Chloride (Cl-)	2022/05/09	NC	80 - 120	101	80 - 120	<1.0	mg/L	0.51 (1)	20		
7982690	Dissolved Sulphate (SO4)	2022/05/12	NC	75 - 125	101	80 - 120	<1.0	mg/L	4.2 (1)	20		
7983530	Dissolved Mercury (Hg)	2022/05/09	93 (3)	75 - 125	96	80 - 120	<0.10	ug/L	NC (4)	20		
7985928	Total Suspended Solids	2022/05/11					<10	mg/L	NC (1)	25	98	85 - 115
7986069	Total Dissolved Solids	2022/05/11					<10	mg/L	11 (1)	25	95	90 - 110
7986226	Phenols-4AAP	2022/05/10	104	80 - 120	100	80 - 120	<0.0010	mg/L	NC (1)	20		
7986231	Total Chemical Oxygen Demand (COD)	2022/05/11	114	80 - 120	107	80 - 120	<4.0	mg/L	NC (1)	20		
7986246	Total Kjeldahl Nitrogen (TKN)	2022/05/11	120	80 - 120	94	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
7986435	Total Arsenic (As)	2022/05/11	103	80 - 120	100	80 - 120	<0.001	mg/L	NC (1)	20		
7986435	Total Barium (Ba)	2022/05/11	100	80 - 120	99	80 - 120	<0.005	mg/L	5.7 (1)	20		
7986435	Total Boron (B)	2022/05/11	96	80 - 120	93	80 - 120	<0.02	mg/L	1.9 (1)	20		
7986435	Total Cadmium (Cd)	2022/05/11	103	80 - 120	102	80 - 120	<0.0001	mg/L	NC (1)	20		
7986435	Total Calcium (Ca)	2022/05/11	NC	80 - 120	99	80 - 120	<0.2	mg/L	0.50 (1)	20		
7986435	Total Chromium (Cr)	2022/05/11	99	80 - 120	97	80 - 120	<0.005	mg/L	NC (1)	20		
7986435	Total Copper (Cu)	2022/05/11	97	80 - 120	96	80 - 120	<0.002	mg/L	NC (1)	20		
7986435	Total Iron (Fe)	2022/05/11	101	80 - 120	98	80 - 120	<0.1	mg/L	2.0 (1)	20		
7986435	Total Lead (Pb)	2022/05/11	99	80 - 120	97	80 - 120	<0.0005	mg/L	NC (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7986435	Total Magnesium (Mg)	2022/05/11	NC	80 - 120	99	80 - 120	<0.05	mg/L	0.88 (1)	20		
7986435	Total Nickel (Ni)	2022/05/11	100	80 - 120	99	80 - 120	<0.001	mg/L	14 (1)	20		
7986435	Total Potassium (K)	2022/05/11	98	80 - 120	95	80 - 120	<0.2	mg/L	0.54 (1)	20		
7986435	Total Sodium (Na)	2022/05/11	NC	80 - 120	99	80 - 120	<0.1	mg/L	0.38 (1)	20		
7986435	Total Zinc (Zn)	2022/05/11	104	80 - 120	105	80 - 120	<0.01	mg/L	NC (1)	20		
7986580	Total Phosphorus	2022/05/11	107	80 - 120	105	80 - 120	<0.004	mg/L	5.6 (1)	20	103	80 - 120
7986646	Total Dissolved Solids	2022/05/11					<10	mg/L	0.45 (1)	25	102	90 - 110
7986787	Phenols-4AAP	2022/05/11	108 (5)	80 - 120	103	80 - 120	<0.0010	mg/L	NC (6)	20		
7986878	Total Kjeldahl Nitrogen (TKN)	2022/05/11	108	80 - 120	99	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
7986953	Total Ammonia-N	2022/05/11	99	75 - 125	102	80 - 120	<0.15	mg/L	2.8 (1)	20		
7989391	Total Dissolved Solids	2022/05/12					<10	mg/L	13 (1)	25	97	90 - 110

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Duplicate Parent ID [SOC752-02]

(3) Matrix Spike Parent ID [SOC751-08]

(4) Duplicate Parent ID [SOC751-08]

(5) Matrix Spike Parent ID [SOC752-03]

(6) Duplicate Parent ID [SOC752-03]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2681
Report Date: 2022/05/13

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/17
Report #: R7128909
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2C2453
Received: 2022/05/06, 09:14

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	4	2022/05/09	2022/05/10	CAM SOP-00301	EPA 8270 m
ABN Compounds in Water by GC/MS	1	2022/05/09	2022/05/09	CAM SOP-00301	EPA 8270 m
Alkalinity	5	N/A	2022/05/10	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	5	2022/05/07	2022/05/12	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	5	N/A	2022/05/09	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2022/05/10	CAM SOP-00416	SM 23 5220 D m
Chemical Oxygen Demand	4	N/A	2022/05/11	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	5	N/A	2022/05/12		
Conductivity	5	N/A	2022/05/10	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	5	N/A	2022/05/12		
Dissolved Mercury in Water by CVAA	5	2022/05/09	2022/05/09	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	5	N/A	2022/05/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	5	N/A	2022/05/11	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	5	N/A	2022/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2022/05/07	2022/05/10	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	3	N/A	2022/05/10	CAM SOP-00444	OMOE E3179 m
Phenols (4AAP)	2	N/A	2022/05/09	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	5	N/A	2022/05/06		Field pH Meter
Sulphate by Automated Colourimetry	5	N/A	2022/05/11	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	5	2022/05/10	2022/05/11	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	5	N/A	2022/05/06		Field Thermometer
Total Kjeldahl Nitrogen in Water	5	2022/05/10	2022/05/11	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	5	2022/05/10	2022/05/11	CAM SOP-00407	SM 23 4500 P B H m
Low Level Total Suspended Solids	5	2022/05/10	2022/05/11	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	5	N/A	2022/05/12		
Un-ionized Ammonia	5	2022/05/06	2022/05/12	Auto Calc.	PWQO
Volatile Organic Compounds in Water	5	N/A	2022/05/11	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/17
Report #: R7128909
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

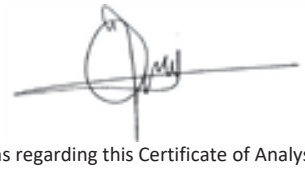
BUREAU VERITAS JOB #: C2C2453
Received: 2022/05/06, 09:14

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key



Patricia Legette
Project Manager
17 May 2022 17:18:04

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C2C2453
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOB522		SOB523		
Sampling Date		2022/05/04		2022/05/04		
COC Number		TCEC-SWCM-MAY		TCEC-SWCM-MAY		
	UNITS	SP1	RDL	SP2	RDL	QC Batch
Calculated Parameters						
Total Un-ionized Ammonia	mg/L	<0.0015	0.0015	<0.0078	0.0078	7979874
Field Measurements						
Field Conductivity	uS/cm	753	N/A	1000	N/A	ONSITE
Field Dissolved Oxygen	mg/L	8.92	N/A	9.32	N/A	ONSITE
Field Temperature	Celsius	15.5	N/A	15.3	N/A	ONSITE
Field Turbidity	NTU	101	N/A	15.0	N/A	ONSITE
Field Measured pH	pH	7.96		8.2		ONSITE
Inorganics						
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	0.15	7986941
Total BOD	mg/L	<2	2	<2	2	7982227
Total Chemical Oxygen Demand (COD)	mg/L	22	4.0	15	4.0	7986231
Conductivity	umho/cm	730	1.0	1000	1.0	7982589
Total Dissolved Solids	mg/L	375	10	465	10	7986646
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	<0.7	0.7	7986246
pH	pH	8.23		8.14		7982587
Phenols-4AAP	mg/L	<0.0010	0.0010	<0.0010	0.0010	7984216
Total Phosphorus	mg/L	0.084	0.004	0.029	0.004	7986223
Total Suspended Solids	mg/L	19	1	12	1	7986236
Dissolved Sulphate (SO4)	mg/L	190	1.0	280	1.0	7982708
Alkalinity (Total as CaCO3)	mg/L	160	1.0	99	1.0	7982588
Dissolved Chloride (Cl-)	mg/L	29	1.0	84	1.0	7982704
Nitrite (N)	mg/L	0.012	0.010	<0.010	0.010	7982664
Nitrate (N)	mg/L	0.46	0.10	0.12	0.10	7982664

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2453
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOB524		SOB525		SOB526		
Sampling Date		2022/05/04		2022/05/04		2022/05/04		
COC Number		TCEC-SWCM-MAY		TCEC-SWCM-MAY		TCEC-SWCM-MAY		
	UNITS	SP3	RDL	SP4	QC Batch	SPDUP	RDL	QC Batch
Calculated Parameters								
Total Un-ionized Ammonia	mg/L	<0.033	0.033	<0.0054	7979874	<0.0054	0.0054	7979874
Field Measurements								
Field Conductivity	uS/cm	764	N/A	676	ONSITE	676	N/A	ONSITE
Field Dissolved Oxygen	mg/L	11.3	N/A	7.60	ONSITE	7.60	N/A	ONSITE
Field Temperature	Celsius	15.0	N/A	13.3	ONSITE	13.3	N/A	ONSITE
Field Turbidity	NTU	12.8	N/A	91.1	ONSITE	91.1	N/A	ONSITE
Field Measured pH	pH	8.9		8.1	ONSITE	8.1		ONSITE
Inorganics								
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	7986941	<0.15	0.15	7986941
Total BOD	mg/L	<2	2	2	7982227	<2	2	7982227
Total Chemical Oxygen Demand (COD)	mg/L	8.8	4.0	21	7986231	26	4.0	7985930
Conductivity	umho/cm	740	1.0	650	7982589	650	1.0	7982589
Total Dissolved Solids	mg/L	420	10	350	7986646	335	10	7986646
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	<0.7	7986246	<0.7	0.7	7986246
pH	pH	8.19		8.18	7982587	8.18		7982587
Phenols-4AAP	mg/L	<0.0010	0.0010	<0.0010	7986076	<0.0010	0.0010	7986076
Total Phosphorus	mg/L	0.024	0.004	0.077	7986223	0.079	0.004	7986223
Total Suspended Solids	mg/L	12	1	41	7986236	45	1	7986459
Dissolved Sulphate (SO4)	mg/L	250	1.0	130	7982708	130	1.0	7982708
Alkalinity (Total as CaCO3)	mg/L	71	1.0	150	7982588	150	1.0	7982588
Dissolved Chloride (Cl-)	mg/L	37	1.0	37	7982704	38	1.0	7982704
Nitrite (N)	mg/L	<0.010	0.010	<0.010	7982664	<0.010	0.010	7982664
Nitrate (N)	mg/L	<0.10	0.10	0.18	7982664	0.17	0.10	7982664

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2453
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOB522	SOB523	SOB524	SOB525	SOB526		
Sampling Date		2022/05/04	2022/05/04	2022/05/04	2022/05/04	2022/05/04		
COC Number		TCEC-SWCM-MAY	TCEC-SWCM-MAY	TCEC-SWCM-MAY	TCEC-SWCM-MAY	TCEC-SWCM-MAY		
	UNITS	SP1	SP2	SP3	SP4	SPDUP	RDL	QC Batch
Metals								
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7983530
Total Arsenic (As)	mg/L	0.001	<0.001	0.001	0.001	0.001	0.001	7986435
Total Barium (Ba)	mg/L	0.037	0.032	0.021	0.037	0.037	0.005	7986435
Total Boron (B)	mg/L	0.37	0.39	0.11	0.07	0.06	0.02	7986435
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	7986435
Total Calcium (Ca)	mg/L	76	79	58	74	72	0.2	7986435
Total Chromium (Cr)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	7986435
Total Copper (Cu)	mg/L	0.004	0.004	<0.002	0.004	0.004	0.002	7986435
Total Iron (Fe)	mg/L	2.8	0.3	0.3	2.0	1.9	0.1	7986435
Total Lead (Pb)	mg/L	0.0011	<0.0005	<0.0005	0.0011	0.0011	0.0005	7986435
Total Magnesium (Mg)	mg/L	34	43	36	26	25	0.05	7986435
Total Nickel (Ni)	mg/L	0.007	0.005	0.002	0.006	0.005	0.001	7986435
Total Potassium (K)	mg/L	4.9	5.4	2.7	4.7	4.6	0.2	7986435
Total Sodium (Na)	mg/L	26	60	36	25	25	0.1	7986435
Total Zinc (Zn)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	7986435

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2453
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		SOB522	SOB523	SOB524	SOB525	SOB526		
Sampling Date		2022/05/04	2022/05/04	2022/05/04	2022/05/04	2022/05/04		
COC Number		TCEC-SWCM-MAY	TCEC-SWCM-MAY	TCEC-SWCM-MAY	TCEC-SWCM-MAY	TCEC-SWCM-MAY		
	UNITS	SP1	SP2	SP3	SP4	SPDUP	RDL	QC Batch
Semivolatile Organics								
Benzo(a)pyrene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7983288
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	7983288
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	7983288
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	7983288
Hexachlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	7983288
1,2,4-Trichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	7983288
2,4-Dichlorophenol	ug/L	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	7983288
Pentachlorophenol	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	7983288
Phenol	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	7983288
2,4,6-Trichlorophenol	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	7983288
Di-N-butyl phthalate	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	7983288
Diethyl phthalate	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	7983288
Dimethyl phthalate	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	7983288
Surrogate Recovery (%)								
2,4,6-Tribromophenol	%	93	81	76	79	102		7983288
2-Fluorobiphenyl	%	88	95	93	86	87		7983288
2-Fluorophenol	%	48	39	34	40	52		7983288
D14-Terphenyl	%	113	109	113	111	110		7983288
D5-Nitrobenzene	%	88	89	89	87	87		7983288
D5-Phenol	%	36	31	29	30	34		7983288

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2453
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SOB522	SOB523	SOB524	SOB525		
Sampling Date		2022/05/04	2022/05/04	2022/05/04	2022/05/04		
COC Number		TCEC-SWCM-MAY	TCEC-SWCM-MAY	TCEC-SWCM-MAY	TCEC-SWCM-MAY		
	UNITS	SP1	SP2	SP3	SP4	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7981964
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	7981964
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	7981964
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	91	90	91	90		7981964
D4-1,2-Dichloroethane	%	115	114	113	114		7981964
D8-Toluene	%	91	91	92	91		7981964

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		SOB526		
Sampling Date		2022/05/04		
COC Number		TCEC-SWCM-MAY		
	UNITS	SPDUP	RDL	QC Batch
Volatile Organics				
Benzene	ug/L	<0.20	0.20	7981964
1,4-Dichlorobenzene	ug/L	<0.40	0.40	7981964
Ethylbenzene	ug/L	<0.20	0.20	7981964
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	7981964
Toluene	ug/L	<0.20	0.20	7981964
Vinyl Chloride	ug/L	<0.20	0.20	7981964
p+m-Xylene	ug/L	<0.20	0.20	7981964
o-Xylene	ug/L	<0.20	0.20	7981964
Total Xylenes	ug/L	<0.20	0.20	7981964
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	91		7981964
D4-1,2-Dichloroethane	%	115		7981964
D8-Toluene	%	91		7981964

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Revised Report (2022/05/17): Revised Sulphate results reported under all samples in this CofA.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7981964	4-Bromofluorobenzene	2022/05/10	104	70 - 130	103	70 - 130	94	%				
7981964	D4-1,2-Dichloroethane	2022/05/10	105	70 - 130	100	70 - 130	103	%				
7981964	D8-Toluene	2022/05/10	99	70 - 130	101	70 - 130	95	%				
7983288	2,4,6-Tribromophenol	2022/05/09	79	10 - 130	102	10 - 130	87	%				
7983288	2-Fluorobiphenyl	2022/05/09	45	30 - 130	74	30 - 130	85	%				
7983288	2-Fluorophenol	2022/05/09	29	10 - 130	55	10 - 130	52	%				
7983288	D14-Terphenyl	2022/05/09	102	30 - 130	116	30 - 130	107	%				
7983288	D5-Nitrobenzene	2022/05/09	48	30 - 130	84	30 - 130	87	%				
7983288	D5-Phenol	2022/05/09	20	10 - 130	36	10 - 130	34	%				
7981964	1,4-Dichlorobenzene	2022/05/10	105	70 - 130	109	70 - 130	<0.40	ug/L	NC (1)	30		
7981964	Benzene	2022/05/10	94	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30		
7981964	Ethylbenzene	2022/05/10	89	70 - 130	91	70 - 130	<0.20	ug/L	NC (1)	30		
7981964	Methylene Chloride(Dichloromethane)	2022/05/10	117	70 - 130	115	70 - 130	<2.0	ug/L	NC (1)	30		
7981964	o-Xylene	2022/05/10	89	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
7981964	p+m-Xylene	2022/05/10	92	70 - 130	95	70 - 130	<0.20	ug/L	NC (1)	30		
7981964	Toluene	2022/05/10	95	70 - 130	98	70 - 130	<0.20	ug/L	NC (1)	30		
7981964	Total Xylenes	2022/05/10					<0.20	ug/L	NC (1)	30		
7981964	Vinyl Chloride	2022/05/10	99	70 - 130	101	70 - 130	<0.20	ug/L	NC (1)	30		
7982227	Total BOD	2022/05/12					<2	mg/L	NC (1)	30	102	80 - 120
7982587	pH	2022/05/10			102	98 - 103			1.1 (1)	N/A		
7982588	Alkalinity (Total as CaCO3)	2022/05/10			94	85 - 115	<1.0	mg/L	1.6 (1)	20		
7982589	Conductivity	2022/05/10			99	85 - 115	<1.0	umho/cm	0.28 (1)	25		
7982664	Nitrate (N)	2022/05/10	96	80 - 120	103	80 - 120	<0.10	mg/L	1.3 (1)	20		
7982664	Nitrite (N)	2022/05/10	98	80 - 120	107	80 - 120	<0.010	mg/L				
7982704	Dissolved Chloride (Cl-)	2022/05/09	NC	80 - 120	105	80 - 120	<1.0	mg/L	0.91 (1)	20		
7982708	Dissolved Sulphate (SO4)	2022/05/11	NC	75 - 125	93	80 - 120	<1.0	mg/L	0.71 (1)	20		
7983288	1,2,4-Trichlorobenzene	2022/05/09	40	30 - 130	66	30 - 130	<0.50	ug/L				
7983288	1,2-Dichlorobenzene	2022/05/09	39	30 - 130	63	30 - 130	<0.50	ug/L				
7983288	1,3-Dichlorobenzene	2022/05/09	36	30 - 130	57	30 - 130	<0.50	ug/L				

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7983288	1,4-Dichlorobenzene	2022/05/09	37	30 - 130	59	30 - 130	<0.50	ug/L				
7983288	2,4,6-Trichlorophenol	2022/05/09	47	10 - 130	86	10 - 130	<0.50	ug/L				
7983288	2,4-Dichlorophenol	2022/05/09	55	10 - 130	100	10 - 130	<0.30	ug/L				
7983288	Benzo(a)pyrene	2022/05/09	83	30 - 130	96	30 - 130	<0.20	ug/L				
7983288	Diethyl phthalate	2022/05/09	93	30 - 130	120	30 - 130	<1.0	ug/L				
7983288	Dimethyl phthalate	2022/05/09	79	30 - 130	119	30 - 130	<1.0	ug/L				
7983288	Di-N-butyl phthalate	2022/05/09	107	30 - 130	117	30 - 130	<2.0	ug/L	NC (1)	40		
7983288	Hexachlorobenzene	2022/05/09	82	30 - 130	100	30 - 130	<0.50	ug/L				
7983288	Pentachlorophenol	2022/05/09	69	10 - 130	95	10 - 130	<1.0	ug/L				
7983288	Phenol	2022/05/09	21	10 - 130	39	10 - 130	<0.50	ug/L				
7983530	Dissolved Mercury (Hg)	2022/05/09	93	75 - 125	96	80 - 120	<0.10	ug/L	NC (1)	20		
7984216	Phenols-4AAP	2022/05/09	111	80 - 120	104	80 - 120	<0.0010	mg/L	NC (1)	20		
7985930	Total Chemical Oxygen Demand (COD)	2022/05/10	101	80 - 120	107	80 - 120	4.8, RDL=4.0	mg/L	NC (1)	20		
7986076	Phenols-4AAP	2022/05/10	105	80 - 120	100	80 - 120	<0.0010	mg/L	NC (1)	20		
7986223	Total Phosphorus	2022/05/11	110	80 - 120	105	80 - 120	<0.004	mg/L	2.5 (1)	20	102	80 - 120
7986231	Total Chemical Oxygen Demand (COD)	2022/05/11	114	80 - 120	107	80 - 120	<4.0	mg/L	NC (1)	20		
7986236	Total Suspended Solids	2022/05/11					<1	mg/L	6.1 (1)	25	100	85 - 115
7986246	Total Kjeldahl Nitrogen (TKN)	2022/05/11	120	80 - 120	94	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
7986435	Total Arsenic (As)	2022/05/11	103 (2)	80 - 120	100	80 - 120	<0.001	mg/L	NC (3)	20		
7986435	Total Barium (Ba)	2022/05/11	100 (2)	80 - 120	99	80 - 120	<0.005	mg/L	5.7 (3)	20		
7986435	Total Boron (B)	2022/05/11	96 (2)	80 - 120	93	80 - 120	<0.02	mg/L	1.9 (3)	20		
7986435	Total Cadmium (Cd)	2022/05/11	103 (2)	80 - 120	102	80 - 120	<0.0001	mg/L	NC (3)	20		
7986435	Total Calcium (Ca)	2022/05/11	NC (2)	80 - 120	99	80 - 120	<0.2	mg/L	0.50 (3)	20		
7986435	Total Chromium (Cr)	2022/05/11	99 (2)	80 - 120	97	80 - 120	<0.005	mg/L	NC (3)	20		
7986435	Total Copper (Cu)	2022/05/11	97 (2)	80 - 120	96	80 - 120	<0.002	mg/L	NC (3)	20		
7986435	Total Iron (Fe)	2022/05/11	101 (2)	80 - 120	98	80 - 120	<0.1	mg/L	2.0 (3)	20		
7986435	Total Lead (Pb)	2022/05/11	99 (2)	80 - 120	97	80 - 120	<0.0005	mg/L	NC (3)	20		
7986435	Total Magnesium (Mg)	2022/05/11	NC (2)	80 - 120	99	80 - 120	<0.05	mg/L	0.88 (3)	20		
7986435	Total Nickel (Ni)	2022/05/11	100 (2)	80 - 120	99	80 - 120	<0.001	mg/L	14 (3)	20		
7986435	Total Potassium (K)	2022/05/11	98 (2)	80 - 120	95	80 - 120	<0.2	mg/L	0.54 (3)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7986435	Total Sodium (Na)	2022/05/11	NC (2)	80 - 120	99	80 - 120	<0.1	mg/L	0.38 (3)	20		
7986435	Total Zinc (Zn)	2022/05/11	104 (2)	80 - 120	105	80 - 120	<0.01	mg/L	NC (3)	20		
7986459	Total Suspended Solids	2022/05/11					<1	mg/L	17 (1)	25	98	85 - 115
7986646	Total Dissolved Solids	2022/05/11					<10	mg/L	0.45 (1)	25	102	90 - 110
7986941	Total Ammonia-N	2022/05/11	98	75 - 125	103	80 - 120	<0.15	mg/L	NC (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [SOB524-07]

(3) Duplicate Parent ID [SOB524-07]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2453
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Patricia Legette, Project Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/17
Report #: R7128857
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2C2609
Received: 2022/05/06, 09:14

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	2	2022/05/09	2022/05/10	CAM SOP-00301	EPA 8270 m
Alkalinity	2	N/A	2022/05/10	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	2	2022/05/07	2022/05/12	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	2	N/A	2022/05/09	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	2	N/A	2022/05/10	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	2	N/A	2022/05/12		
Conductivity	2	N/A	2022/05/10	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	2	N/A	2022/05/12		
Dissolved Mercury in Water by CVAA	2	2022/05/09	2022/05/09	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	2	N/A	2022/05/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2022/05/11	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2022/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2022/05/07	2022/05/10	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2022/05/10	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	2	N/A	2022/05/06		Field pH Meter
Sulphate by Automated Colourimetry	2	N/A	2022/05/11	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	2	2022/05/10	2022/05/11	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	2	N/A	2022/05/06		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2022/05/10	2022/05/11	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2022/05/09	2022/05/12	CAM SOP-00407	SM 23 4500 B F m
Low Level Total Suspended Solids	2	2022/05/10	2022/05/11	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	2	N/A	2022/05/12		
Un-ionized Ammonia	2	2022/05/06	2022/05/12	Auto Calc.	PWQO
Volatile Organic Compounds in Water	2	N/A	2022/05/09	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/17
Report #: R7128857
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

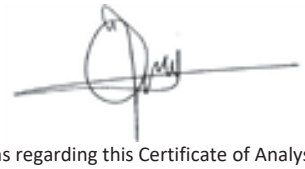
BUREAU VERITAS JOB #: C2C2609
Received: 2022/05/06, 09:14

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key



Patricia Legette
Project Manager
17 May 2022 16:54:29

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2609
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		SOC306	SOC307		
Sampling Date		2022/05/04	2022/05/04		
COC Number		TCEC-SWCM-MAY	TCEC-SWCM-MAY		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Calculated Parameters					
Total Un-ionized Ammonia	mg/L	<0.0047	<0.0047	0.0047	7979874
Field Measurements					
Field Conductivity	uS/cm	755	755	N/A	ONSITE
Field Dissolved Oxygen	mg/L	9.64	9.64	N/A	ONSITE
Field Temperature	Celsius	11.6	11.6	N/A	ONSITE
Field Turbidity	NTU	177	177	N/A	ONSITE
Field Measured pH	pH	8.1	8.1		ONSITE
Inorganics					
Total Ammonia-N	mg/L	<0.15	<0.15	0.15	7986943
Total BOD	mg/L	<2	<2	2	7982227
Total Chemical Oxygen Demand (COD)	mg/L	23	25	4.0	7985930
Conductivity	umho/cm	730	720	1.0	7982589
Total Dissolved Solids	mg/L	370	405	10	7986646
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	<0.7	0.7	7986246
pH	pH	8.25	8.11		7982587
Phenols-4AAP	mg/L	<0.0010	<0.0010	0.0010	7986226
Total Phosphorus	mg/L	0.088	0.14	0.030	7983435
Total Suspended Solids	mg/L	95	100	2	7986236
Dissolved Sulphate (SO4)	mg/L	180	180	1.0	7982708
Alkalinity (Total as CaCO3)	mg/L	160	160	1.0	7982588
Dissolved Chloride (Cl-)	mg/L	29	29	1.0	7982704
Nitrite (N)	mg/L	0.012	0.012	0.010	7982664
Nitrate (N)	mg/L	0.45	0.45	0.10	7982664

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2609
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		SOC306	SOC307		
Sampling Date		2022/05/04	2022/05/04		
COC Number		TCEC-SWCM-MAY	TCEC-SWCM-MAY		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Metals					
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	0.10	7983530
Total Arsenic (As)	mg/L	0.002	0.002	0.001	7986435
Total Barium (Ba)	mg/L	0.040	0.039	0.005	7986435
Total Boron (B)	mg/L	0.36	0.35	0.02	7986435
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	7986435
Total Calcium (Ca)	mg/L	80	79	0.2	7986435
Total Chromium (Cr)	mg/L	<0.005	<0.005	0.005	7986435
Total Copper (Cu)	mg/L	0.005	0.005	0.002	7986435
Total Iron (Fe)	mg/L	4.4	4.4	0.1	7986435
Total Lead (Pb)	mg/L	0.0017	0.0017	0.0005	7986435
Total Magnesium (Mg)	mg/L	34	35	0.05	7986435
Total Nickel (Ni)	mg/L	0.009	0.009	0.001	7986435
Total Potassium (K)	mg/L	5.1	5.1	0.2	7986435
Total Sodium (Na)	mg/L	26	26	0.1	7986435
Total Zinc (Zn)	mg/L	0.01	0.01	0.01	7986435

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		SOC306	SOC307		
Sampling Date		2022/05/04	2022/05/04		
COC Number		TCEC-SWCM-MAY	TCEC-SWCM-MAY		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Semivolatile Organics					
Benzo(a)pyrene	ug/L	<0.20	<0.20	0.20	7983288
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	7983288
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	7983288
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	7983288
Hexachlorobenzene	ug/L	<0.50	<0.50	0.50	7983288
1,2,4-Trichlorobenzene	ug/L	<0.50	<0.50	0.50	7983288
2,4-Dichlorophenol	ug/L	<0.30	<0.30	0.30	7983288
Pentachlorophenol	ug/L	<1.0	<1.0	1.0	7983288
Phenol	ug/L	<0.50	<0.50	0.50	7983288
2,4,6-Trichlorophenol	ug/L	<0.50	<0.50	0.50	7983288
Di-N-butyl phthalate	ug/L	<2.0	<2.0	2.0	7983288
Diethyl phthalate	ug/L	<1.0	<1.0	1.0	7983288
Dimethyl phthalate	ug/L	<1.0	<1.0	1.0	7983288
Surrogate Recovery (%)					
2,4,6-Tribromophenol	%	84	92		7983288
2-Fluorobiphenyl	%	86	85		7983288
2-Fluorophenol	%	42	50		7983288
D14-Terphenyl	%	109	107		7983288
D5-Nitrobenzene	%	82	91		7983288
D5-Phenol	%	32	36		7983288

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2609
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		SOC306	SOC307		
Sampling Date		2022/05/04	2022/05/04		
COC Number		TCEC-SWCM-MAY	TCEC-SWCM-MAY		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	7981773
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	7981773
Ethylbenzene	ug/L	<0.20	<0.20	0.20	7981773
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	7981773
Toluene	ug/L	<0.20	<0.20	0.20	7981773
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	7981773
p+m-Xylene	ug/L	<0.20	<0.20	0.20	7981773
o-Xylene	ug/L	<0.20	<0.20	0.20	7981773
Total Xylenes	ug/L	<0.20	<0.20	0.20	7981773
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	99	97		7981773
D4-1,2-Dichloroethane	%	103	103		7981773
D8-Toluene	%	100	100		7981773

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Revised Report (2022/05/17): Revised Sulphate results reported under all samples in this CofA.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7981773	4-Bromofluorobenzene	2022/05/09	78	70 - 130	101	70 - 130	100	%				
7981773	D4-1,2-Dichloroethane	2022/05/09	99	70 - 130	99	70 - 130	99	%				
7981773	D8-Toluene	2022/05/09	80	70 - 130	105	70 - 130	103	%				
7983288	2,4,6-Tribromophenol	2022/05/09	79	10 - 130	102	10 - 130	87	%				
7983288	2-Fluorobiphenyl	2022/05/09	45	30 - 130	74	30 - 130	85	%				
7983288	2-Fluorophenol	2022/05/09	29	10 - 130	55	10 - 130	52	%				
7983288	D14-Terphenyl	2022/05/09	102	30 - 130	116	30 - 130	107	%				
7983288	D5-Nitrobenzene	2022/05/09	48	30 - 130	84	30 - 130	87	%				
7983288	D5-Phenol	2022/05/09	20	10 - 130	36	10 - 130	34	%				
7981773	1,4-Dichlorobenzene	2022/05/09	110	70 - 130	111	70 - 130	<0.40	ug/L	NC (1)	30		
7981773	Benzene	2022/05/09	89	70 - 130	88	70 - 130	<0.20	ug/L	NC (1)	30		
7981773	Ethylbenzene	2022/05/09	72	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
7981773	Methylene Chloride(Dichloromethane)	2022/05/09	95	70 - 130	95	70 - 130	<2.0	ug/L	NC (1)	30		
7981773	o-Xylene	2022/05/09	71	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
7981773	p+m-Xylene	2022/05/09	74	70 - 130	97	70 - 130	<0.20	ug/L	NC (1)	30		
7981773	Toluene	2022/05/09	72	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
7981773	Total Xylenes	2022/05/09					<0.20	ug/L	NC (1)	30		
7981773	Vinyl Chloride	2022/05/09	91	70 - 130	91	70 - 130	<0.20	ug/L	0.52 (1)	30		
7982227	Total BOD	2022/05/12					<2	mg/L	NC (1)	30	102	80 - 120
7982587	pH	2022/05/10			102	98 - 103			1.1 (2)	N/A		
7982588	Alkalinity (Total as CaCO3)	2022/05/10			94	85 - 115	<1.0	mg/L	1.6 (2)	20		
7982589	Conductivity	2022/05/10			99	85 - 115	<1.0	umho/cm	0.28 (2)	25		
7982664	Nitrate (N)	2022/05/10	96	80 - 120	103	80 - 120	<0.10	mg/L	1.3 (1)	20		
7982664	Nitrite (N)	2022/05/10	98	80 - 120	107	80 - 120	<0.010	mg/L				
7982704	Dissolved Chloride (Cl-)	2022/05/09	NC	80 - 120	105	80 - 120	<1.0	mg/L	0.91 (1)	20		
7982708	Dissolved Sulphate (SO4)	2022/05/11	NC	75 - 125	93	80 - 120	<1.0	mg/L	0.71 (1)	20		
7983288	1,2,4-Trichlorobenzene	2022/05/09	40	30 - 130	66	30 - 130	<0.50	ug/L				
7983288	1,2-Dichlorobenzene	2022/05/09	39	30 - 130	63	30 - 130	<0.50	ug/L				
7983288	1,3-Dichlorobenzene	2022/05/09	36	30 - 130	57	30 - 130	<0.50	ug/L				

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7983288	1,4-Dichlorobenzene	2022/05/09	37	30 - 130	59	30 - 130	<0.50	ug/L				
7983288	2,4,6-Trichlorophenol	2022/05/09	47	10 - 130	86	10 - 130	<0.50	ug/L				
7983288	2,4-Dichlorophenol	2022/05/09	55	10 - 130	100	10 - 130	<0.30	ug/L				
7983288	Benzo(a)pyrene	2022/05/09	83	30 - 130	96	30 - 130	<0.20	ug/L				
7983288	Diethyl phthalate	2022/05/09	93	30 - 130	120	30 - 130	<1.0	ug/L				
7983288	Dimethyl phthalate	2022/05/09	79	30 - 130	119	30 - 130	<1.0	ug/L				
7983288	Di-N-butyl phthalate	2022/05/09	107	30 - 130	117	30 - 130	<2.0	ug/L	NC (1)	40		
7983288	Hexachlorobenzene	2022/05/09	82	30 - 130	100	30 - 130	<0.50	ug/L				
7983288	Pentachlorophenol	2022/05/09	69	10 - 130	95	10 - 130	<1.0	ug/L				
7983288	Phenol	2022/05/09	21	10 - 130	39	10 - 130	<0.50	ug/L				
7983435	Total Phosphorus	2022/05/12	101	80 - 120	101	80 - 120	<0.030	mg/L	NC (1)	25	102	80 - 120
7983530	Dissolved Mercury (Hg)	2022/05/09	93	75 - 125	96	80 - 120	<0.10	ug/L	NC (1)	20		
7985930	Total Chemical Oxygen Demand (COD)	2022/05/10	101	80 - 120	107	80 - 120	4.8, RDL=4.0	mg/L	NC (1)	20		
7986226	Phenols-4AAP	2022/05/10	104	80 - 120	100	80 - 120	<0.0010	mg/L	NC (1)	20		
7986236	Total Suspended Solids	2022/05/11					<1	mg/L	6.1 (1)	25	100	85 - 115
7986246	Total Kjeldahl Nitrogen (TKN)	2022/05/11	120	80 - 120	94	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
7986435	Total Arsenic (As)	2022/05/11	103	80 - 120	100	80 - 120	<0.001	mg/L	NC (1)	20		
7986435	Total Barium (Ba)	2022/05/11	100	80 - 120	99	80 - 120	<0.005	mg/L	5.7 (1)	20		
7986435	Total Boron (B)	2022/05/11	96	80 - 120	93	80 - 120	<0.02	mg/L	1.9 (1)	20		
7986435	Total Cadmium (Cd)	2022/05/11	103	80 - 120	102	80 - 120	<0.0001	mg/L	NC (1)	20		
7986435	Total Calcium (Ca)	2022/05/11	NC	80 - 120	99	80 - 120	<0.2	mg/L	0.50 (1)	20		
7986435	Total Chromium (Cr)	2022/05/11	99	80 - 120	97	80 - 120	<0.005	mg/L	NC (1)	20		
7986435	Total Copper (Cu)	2022/05/11	97	80 - 120	96	80 - 120	<0.002	mg/L	NC (1)	20		
7986435	Total Iron (Fe)	2022/05/11	101	80 - 120	98	80 - 120	<0.1	mg/L	2.0 (1)	20		
7986435	Total Lead (Pb)	2022/05/11	99	80 - 120	97	80 - 120	<0.0005	mg/L	NC (1)	20		
7986435	Total Magnesium (Mg)	2022/05/11	NC	80 - 120	99	80 - 120	<0.05	mg/L	0.88 (1)	20		
7986435	Total Nickel (Ni)	2022/05/11	100	80 - 120	99	80 - 120	<0.001	mg/L	14 (1)	20		
7986435	Total Potassium (K)	2022/05/11	98	80 - 120	95	80 - 120	<0.2	mg/L	0.54 (1)	20		
7986435	Total Sodium (Na)	2022/05/11	NC	80 - 120	99	80 - 120	<0.1	mg/L	0.38 (1)	20		
7986435	Total Zinc (Zn)	2022/05/11	104	80 - 120	105	80 - 120	<0.01	mg/L	NC (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7986646	Total Dissolved Solids	2022/05/11					<10	mg/L	0.45 (1)	25	102	90 - 110
7986943	Total Ammonia-N	2022/05/11	99	75 - 125	102	80 - 120	<0.15	mg/L	7.0 (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Duplicate Parent ID [SOC307-04]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2C2609
Report Date: 2022/05/17

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

Cristina Carriere, Senior Scientific Specialist

Patricia Legette, Project Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/27
Report #: R7140631
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2D4361
Received: 2022/05/18, 09:20

Sample Matrix: Surface Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2022/05/20	2022/05/24	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2022/05/19	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	1	2022/05/20	2022/05/25	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2022/05/19	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2022/05/19	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	1	N/A	2022/05/24		
Conductivity	1	N/A	2022/05/19	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2022/05/24		
Dissolved Mercury in Water by CVAA	1	2022/05/19	2022/05/19	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	1	N/A	2022/05/24	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2022/05/20	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2022/05/19	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2022/05/18	2022/05/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/05/20	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2022/05/18		Field pH Meter
Sulphate by Automated Colourimetry	1	N/A	2022/05/19	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	1	2022/05/18	2022/05/19	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2022/05/18		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2022/05/19	2022/05/20	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2022/05/20	2022/05/24	CAM SOP-00407	SM 23 4500 P B H m
Low Level Total Suspended Solids	1	2022/05/18	2022/05/19	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	1	N/A	2022/05/24		
Un-ionized Ammonia	1	2022/05/18	2022/05/24	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2022/05/26	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/27
Report #: R7140631
Version: 1 - Final

CERTIFICATE OF ANALYSIS

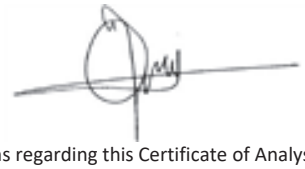
BUREAU VERITAS JOB #: C2D4361
Received: 2022/05/18, 09:20

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key



Patricia Legette
Project Manager
27 May 2022 13:56:45

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2D4361
Report Date: 2022/05/27

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		SQR217		
Sampling Date		2022/05/16		
COC Number		TCEC-SWCM-MAY		
	UNITS	**SP2**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.0076	0.0076	8002108
Field Measurements				
Field Conductivity	uS/cm	952	N/A	ONSITE
Field Dissolved Oxygen	mg/L	8.29	N/A	ONSITE
Field Temperature	Celsius	24.5	N/A	ONSITE
Field Turbidity	NTU	14.7	N/A	ONSITE
Field Measured pH	pH	7.9		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8005067
Total BOD	mg/L	<2	2	8006697
Total Chemical Oxygen Demand (COD)	mg/L	25	4.0	8004417
Conductivity	umho/cm	1100	1.0	8003198
Total Dissolved Solids	mg/L	720	10	8002999
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8005010
pH	pH	7.99		8003211
Phenols-4AAP	mg/L	<0.0010	0.0010	8007190
Total Phosphorus	mg/L	0.052	0.004	8006883
Total Suspended Solids	mg/L	23	1	8002829
Dissolved Sulphate (SO4)	mg/L	330	1.0	8003176
Alkalinity (Total as CaCO3)	mg/L	100	1.0	8003204
Dissolved Chloride (Cl-)	mg/L	70	1.0	8003149
Nitrite (N)	mg/L	<0.010	0.010	8003110
Nitrate (N)	mg/L	<0.10	0.10	8003110

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2D4361
Report Date: 2022/05/27

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		SQR217		
Sampling Date		2022/05/16		
COC Number		TCEC-SWCM-MAY		
	UNITS	SP2	RDL	QC Batch
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8004508
Total Arsenic (As)	mg/L	0.001	0.001	8010461
Total Barium (Ba)	mg/L	0.033	0.005	8010461
Total Boron (B)	mg/L	0.50	0.02	8010461
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8010461
Total Calcium (Ca)	mg/L	90	0.2	8010461
Total Chromium (Cr)	mg/L	<0.005	0.005	8010461
Total Copper (Cu)	mg/L	0.004	0.002	8010461
Total Iron (Fe)	mg/L	0.4	0.1	8010461
Total Lead (Pb)	mg/L	<0.0005	0.0005	8010461
Total Magnesium (Mg)	mg/L	48	0.05	8010461
Total Nickel (Ni)	mg/L	0.005	0.001	8010461
Total Potassium (K)	mg/L	6.0	0.2	8010461
Total Sodium (Na)	mg/L	59	0.1	8010461
Total Zinc (Zn)	mg/L	<0.01	0.01	8010461

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

SEMI-VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		SQR217		
Sampling Date		2022/05/16		
COC Number		TCEC-SWCM-MAY		
	UNITS	SP2	RDL	QC Batch
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.20	0.20	8008295
1,2-Dichlorobenzene	ug/L	<0.50	0.50	8008295
1,3-Dichlorobenzene	ug/L	<0.50	0.50	8008295
1,4-Dichlorobenzene	ug/L	<0.50	0.50	8008295
Hexachlorobenzene	ug/L	<0.50	0.50	8008295
1,2,4-Trichlorobenzene	ug/L	<0.50	0.50	8008295
2,4-Dichlorophenol	ug/L	<0.30	0.30	8008295
Pentachlorophenol	ug/L	<1.0	1.0	8008295
Phenol	ug/L	<0.50	0.50	8008295
2,4,6-Trichlorophenol	ug/L	<0.50	0.50	8008295
Di-N-butyl phthalate	ug/L	<2.0	2.0	8008295
Diethyl phthalate	ug/L	<1.0	1.0	8008295
Dimethyl phthalate	ug/L	<1.0	1.0	8008295
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	74		8008295
2-Fluorobiphenyl	%	65		8008295
2-Fluorophenol	%	37		8008295
D14-Terphenyl	%	87		8008295
D5-Nitrobenzene	%	82		8008295
D5-Phenol	%	27		8008295

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		SQR217		
Sampling Date		2022/05/16		
COC Number		TCEC-SWCM-MAY		
	UNITS	SP2	RDL	QC Batch
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8004627
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8004627
Ethylbenzene	ug/L	<0.20	0.20	8004627
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8004627
Toluene	ug/L	<0.20	0.20	8004627
Vinyl Chloride	ug/L	<0.20	0.20	8004627
p+m-Xylene	ug/L	<0.20	0.20	8004627
o-Xylene	ug/L	<0.20	0.20	8004627
Total Xylenes	ug/L	<0.20	0.20	8004627
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	95		8004627
D4-1,2-Dichloroethane	%	86		8004627
D8-Toluene	%	89		8004627

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8004627	4-Bromofluorobenzene	2022/05/26	104 (2)	70 - 130	104	70 - 130	101	%				
8004627	D4-1,2-Dichloroethane	2022/05/26	99 (2)	70 - 130	92	70 - 130	82	%				
8004627	D8-Toluene	2022/05/26	104 (2)	70 - 130	104	70 - 130	91	%				
8008295	2,4,6-Tribromophenol	2022/05/21	78	10 - 130	67	10 - 130	67	%				
8008295	2-Fluorobiphenyl	2022/05/21	69	30 - 130	56	30 - 130	68	%				
8008295	2-Fluorophenol	2022/05/21	42	10 - 130	33	10 - 130	34	%				
8008295	D14-Terphenyl	2022/05/21	89	30 - 130	79	30 - 130	84	%				
8008295	D5-Nitrobenzene	2022/05/21	81	30 - 130	58	30 - 130	62	%				
8008295	D5-Phenol	2022/05/21	30	10 - 130	22	10 - 130	22	%				
8002829	Total Suspended Solids	2022/05/19					<1	mg/L	8.2 (1)	25	95	85 - 115
8002999	Total Dissolved Solids	2022/05/19					<10	mg/L	0 (1)	25	97	90 - 110
8003110	Nitrate (N)	2022/05/19	97	80 - 120	103	80 - 120	<0.10	mg/L	0.80 (1)	20		
8003110	Nitrite (N)	2022/05/19	97	80 - 120	104	80 - 120	<0.010	mg/L	2.9 (1)	20		
8003149	Dissolved Chloride (Cl-)	2022/05/19	118	80 - 120	103	80 - 120	<1.0	mg/L	NC (1)	20		
8003176	Dissolved Sulphate (SO4)	2022/05/19	124	75 - 125	104	80 - 120	<1.0	mg/L	NC (1)	20		
8003198	Conductivity	2022/05/19			102	85 - 115	<1.0	umho/cm	0.17 (1)	25		
8003204	Alkalinity (Total as CaCO3)	2022/05/19			97	85 - 115	<1.0	mg/L	0.98 (1)	20		
8003211	pH	2022/05/19			102	98 - 103			0.25 (1)	N/A		
8004417	Total Chemical Oxygen Demand (COD)	2022/05/19	105	80 - 120	101	80 - 120	4.6, RDL=4.0	mg/L	3.5 (1)	20		
8004508	Dissolved Mercury (Hg)	2022/05/19	94	75 - 125	95	80 - 120	<0.10	ug/L	NC (1)	20		
8004627	1,4-Dichlorobenzene	2022/05/26	114 (2)	70 - 130	115	70 - 130	<0.40	ug/L	NC (3)	30		
8004627	Benzene	2022/05/26	86 (2)	70 - 130	85	70 - 130	<0.20	ug/L	NC (3)	30		
8004627	Ethylbenzene	2022/05/26	86 (2)	70 - 130	88	70 - 130	<0.20	ug/L	NC (3)	30		
8004627	Methylene Chloride(Dichloromethane)	2022/05/26	98 (2)	70 - 130	92	70 - 130	<2.0	ug/L	NC (3)	30		
8004627	o-Xylene	2022/05/26	81 (2)	70 - 130	87	70 - 130	<0.20	ug/L	NC (3)	30		
8004627	p+m-Xylene	2022/05/26	91 (2)	70 - 130	93	70 - 130	<0.20	ug/L	NC (3)	30		
8004627	Toluene	2022/05/26	91 (2)	70 - 130	91	70 - 130	<0.20	ug/L	NC (3)	30		
8004627	Total Xylenes	2022/05/26					<0.20	ug/L	NC (3)	30		
8004627	Vinyl Chloride	2022/05/26	76 (2)	70 - 130	76	70 - 130	<0.20	ug/L	NC (3)	30		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8005010	Total Kjeldahl Nitrogen (TKN)	2022/05/20	103	80 - 120	97	80 - 120	<0.7	mg/L	NC (1)	20	101	80 - 120
8005067	Total Ammonia-N	2022/05/20	100 (4)	75 - 125	101	80 - 120	<0.15	mg/L	NC (5)	20		
8006697	Total BOD	2022/05/25					<2	mg/L	NC (6)	30	95	80 - 120
8006883	Total Phosphorus	2022/05/24	NC (4)	80 - 120	105	80 - 120	<0.004	mg/L	0.39 (5)	20	93	80 - 120
8007190	Phenols-4AAP	2022/05/20	107	80 - 120	103	80 - 120	<0.0010	mg/L	NC (1)	20		
8008295	1,2,4-Trichlorobenzene	2022/05/24	64	30 - 130	49	30 - 130	<0.50	ug/L	NC (1)	40		
8008295	1,2-Dichlorobenzene	2022/05/24	65	30 - 130	46	30 - 130	<0.50	ug/L	NC (1)	40		
8008295	1,3-Dichlorobenzene	2022/05/24	62	30 - 130	42	30 - 130	<0.50	ug/L	NC (1)	40		
8008295	1,4-Dichlorobenzene	2022/05/24	61	30 - 130	43	30 - 130	<0.50	ug/L	NC (1)	40		
8008295	2,4,6-Trichlorophenol	2022/05/24	88	10 - 130	79	10 - 130	<0.50	ug/L	NC (1)	40		
8008295	2,4-Dichlorophenol	2022/05/24	77	10 - 130	66	10 - 130	<0.30	ug/L	NC (1)	40		
8008295	Benzo(a)pyrene	2022/05/24	93	30 - 130	88	30 - 130	<0.20	ug/L	NC (1)	40		
8008295	Diethyl phthalate	2022/05/24	88	30 - 130	77	30 - 130	<1.0	ug/L	NC (1)	40		
8008295	Dimethyl phthalate	2022/05/24	81	30 - 130	77	30 - 130	<1.0	ug/L	NC (1)	40		
8008295	Di-N-butyl phthalate	2022/05/24	91	30 - 130	82	30 - 130	<2.0	ug/L	NC (1)	40		
8008295	Hexachlorobenzene	2022/05/24	84	30 - 130	71	30 - 130	<0.50	ug/L	NC (1)	40		
8008295	Pentachlorophenol	2022/05/24	82	10 - 130	66	10 - 130	<1.0	ug/L	NC (1)	40		
8008295	Phenol	2022/05/24	31	10 - 130	24	10 - 130	<0.50	ug/L	NC (1)	40		
8010461	Total Arsenic (As)	2022/05/24	102 (7)	80 - 120	96	80 - 120	<0.001	mg/L	7.5 (8)	20		
8010461	Total Barium (Ba)	2022/05/24	103 (7)	80 - 120	99	80 - 120	<0.005	mg/L	5.1 (8)	20		
8010461	Total Boron (B)	2022/05/24	NC (7)	80 - 120	93	80 - 120	<0.02	mg/L	1.2 (8)	20		
8010461	Total Cadmium (Cd)	2022/05/24	104 (7)	80 - 120	98	80 - 120	<0.0001	mg/L	NC (8)	20		
8010461	Total Calcium (Ca)	2022/05/24	NC (7)	80 - 120	94	80 - 120	<0.2	mg/L	0.43 (8)	20		
8010461	Total Chromium (Cr)	2022/05/24	91 (7)	80 - 120	89	80 - 120	<0.005	mg/L	NC (8)	20		
8010461	Total Copper (Cu)	2022/05/24	103 (7)	80 - 120	102	80 - 120	<0.002	mg/L	4.1 (8)	20		
8010461	Total Iron (Fe)	2022/05/24	102 (7)	80 - 120	101	80 - 120	<0.1	mg/L	2.9 (8)	20		
8010461	Total Lead (Pb)	2022/05/24	99 (7)	80 - 120	95	80 - 120	<0.0005	mg/L	NC (8)	20		
8010461	Total Magnesium (Mg)	2022/05/24	NC (7)	80 - 120	99	80 - 120	<0.05	mg/L	7.7 (8)	20		
8010461	Total Nickel (Ni)	2022/05/24	97 (7)	80 - 120	96	80 - 120	<0.001	mg/L	1.1 (8)	20		
8010461	Total Potassium (K)	2022/05/24	109 (7)	80 - 120	99	80 - 120	<0.2	mg/L	2.4 (8)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8010461	Total Sodium (Na)	2022/05/24	NC (7)	80 - 120	96	80 - 120	<0.1	mg/L	0.32 (8)	20		
8010461	Total Zinc (Zn)	2022/05/24	98 (7)	80 - 120	96	80 - 120	<0.01	mg/L	NC (8)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [SQR217-12]

(3) Duplicate Parent ID [SQR217-12]

(4) Matrix Spike Parent ID [SQR217-10]

(5) Duplicate Parent ID [SQR217-10]

(6) Duplicate Parent ID [SQR217-08]

(7) Matrix Spike Parent ID [SQR217-09]

(8) Duplicate Parent ID [SQR217-09]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2D4361
Report Date: 2022/05/27

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/27
Report #: R7140630
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2D4365
Received: 2022/05/18, 09:20

Sample Matrix: Surface Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2022/05/20	2022/05/24	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2022/05/19	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	1	2022/05/20	2022/05/25	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2022/05/19	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2022/05/19	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	1	N/A	2022/05/24		
Conductivity	1	N/A	2022/05/19	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2022/05/24		
Dissolved Mercury in Water by CVAA	1	2022/05/19	2022/05/19	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	1	N/A	2022/05/24	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2022/05/20	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2022/05/19	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2022/05/18	2022/05/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/05/20	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2022/05/18		Field pH Meter
Sulphate by Automated Colourimetry	1	N/A	2022/05/19	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	1	2022/05/18	2022/05/19	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2022/05/18		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2022/05/19	2022/05/20	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2022/05/24	2022/05/24	CAM SOP-00407	SM 23 4500 B F m
Low Level Total Suspended Solids	1	2022/05/18	2022/05/19	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	1	N/A	2022/05/24		
Un-ionized Ammonia	1	2022/05/18	2022/05/24	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2022/05/26	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/05/27
Report #: R7140630
Version: 1 - Final

CERTIFICATE OF ANALYSIS

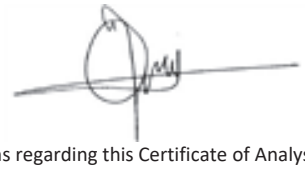
BUREAU VERITAS JOB #: C2D4365
Received: 2022/05/18, 09:20

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key



Patricia Legette
Project Manager
27 May 2022 14:28:17

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2D4365
Report Date: 2022/05/27

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		SQR233		
Sampling Date		2022/05/16		
COC Number		TCEC-SWCM-MAY		
	UNITS	**SS1**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	0.0028	0.0016	8002108
Field Measurements				
Field Conductivity	uS/cm	810	N/A	ONSITE
Field Dissolved Oxygen	mg/L	7.83	N/A	ONSITE
Field Temperature	Celsius	18.6	N/A	ONSITE
Field Turbidity	NTU	>1000	N/A	ONSITE
Field Measured pH	pH	7.4		ONSITE
Inorganics				
Total Ammonia-N	mg/L	0.26	0.15	8005067
Total BOD	mg/L	3	2	8006697
Total Chemical Oxygen Demand (COD)	mg/L	29	4.0	8004417
Conductivity	umho/cm	940	1.0	8003198
Total Dissolved Solids	mg/L	695	10	8002999
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8005010
pH	pH	7.99		8003211
Phenols-4AAP	mg/L	<0.0010	0.0010	8007190
Total Phosphorus	mg/L	0.30	0.10	8010600
Total Suspended Solids	mg/L	1200	5	8002829
Dissolved Sulphate (SO4)	mg/L	340	1.0	8003176
Alkalinity (Total as CaCO3)	mg/L	110	1.0	8003204
Dissolved Chloride (Cl-)	mg/L	30	1.0	8003149
Nitrite (N)	mg/L	0.035	0.010	8003110
Nitrate (N)	mg/L	0.46	0.10	8003110

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2D4365
Report Date: 2022/05/27

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		SQR233		
Sampling Date		2022/05/16		
COC Number		TCEC-SWCM-MAY		
	UNITS	SS1	RDL	QC Batch
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8004508
Total Arsenic (As)	mg/L	0.007	0.001	8010461
Total Barium (Ba)	mg/L	0.10	0.005	8010461
Total Boron (B)	mg/L	0.19	0.02	8010461
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8010461
Total Calcium (Ca)	mg/L	140	0.2	8010461
Total Chromium (Cr)	mg/L	0.019	0.005	8010461
Total Copper (Cu)	mg/L	0.020	0.002	8010461
Total Iron (Fe)	mg/L	21	0.1	8010461
Total Lead (Pb)	mg/L	0.0077	0.0005	8010461
Total Magnesium (Mg)	mg/L	52	0.05	8010461
Total Nickel (Ni)	mg/L	0.032	0.001	8010461
Total Potassium (K)	mg/L	8.0	0.2	8010461
Total Sodium (Na)	mg/L	28	0.1	8010461
Total Zinc (Zn)	mg/L	0.05	0.01	8010461

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

SEMI-VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		SQR233		
Sampling Date		2022/05/16		
COC Number		TCEC-SWCM-MAY		
	UNITS	SS1	RDL	QC Batch
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.20	0.20	8008295
1,2-Dichlorobenzene	ug/L	<0.50	0.50	8008295
1,3-Dichlorobenzene	ug/L	<0.50	0.50	8008295
1,4-Dichlorobenzene	ug/L	<0.50	0.50	8008295
Hexachlorobenzene	ug/L	<0.50	0.50	8008295
1,2,4-Trichlorobenzene	ug/L	<0.50	0.50	8008295
2,4-Dichlorophenol	ug/L	<0.30	0.30	8008295
Pentachlorophenol	ug/L	<1.0	1.0	8008295
Phenol	ug/L	<0.50	0.50	8008295
2,4,6-Trichlorophenol	ug/L	<0.50	0.50	8008295
Di-N-butyl phthalate	ug/L	<2.0	2.0	8008295
Diethyl phthalate	ug/L	<1.0	1.0	8008295
Dimethyl phthalate	ug/L	<1.0	1.0	8008295
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	77		8008295
2-Fluorobiphenyl	%	61		8008295
2-Fluorophenol	%	39		8008295
D14-Terphenyl	%	81		8008295
D5-Nitrobenzene	%	76		8008295
D5-Phenol	%	26		8008295

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		SQR233		
Sampling Date		2022/05/16		
COC Number		TCEC-SWCM-MAY		
	UNITS	SS1	RDL	QC Batch
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8004627
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8004627
Ethylbenzene	ug/L	<0.20	0.20	8004627
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8004627
Toluene	ug/L	<0.20	0.20	8004627
Vinyl Chloride	ug/L	<0.20	0.20	8004627
p+m-Xylene	ug/L	<0.20	0.20	8004627
o-Xylene	ug/L	<0.20	0.20	8004627
Total Xylenes	ug/L	<0.20	0.20	8004627
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	96		8004627
D4-1,2-Dichloroethane	%	84		8004627
D8-Toluene	%	90		8004627

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8004627	4-Bromofluorobenzene	2022/05/26	104	70 - 130	104	70 - 130	101	%				
8004627	D4-1,2-Dichloroethane	2022/05/26	99	70 - 130	92	70 - 130	82	%				
8004627	D8-Toluene	2022/05/26	104	70 - 130	104	70 - 130	91	%				
8008295	2,4,6-Tribromophenol	2022/05/21	78	10 - 130	67	10 - 130	67	%				
8008295	2-Fluorobiphenyl	2022/05/21	69	30 - 130	56	30 - 130	68	%				
8008295	2-Fluorophenol	2022/05/21	42	10 - 130	33	10 - 130	34	%				
8008295	D14-Terphenyl	2022/05/21	89	30 - 130	79	30 - 130	84	%				
8008295	D5-Nitrobenzene	2022/05/21	81	30 - 130	58	30 - 130	62	%				
8008295	D5-Phenol	2022/05/21	30	10 - 130	22	10 - 130	22	%				
8002829	Total Suspended Solids	2022/05/19					<1	mg/L	8.2 (1)	25	95	85 - 115
8002999	Total Dissolved Solids	2022/05/19					<10	mg/L	0 (1)	25	97	90 - 110
8003110	Nitrate (N)	2022/05/19	97 (2)	80 - 120	103	80 - 120	<0.10	mg/L	0.80 (3)	20		
8003110	Nitrite (N)	2022/05/19	97 (2)	80 - 120	104	80 - 120	<0.010	mg/L	2.9 (3)	20		
8003149	Dissolved Chloride (Cl-)	2022/05/19	118	80 - 120	103	80 - 120	<1.0	mg/L	NC (1)	20		
8003176	Dissolved Sulphate (SO4)	2022/05/19	124	75 - 125	104	80 - 120	<1.0	mg/L	NC (1)	20		
8003198	Conductivity	2022/05/19			102	85 - 115	<1.0	umho/cm	0.17 (1)	25		
8003204	Alkalinity (Total as CaCO3)	2022/05/19			97	85 - 115	<1.0	mg/L	0.98 (1)	20		
8003211	pH	2022/05/19			102	98 - 103			0.25 (1)	N/A		
8004417	Total Chemical Oxygen Demand (COD)	2022/05/19	105	80 - 120	101	80 - 120	4.6, RDL=4.0	mg/L	3.5 (1)	20		
8004508	Dissolved Mercury (Hg)	2022/05/19	94	75 - 125	95	80 - 120	<0.10	ug/L	NC (1)	20		
8004627	1,4-Dichlorobenzene	2022/05/26	114	70 - 130	115	70 - 130	<0.40	ug/L	NC (1)	30		
8004627	Benzene	2022/05/26	86	70 - 130	85	70 - 130	<0.20	ug/L	NC (1)	30		
8004627	Ethylbenzene	2022/05/26	86	70 - 130	88	70 - 130	<0.20	ug/L	NC (1)	30		
8004627	Methylene Chloride(Dichloromethane)	2022/05/26	98	70 - 130	92	70 - 130	<2.0	ug/L	NC (1)	30		
8004627	o-Xylene	2022/05/26	81	70 - 130	87	70 - 130	<0.20	ug/L	NC (1)	30		
8004627	p+m-Xylene	2022/05/26	91	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
8004627	Toluene	2022/05/26	91	70 - 130	91	70 - 130	<0.20	ug/L	NC (1)	30		
8004627	Total Xylenes	2022/05/26					<0.20	ug/L	NC (1)	30		
8004627	Vinyl Chloride	2022/05/26	76	70 - 130	76	70 - 130	<0.20	ug/L	NC (1)	30		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8005010	Total Kjeldahl Nitrogen (TKN)	2022/05/20	103	80 - 120	97	80 - 120	<0.7	mg/L	NC (1)	20	101	80 - 120
8005067	Total Ammonia-N	2022/05/20	100	75 - 125	101	80 - 120	<0.15	mg/L	NC (1)	20		
8006697	Total BOD	2022/05/25					<2	mg/L	NC (1)	30	95	80 - 120
8007190	Phenols-4AAP	2022/05/20	107	80 - 120	103	80 - 120	<0.0010	mg/L	NC (1)	20		
8008295	1,2,4-Trichlorobenzene	2022/05/24	64	30 - 130	49	30 - 130	<0.50	ug/L	NC (1)	40		
8008295	1,2-Dichlorobenzene	2022/05/24	65	30 - 130	46	30 - 130	<0.50	ug/L	NC (1)	40		
8008295	1,3-Dichlorobenzene	2022/05/24	62	30 - 130	42	30 - 130	<0.50	ug/L	NC (1)	40		
8008295	1,4-Dichlorobenzene	2022/05/24	61	30 - 130	43	30 - 130	<0.50	ug/L	NC (1)	40		
8008295	2,4,6-Trichlorophenol	2022/05/24	88	10 - 130	79	10 - 130	<0.50	ug/L	NC (1)	40		
8008295	2,4-Dichlorophenol	2022/05/24	77	10 - 130	66	10 - 130	<0.30	ug/L	NC (1)	40		
8008295	Benzo(a)pyrene	2022/05/24	93	30 - 130	88	30 - 130	<0.20	ug/L	NC (1)	40		
8008295	Diethyl phthalate	2022/05/24	88	30 - 130	77	30 - 130	<1.0	ug/L	NC (1)	40		
8008295	Dimethyl phthalate	2022/05/24	81	30 - 130	77	30 - 130	<1.0	ug/L	NC (1)	40		
8008295	Di-N-butyl phthalate	2022/05/24	91	30 - 130	82	30 - 130	<2.0	ug/L	NC (1)	40		
8008295	Hexachlorobenzene	2022/05/24	84	30 - 130	71	30 - 130	<0.50	ug/L	NC (1)	40		
8008295	Pentachlorophenol	2022/05/24	82	10 - 130	66	10 - 130	<1.0	ug/L	NC (1)	40		
8008295	Phenol	2022/05/24	31	10 - 130	24	10 - 130	<0.50	ug/L	NC (1)	40		
8010461	Total Arsenic (As)	2022/05/24	102	80 - 120	96	80 - 120	<0.001	mg/L	7.5 (1)	20		
8010461	Total Barium (Ba)	2022/05/24	103	80 - 120	99	80 - 120	<0.005	mg/L	5.1 (1)	20		
8010461	Total Boron (B)	2022/05/24	NC	80 - 120	93	80 - 120	<0.02	mg/L	1.2 (1)	20		
8010461	Total Cadmium (Cd)	2022/05/24	104	80 - 120	98	80 - 120	<0.0001	mg/L	NC (1)	20		
8010461	Total Calcium (Ca)	2022/05/24	NC	80 - 120	94	80 - 120	<0.2	mg/L	0.43 (1)	20		
8010461	Total Chromium (Cr)	2022/05/24	91	80 - 120	89	80 - 120	<0.005	mg/L	NC (1)	20		
8010461	Total Copper (Cu)	2022/05/24	103	80 - 120	102	80 - 120	<0.002	mg/L	4.1 (1)	20		
8010461	Total Iron (Fe)	2022/05/24	102	80 - 120	101	80 - 120	<0.1	mg/L	2.9 (1)	20		
8010461	Total Lead (Pb)	2022/05/24	99	80 - 120	95	80 - 120	<0.0005	mg/L	NC (1)	20		
8010461	Total Magnesium (Mg)	2022/05/24	NC	80 - 120	99	80 - 120	<0.05	mg/L	7.7 (1)	20		
8010461	Total Nickel (Ni)	2022/05/24	97	80 - 120	96	80 - 120	<0.001	mg/L	1.1 (1)	20		
8010461	Total Potassium (K)	2022/05/24	109	80 - 120	99	80 - 120	<0.2	mg/L	2.4 (1)	20		
8010461	Total Sodium (Na)	2022/05/24	NC	80 - 120	96	80 - 120	<0.1	mg/L	0.32 (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8010461	Total Zinc (Zn)	2022/05/24	98	80 - 120	96	80 - 120	<0.01	mg/L	NC (1)	20		
8010600	Total Phosphorus	2022/05/24	95	80 - 120	92	80 - 120	<0.030	mg/L	16 (1)	25	91	80 - 120

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [SQR233-04]

(3) Duplicate Parent ID [SQR233-04]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2D4365
Report Date: 2022/05/27

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/07/29
Report #: R7232425
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2K5593
Received: 2022/07/22, 09:37

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	3	2022/07/25	2022/07/26	CAM SOP-00301	EPA 8270 m
Alkalinity	3	N/A	2022/07/23	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	3	2022/07/24	2022/07/29	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	3	N/A	2022/07/25	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	3	N/A	2022/07/26	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	3	N/A	2022/07/28		
Conductivity	3	N/A	2022/07/23	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	3	N/A	2022/07/28		
Dissolved Mercury in Water by CVAA	3	2022/07/26	2022/07/26	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	3	N/A	2022/07/26	CAM SOP-00447	EPA 6020B m
Ammonia-N	3	N/A	2022/07/27	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2022/07/25	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2022/07/26	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	3	2022/07/23	2022/07/23	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	3	N/A	2022/07/26	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	3	N/A	2022/07/28		Field pH Meter
Sulphate by Automated Colourimetry	3	N/A	2022/07/25	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	3	2022/07/26	2022/07/27	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	3	N/A	2022/07/28		Field Thermometer
Total Kjeldahl Nitrogen in Water	3	2022/07/26	2022/07/27	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	3	2022/07/26	2022/07/28	CAM SOP-00407	SM 23 4500-P I
Low Level Total Suspended Solids	3	2022/07/23	2022/07/25	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	3	N/A	2022/07/28		
Un-ionized Ammonia (3)	3	2022/07/22	2022/07/28	Auto Calc.	PWQO
Volatile Organic Compounds in Water	3	N/A	2022/07/24	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/07/29
Report #: R7232425
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2K5593
Received: 2022/07/22, 09:37

using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(3) Un-ionized ammonia is calculated using the total ammonia result and field data provided by the client for pH and temperature.

Encryption Key

Patricia Legette
Project Manager
29 Jul 2022 15:08:04

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C2K5593
Report Date: 2022/07/29

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		TFZ970			TFZ971		TFZ972		
Sampling Date		2022/07/20			2022/07/20		2022/07/20		
COC Number		n/a			n/a		n/a		
	UNITS	SP1	RDL	QC Batch	SP2	QC Batch	SPDUP	RDL	QC Batch
Calculated Parameters									
Total Un-ionized Ammonia	mg/L	<0.082	0.082	8125387	<0.013	8125387	<0.013	0.013	8125387
Field Measurements									
Field Conductivity	uS/cm	596	N/A	ONSITE	834	ONSITE	834	N/A	ONSITE
Field Dissolved Oxygen	mg/L	9.49	N/A	ONSITE	5.61	ONSITE	5.61	N/A	ONSITE
Field Temperature	Celsius	26.9	N/A	ONSITE	26.5	ONSITE	26.5	N/A	ONSITE
Field Turbidity	NTU	15.1	N/A	ONSITE	5.54	ONSITE	5.54	N/A	ONSITE
Field Measured pH	pH	9.1		ONSITE	8.1	ONSITE	8.1		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.15	0.15	8130725	<0.15	8130725	<0.15	0.15	8130725
Total BOD	mg/L	<2	2	8128014	<2	8128014	<2	2	8128014
Total Chemical Oxygen Demand (COD)	mg/L	20	4.0	8129744	25	8129744	28	4.0	8129744
Conductivity	umho/cm	760	1.0	8127497	1000	8127497	1000	1.0	8127497
Total Dissolved Solids	mg/L	510	10	8128446	725	8128446	745	10	8130945
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8130758	<0.7	8130758	<0.7	0.7	8130758
pH	pH	8.73		8127494	7.98	8127494	8.00		8127494
Phenols-4AAP	mg/L	<0.0010	0.0010	8130635	<0.0010	8130635	<0.0010	0.0010	8130635
Total Phosphorus	mg/L	0.015	0.004	8130705	0.016	8130705	0.015	0.004	8130705
Total Suspended Solids	mg/L	13	1	8127387	7	8127387	12	1	8127387
Dissolved Sulphate (SO4)	mg/L	280	1.0	8127321	330	8127321	320	2.0	8127321
Alkalinity (Total as CaCO3)	mg/L	52	1.0	8127508	53	8127508	53	1.0	8127508
Dissolved Chloride (Cl-)	mg/L	28	1.0	8127319	71	8127319	71	1.0	8127319
Nitrite (N)	mg/L	<0.010	0.010	8127273	<0.010	8127163	<0.010	0.010	8127163
Nitrate (N)	mg/L	<0.10	0.10	8127273	<0.10	8127163	<0.10	0.10	8127163

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2K5593
Report Date: 2022/07/29

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		TFZ970	TFZ971	TFZ972		
Sampling Date		2022/07/20	2022/07/20	2022/07/20		
COC Number		n/a	n/a	n/a		
	UNITS	SP1	SP2	SPDUP	RDL	QC Batch
Metals						
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	<0.10	0.10	8131093
Total Arsenic (As)	mg/L	0.002	0.002	0.002	0.001	8130550
Total Barium (Ba)	mg/L	0.026	0.028	0.028	0.005	8130550
Total Boron (B)	mg/L	0.43	0.40	0.39	0.02	8130550
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	0.0001	8130550
Total Calcium (Ca)	mg/L	53	80	78	0.2	8130550
Total Chromium (Cr)	mg/L	<0.005	<0.005	<0.005	0.005	8130550
Total Copper (Cu)	mg/L	<0.002	<0.002	<0.002	0.002	8130550
Total Iron (Fe)	mg/L	0.6	<0.1	<0.1	0.1	8130550
Total Lead (Pb)	mg/L	<0.0005	<0.0005	<0.0005	0.0005	8130550
Total Magnesium (Mg)	mg/L	45	51	49	0.05	8130550
Total Nickel (Ni)	mg/L	0.003	0.003	0.003	0.001	8130550
Total Potassium (K)	mg/L	3.4	2.5	2.5	0.2	8130550
Total Sodium (Na)	mg/L	31	56	55	0.1	8130550
Total Zinc (Zn)	mg/L	<0.01	<0.01	<0.01	0.01	8130550

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2K5593
Report Date: 2022/07/29

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		TFZ970	TFZ971	TFZ972		
Sampling Date		2022/07/20	2022/07/20	2022/07/20		
COC Number		n/a	n/a	n/a		
	UNITS	SP1	SP2	SPDUP	RDL	QC Batch
Semivolatile Organics						
Benzo(a)pyrene	ug/L	<0.20	<0.20	<0.20	0.20	8128245
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8128245
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8128245
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8128245
Hexachlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8128245
1,2,4-Trichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8128245
2,4-Dichlorophenol	ug/L	<0.30	<0.30	<0.30	0.30	8128245
Pentachlorophenol	ug/L	<1.0	<1.0	<1.0	1.0	8128245
Phenol	ug/L	<0.50	<0.50	<0.50	0.50	8128245
2,4,6-Trichlorophenol	ug/L	<0.50	<0.50	<0.50	0.50	8128245
Di-N-butyl phthalate	ug/L	<2.0	<2.0	<2.0	2.0	8128245
Diethyl phthalate	ug/L	<1.0	<1.0	<1.0	1.0	8128245
Dimethyl phthalate	ug/L	<1.0	<1.0	<1.0	1.0	8128245
Surrogate Recovery (%)						
2,4,6-Tribromophenol	%	73	86	84		8128245
2-Fluorobiphenyl	%	78	73	77		8128245
2-Fluorophenol	%	20	25	26		8128245
D14-Terphenyl	%	87	89	90		8128245
D5-Nitrobenzene	%	69	66	68		8128245
D5-Phenol	%	17	17	16		8128245

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		TFZ970	TFZ971	TFZ972		
Sampling Date		2022/07/20	2022/07/20	2022/07/20		
COC Number		n/a	n/a	n/a		
	UNITS	SP1	SP2	SPDUP	RDL	QC Batch
Volatile Organics						
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	8122811
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	0.40	8122811
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	8122811
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	8122811
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	8122811
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	8122811
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	8122811
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	8122811
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	8122811
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	93	95	93		8122811
D4-1,2-Dichloroethane	%	98	95	95		8122811
D8-Toluene	%	90	88	90		8122811

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8122811	4-Bromofluorobenzene	2022/07/24	104	70 - 130	105	70 - 130	98	%				
8122811	D4-1,2-Dichloroethane	2022/07/24	105	70 - 130	102	70 - 130	94	%				
8122811	D8-Toluene	2022/07/24	104	70 - 130	104	70 - 130	94	%				
8128245	2,4,6-Tribromophenol	2022/07/25	94	10 - 130	93	10 - 130	85	%				
8128245	2-Fluorobiphenyl	2022/07/25	85	30 - 130	77	30 - 130	79	%				
8128245	2-Fluorophenol	2022/07/25	31	10 - 130	38	10 - 130	25	%				
8128245	D14-Terphenyl	2022/07/25	96	30 - 130	96	30 - 130	92	%				
8128245	D5-Nitrobenzene	2022/07/25	70	30 - 130	70	30 - 130	69	%				
8128245	D5-Phenol	2022/07/25	20	10 - 130	24	10 - 130	16	%				
8122811	1,4-Dichlorobenzene	2022/07/24	117	70 - 130	114	70 - 130	<0.40	ug/L	NC (1)	30		
8122811	Benzene	2022/07/24	89	70 - 130	89	70 - 130	<0.20	ug/L	NC (1)	30		
8122811	Ethylbenzene	2022/07/24	91	70 - 130	89	70 - 130	<0.20	ug/L	NC (1)	30		
8122811	Methylene Chloride(Dichloromethane)	2022/07/24	93	70 - 130	92	70 - 130	<2.0	ug/L	NC (1)	30		
8122811	o-Xylene	2022/07/24	82	70 - 130	88	70 - 130	<0.20	ug/L	NC (1)	30		
8122811	p+m-Xylene	2022/07/24	94	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
8122811	Toluene	2022/07/24	90	70 - 130	89	70 - 130	<0.20	ug/L	NC (1)	30		
8122811	Total Xylenes	2022/07/24					<0.20	ug/L	NC (1)	30		
8122811	Vinyl Chloride	2022/07/24	77	70 - 130	81	70 - 130	<0.20	ug/L	NC (1)	30		
8127163	Nitrate (N)	2022/07/26	89	80 - 120	96	80 - 120	<0.10	mg/L	0.016 (1)	20		
8127163	Nitrite (N)	2022/07/26	104	80 - 120	105	80 - 120	<0.010	mg/L	0.24 (1)	20		
8127273	Nitrate (N)	2022/07/25	92 (2)	80 - 120	97	80 - 120	<0.10	mg/L	NC (3)	20		
8127273	Nitrite (N)	2022/07/25	103 (2)	80 - 120	105	80 - 120	<0.010	mg/L	NC (3)	20		
8127319	Dissolved Chloride (Cl-)	2022/07/25	NC	80 - 120	104	80 - 120	<1.0	mg/L	1.7 (1)	20		
8127321	Dissolved Sulphate (SO4)	2022/07/25	NC	75 - 125	98	80 - 120	<1.0	mg/L	0.55 (1)	20		
8127387	Total Suspended Solids	2022/07/25					<1	mg/L	0 (1)	25	99	85 - 115
8127494	pH	2022/07/23			102	98 - 103			0.0013 (1)	N/A		
8127497	Conductivity	2022/07/23			102	85 - 115	<1.0	umho/cm	0 (1)	25		
8127508	Alkalinity (Total as CaCO3)	2022/07/23			94	85 - 115	<1.0	mg/L	0.23 (1)	20		
8128014	Total BOD	2022/07/29					<2	mg/L	4.9 (1)	30	105	80 - 120

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8128245	1,2,4-Trichlorobenzene	2022/07/25	74	30 - 130	61	30 - 130	<0.50	ug/L	NC (1)	40		
8128245	1,2-Dichlorobenzene	2022/07/25	72	30 - 130	64	30 - 130	<0.50	ug/L	NC (1)	40		
8128245	1,3-Dichlorobenzene	2022/07/25	69	30 - 130	55	30 - 130	<0.50	ug/L	NC (1)	40		
8128245	1,4-Dichlorobenzene	2022/07/25	75	30 - 130	61	30 - 130	<0.50	ug/L	NC (1)	40		
8128245	2,4,6-Trichlorophenol	2022/07/25	87	10 - 130	88	10 - 130	<0.50	ug/L	NC (1)	40		
8128245	2,4-Dichlorophenol	2022/07/25	80	10 - 130	77	10 - 130	<0.30	ug/L	NC (1)	40		
8128245	Benzo(a)pyrene	2022/07/25	96	30 - 130	92	30 - 130	<0.20	ug/L	NC (1)	40		
8128245	Diethyl phthalate	2022/07/25	88	30 - 130	91	30 - 130	<1.0	ug/L	NC (1)	40		
8128245	Dimethyl phthalate	2022/07/25	85	30 - 130	83	30 - 130	<1.0	ug/L	NC (1)	40		
8128245	Di-N-butyl phthalate	2022/07/25	92	30 - 130	97	30 - 130	<2.0	ug/L	NC (1)	40		
8128245	Hexachlorobenzene	2022/07/25	95	30 - 130	89	30 - 130	<0.50	ug/L	NC (1)	40		
8128245	Pentachlorophenol	2022/07/25	66	10 - 130	59	10 - 130	<1.0	ug/L	NC (1)	40		
8128245	Phenol	2022/07/25	20	10 - 130	24	10 - 130	<0.50	ug/L	NC (1)	40		
8128446	Total Dissolved Solids	2022/07/27					<10	mg/L	0.48 (1)	25	97	90 - 110
8129744	Total Chemical Oxygen Demand (COD)	2022/07/26	96	80 - 120	99	80 - 120	<4.0	mg/L	4.6 (1)	20		
8130550	Total Arsenic (As)	2022/07/26	100	80 - 120	99	80 - 120	<0.001	mg/L				
8130550	Total Barium (Ba)	2022/07/26	95	80 - 120	95	80 - 120	<0.005	mg/L				
8130550	Total Boron (B)	2022/07/26	92	80 - 120	96	80 - 120	<0.02	mg/L	5.2 (1)	20		
8130550	Total Cadmium (Cd)	2022/07/26	101	80 - 120	101	80 - 120	<0.0001	mg/L	NC (1)	20		
8130550	Total Calcium (Ca)	2022/07/26	NC	80 - 120	97	80 - 120	<0.2	mg/L	3.6 (1)	20		
8130550	Total Chromium (Cr)	2022/07/26	94	80 - 120	94	80 - 120	<0.005	mg/L	NC (1)	20		
8130550	Total Copper (Cu)	2022/07/26	98	80 - 120	98	80 - 120	<0.002	mg/L	3.2 (1)	20		
8130550	Total Iron (Fe)	2022/07/26	98	80 - 120	98	80 - 120	<0.1	mg/L	NC (1)	20		
8130550	Total Lead (Pb)	2022/07/26	96	80 - 120	96	80 - 120	<0.0005	mg/L	NC (1)	20		
8130550	Total Magnesium (Mg)	2022/07/26	98	80 - 120	100	80 - 120	<0.05	mg/L	2.3 (1)	20		
8130550	Total Nickel (Ni)	2022/07/26	94	80 - 120	95	80 - 120	<0.001	mg/L	NC (1)	20		
8130550	Total Potassium (K)	2022/07/26	98	80 - 120	97	80 - 120	<0.2	mg/L	3.2 (1)	20		
8130550	Total Sodium (Na)	2022/07/26	99	80 - 120	98	80 - 120	<0.1	mg/L	4.3 (1)	20		
8130550	Total Zinc (Zn)	2022/07/26	100	80 - 120	100	80 - 120	<0.01	mg/L	NC (1)	20		
8130635	Phenols-4AAP	2022/07/26	NC	80 - 120	99	80 - 120	<0.0010	mg/L	4.1 (1)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8130705	Total Phosphorus	2022/07/28	92 (4)	80 - 120	93	80 - 120	<0.004	mg/L	7.6 (5)	20	91	80 - 120
8130725	Total Ammonia-N	2022/07/27	NC	75 - 125	101	80 - 120	<0.15	mg/L	2.0 (1)	20		
8130758	Total Kjeldahl Nitrogen (TKN)	2022/07/27	NC	80 - 120	99	80 - 120	<0.7	mg/L	2.4 (1)	20	96	80 - 120
8130945	Total Dissolved Solids	2022/07/27					<10	mg/L	6.2 (6)	25	98	90 - 110
8131093	Dissolved Mercury (Hg)	2022/07/26	96 (7)	75 - 125	101	80 - 120	<0.10	ug/L	NC (8)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [TFZ970-03]

(3) Duplicate Parent ID [TFZ970-03]

(4) Matrix Spike Parent ID [TFZ970-06]

(5) Duplicate Parent ID [TFZ970-06]

(6) Duplicate Parent ID [TFZ972-04]

(7) Matrix Spike Parent ID [TFZ970-09]

(8) Duplicate Parent ID [TFZ970-09]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

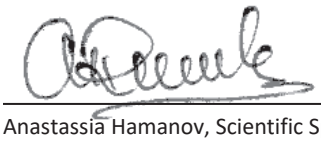
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2K5593
Report Date: 2022/07/29

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/08/11
Report #: R7249078
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2L8814
Received: 2022/08/04, 10:30

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	3	2022/08/07	2022/08/09	CAM SOP-00301	EPA 8270 m
Alkalinity	3	N/A	2022/08/08	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	3	2022/08/06	2022/08/11	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	3	N/A	2022/08/08	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2022/08/10	CAM SOP-00416	SM 23 5220 D m
Chemical Oxygen Demand	2	N/A	2022/08/09	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	3	N/A	2022/08/10		
Conductivity	3	N/A	2022/08/08	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	3	N/A	2022/08/10		
Dissolved Mercury in Water by CVAA	3	2022/08/08	2022/08/09	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	3	N/A	2022/08/10	CAM SOP-00447	EPA 6020B m
Ammonia-N	3	N/A	2022/08/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	3	N/A	2022/08/09	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	3	2022/08/06	2022/08/08	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	3	N/A	2022/08/08	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	3	N/A	2022/08/10		Field pH Meter
Sulphate by Automated Colourimetry	3	N/A	2022/08/08	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	3	2022/08/08	2022/08/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	3	N/A	2022/08/10		Field Thermometer
Total Kjeldahl Nitrogen in Water	3	2022/08/09	2022/08/10	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	3	2022/08/09	2022/08/09	CAM SOP-00407	SM 23 4500-P I
Low Level Total Suspended Solids	3	2022/08/08	2022/08/09	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	3	N/A	2022/08/10		
Un-ionized Ammonia (3)	3	2022/08/04	2022/08/10	Auto Calc.	PWQO
Volatile Organic Compounds in Water	2	N/A	2022/08/08	CAM SOP-00228	EPA 8260C m
Volatile Organic Compounds in Water	1	N/A	2022/08/09	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/08/11
Report #: R7249078
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2L8814
Received: 2022/08/04, 10:30

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(3) Un-ionized ammonia is calculated using the total ammonia result and field data provided by the client for pH and temperature.

Encryption Key

Patricia Legette
Project Manager
11 Aug 2022 15:45:53

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C2L8814
Report Date: 2022/08/11

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		TIW157			TIW158			TIW159		
Sampling Date		2022/08/02			2022/08/02			2022/08/02		
COC Number		n/a			n/a			n/a		
	UNITS	SP1	RDL	QC Batch	SP2	RDL	QC Batch	SP3	RDL	QC Batch
Calculated Parameters										
Total Un-ionized Ammonia	mg/L	<0.075	0.075	8146685	<0.085	0.085	8146685	<0.045	0.045	8146685
Field Measurements										
Field Conductivity	uS/cm	813	N/A	ONSITE	983	N/A	ONSITE	850	N/A	ONSITE
Field Dissolved Oxygen	mg/L	8.05	N/A	ONSITE	6.84	N/A	ONSITE	11.5	N/A	ONSITE
Field Temperature	Celsius	24.6	N/A	ONSITE	24.6	N/A	ONSITE	23.7	N/A	ONSITE
Field Turbidity	NTU	90.0	N/A	ONSITE	4.77	N/A	ONSITE	5.98	N/A	ONSITE
Field Measured pH	pH	9.1		ONSITE	9.2		ONSITE	8.8		ONSITE
Inorganics										
Total Ammonia-N	mg/L	<0.15	0.15	8155196	<0.15	0.15	8155196	<0.15	0.15	8155196
Total BOD	mg/L	<2	2	8151452	6	2	8151452	<2	2	8151452
Total Chemical Oxygen Demand (COD)	mg/L	19	4.0	8155185	25	4.0	8155185	37	4.0	8155185
Conductivity	umho/cm	850	1.0	8151583	1000	1.0	8151583	900	1.0	8151583
Total Dissolved Solids	mg/L	545	10	8154291	630	10	8154291	560	10	8153545
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8155206	<0.7	0.7	8155206	0.8	0.7	8155206
pH	pH	8.24		8151576	8.02		8151576	8.28		8151576
Phenols-4AAP	mg/L	<0.0010	0.0010	8153283	<0.0010	0.0010	8153283	<0.0010	0.0010	8153283
Total Phosphorus	mg/L	0.009	0.004	8155091	0.028	0.004	8155169	0.027	0.004	8155091
Total Suspended Solids	mg/L	81	2	8153305	4	1	8154302	10	1	8154302
Dissolved Sulphate (SO4)	mg/L	310	2.0	8151550	330	2.0	8151550	250	1.0	8151550
Alkalinity (Total as CaCO3)	mg/L	42	1.0	8151585	59	1.0	8151585	120	1.0	8151585
Dissolved Chloride (Cl-)	mg/L	26	1.0	8151543	70	1.0	8151543	60	1.0	8151543
Nitrite (N)	mg/L	<0.010	0.010	8151511	<0.010	0.010	8151511	<0.010	0.010	8151511
Nitrate (N)	mg/L	0.24	0.10	8151511	<0.10	0.10	8151511	<0.10	0.10	8151511

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2L8814
Report Date: 2022/08/11

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		TIW157	TIW158	TIW159		
Sampling Date		2022/08/02	2022/08/02	2022/08/02		
COC Number		n/a	n/a	n/a		
	UNITS	SP1	SP2	SP3	RDL	QC Batch
Metals						
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	<0.10	0.10	8153749
Total Arsenic (As)	mg/L	0.001	0.003	0.008	0.001	8153786
Total Barium (Ba)	mg/L	0.022	0.025	0.041	0.005	8153786
Total Boron (B)	mg/L	0.35	0.39	0.18	0.02	8153786
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	0.0001	8153786
Total Calcium (Ca)	mg/L	67	94	61	0.2	8153786
Total Chromium (Cr)	mg/L	<0.005	<0.005	<0.005	0.005	8153786
Total Copper (Cu)	mg/L	<0.002	<0.002	<0.002	0.002	8153786
Total Iron (Fe)	mg/L	0.9	<0.1	0.2	0.1	8153786
Total Lead (Pb)	mg/L	<0.0005	<0.0005	<0.0005	0.0005	8153786
Total Magnesium (Mg)	mg/L	48	49	46	0.05	8153786
Total Nickel (Ni)	mg/L	0.003	0.003	0.002	0.001	8153786
Total Potassium (K)	mg/L	3.8	2.0	12	0.2	8153786
Total Sodium (Na)	mg/L	31	56	43	0.1	8153786
Total Zinc (Zn)	mg/L	<0.01	<0.01	<0.01	0.01	8153786

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		TIW157	TIW158	TIW159		
Sampling Date		2022/08/02	2022/08/02	2022/08/02		
COC Number		n/a	n/a	n/a		
	UNITS	SP1	SP2	SP3	RDL	QC Batch
Semivolatile Organics						
Benzo(a)pyrene	ug/L	<0.20	<0.20	<0.20	0.20	8152388
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8152388
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8152388
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8152388
Hexachlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8152388
1,2,4-Trichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8152388
2,4-Dichlorophenol	ug/L	<0.30	<0.30	<0.30	0.30	8152388
Pentachlorophenol	ug/L	<1.0	<1.0	<1.0	1.0	8152388
Phenol	ug/L	<0.50	<0.50	<0.50	0.50	8152388
2,4,6-Trichlorophenol	ug/L	<0.50	<0.50	<0.50	0.50	8152388
Di-N-butyl phthalate	ug/L	<2.0	<2.0	<2.0	2.0	8152388
Diethyl phthalate	ug/L	<1.0	<1.0	<1.0	1.0	8152388
Dimethyl phthalate	ug/L	<1.0	<1.0	<1.0	1.0	8152388
Surrogate Recovery (%)						
2,4,6-Tribromophenol	%	31	63	59		8152388
2-Fluorobiphenyl	%	47	57	49		8152388
2-Fluorophenol	%	9.8 (1)	25	21		8152388
D14-Terphenyl	%	81	75	79		8152388
D5-Nitrobenzene	%	52	59	54		8152388
D5-Phenol	%	12	18	16		8152388

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Surrogate recovery was below the lower control limit due to matrix interference. This may represent a low bias in some results.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2L8814
Report Date: 2022/08/11

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		TIW157	TIW158	TIW159		
Sampling Date		2022/08/02	2022/08/02	2022/08/02		
COC Number		n/a	n/a	n/a		
	UNITS	SP1	SP2	SP3	RDL	QC Batch
Volatile Organics						
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	8151789
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	0.40	8151789
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	8151789
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	8151789
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	8151789
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	8151789
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	8151789
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	8151789
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	8151789
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	99	99	98		8151789
D4-1,2-Dichloroethane	%	104	101	94		8151789
D8-Toluene	%	100	98	101		8151789

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8151789	4-Bromofluorobenzene	2022/08/08	99 (4)	70 - 130	100	70 - 130	100	%				
8151789	D4-1,2-Dichloroethane	2022/08/08	104 (4)	70 - 130	98	70 - 130	100	%				
8151789	D8-Toluene	2022/08/08	100 (4)	70 - 130	101	70 - 130	99	%				
8152388	2,4,6-Tribromophenol	2022/08/09	50 (6)	10 - 130	76	10 - 130	41	%				
8152388	2-Fluorobiphenyl	2022/08/09	41 (6)	30 - 130	57	30 - 130	30	%				
8152388	2-Fluorophenol	2022/08/09	19 (6)	10 - 130	41	10 - 130	22	%				
8152388	D14-Terphenyl	2022/08/09	69 (6)	30 - 130	86	30 - 130	75	%				
8152388	D5-Nitrobenzene	2022/08/09	45 (6)	30 - 130	70	30 - 130	34	%				
8152388	D5-Phenol	2022/08/09	16 (6)	10 - 130	27	10 - 130	15	%				
8151452	Total BOD	2022/08/11					<2	mg/L	25 (1)	30	98	80 - 120
8151511	Nitrate (N)	2022/08/09	108 (2)	80 - 120	108	80 - 120	<0.10	mg/L	NC (3)	20		
8151511	Nitrite (N)	2022/08/09	106 (2)	80 - 120	107	80 - 120	<0.010	mg/L	NC (3)	20		
8151543	Dissolved Chloride (Cl-)	2022/08/08	NC	80 - 120	104	80 - 120	<1.0	mg/L	0.74 (1)	20		
8151550	Dissolved Sulphate (SO4)	2022/08/08	116	75 - 125	108	80 - 120	<1.0	mg/L	0.11 (1)	20		
8151576	pH	2022/08/08			102	98 - 103			0.30 (1)	N/A		
8151583	Conductivity	2022/08/08			100	85 - 115	<1.0	umho/cm	1.3 (1)	25		
8151585	Alkalinity (Total as CaCO3)	2022/08/08			95	85 - 115	<1.0	mg/L	2.2 (1)	20		
8151789	1,4-Dichlorobenzene	2022/08/09	104 (4)	70 - 130	106	70 - 130	<0.40	ug/L	NC (5)	30		
8151789	Benzene	2022/08/09	87 (4)	70 - 130	91	70 - 130	<0.20	ug/L	NC (5)	30		
8151789	Ethylbenzene	2022/08/09	87 (4)	70 - 130	92	70 - 130	<0.20	ug/L	NC (5)	30		
8151789	Methylene Chloride(Dichloromethane)	2022/08/09	93 (4)	70 - 130	94	70 - 130	<2.0	ug/L	NC (5)	30		
8151789	o-Xylene	2022/08/09	87 (4)	70 - 130	91	70 - 130	<0.20	ug/L	NC (5)	30		
8151789	p+m-Xylene	2022/08/09	91 (4)	70 - 130	95	70 - 130	<0.20	ug/L	NC (5)	30		
8151789	Toluene	2022/08/09	89 (4)	70 - 130	92	70 - 130	<0.20	ug/L	NC (5)	30		
8151789	Total Xylenes	2022/08/09					<0.20	ug/L	NC (5)	30		
8151789	Vinyl Chloride	2022/08/09	82 (4)	70 - 130	88	70 - 130	<0.20	ug/L	NC (5)	30		
8152388	1,2,4-Trichlorobenzene	2022/08/09	31 (6)	30 - 130	39	30 - 130	<0.50	ug/L	NC (1)	40		
8152388	1,2-Dichlorobenzene	2022/08/09	30 (7,6)	30 - 130	40	30 - 130	<0.50	ug/L	NC (1)	40		
8152388	1,3-Dichlorobenzene	2022/08/09	29 (7,6)	30 - 130	36	30 - 130	<0.50	ug/L	NC (1)	40		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8152388	1,4-Dichlorobenzene	2022/08/09	28 (7,6)	30 - 130	37	30 - 130	<0.50	ug/L	NC (1)	40		
8152388	2,4,6-Trichlorophenol	2022/08/09	48 (6)	10 - 130	86	10 - 130	<0.50	ug/L	NC (1)	40		
8152388	2,4-Dichlorophenol	2022/08/09	42 (6)	10 - 130	81	10 - 130	<0.30	ug/L	NC (1)	40		
8152388	Benzo(a)pyrene	2022/08/09	73 (6)	30 - 130	94	30 - 130	<0.20	ug/L	NC (1)	40		
8152388	Diethyl phthalate	2022/08/09	58 (6)	30 - 130	82	30 - 130	<1.0	ug/L	NC (1)	40		
8152388	Dimethyl phthalate	2022/08/09	56 (6)	30 - 130	80	30 - 130	<1.0	ug/L	NC (1)	40		
8152388	Di-N-butyl phthalate	2022/08/09	73 (6)	30 - 130	92	30 - 130	<2.0	ug/L	NC (1)	40		
8152388	Hexachlorobenzene	2022/08/09	52 (6)	30 - 130	77	30 - 130	<0.50	ug/L	NC (1)	40		
8152388	Pentachlorophenol	2022/08/09	60 (6)	10 - 130	79	10 - 130	<1.0	ug/L	NC (1)	40		
8152388	Phenol	2022/08/09	17 (6)	10 - 130	31	10 - 130	<0.50	ug/L	NC (1)	40		
8153283	Phenols-4AAP	2022/08/08	98	80 - 120	94	80 - 120	<0.0010	mg/L	NC (1)	20		
8153305	Total Suspended Solids	2022/08/09					<1	mg/L	NC (1)	25	95	85 - 115
8153545	Total Dissolved Solids	2022/08/09					<10	mg/L	0 (1)	25	100	90 - 110
8153749	Dissolved Mercury (Hg)	2022/08/09	101 (8)	75 - 125	106	80 - 120	<0.10	ug/L	NC (1)	20		
8153786	Total Arsenic (As)	2022/08/10	99	80 - 120	99	80 - 120	<0.001	mg/L	0.37 (1)	20		
8153786	Total Barium (Ba)	2022/08/10	97	80 - 120	96	80 - 120	<0.005	mg/L				
8153786	Total Boron (B)	2022/08/10	NC	80 - 120	94	80 - 120	<0.02	mg/L				
8153786	Total Cadmium (Cd)	2022/08/10	102	80 - 120	101	80 - 120	<0.0001	mg/L	NC (1)	20		
8153786	Total Calcium (Ca)	2022/08/10	NC	80 - 120	100	80 - 120	<0.2	mg/L				
8153786	Total Chromium (Cr)	2022/08/10	98	80 - 120	96	80 - 120	<0.005	mg/L	NC (1)	20		
8153786	Total Copper (Cu)	2022/08/10	103	80 - 120	100	80 - 120	<0.002	mg/L	4.7 (1)	20		
8153786	Total Iron (Fe)	2022/08/10	97	80 - 120	98	80 - 120	<0.1	mg/L				
8153786	Total Lead (Pb)	2022/08/10	95	80 - 120	96	80 - 120	<0.0005	mg/L	NC (1)	20		
8153786	Total Magnesium (Mg)	2022/08/10	NC	80 - 120	98	80 - 120	<0.05	mg/L				
8153786	Total Nickel (Ni)	2022/08/10	95	80 - 120	97	80 - 120	<0.001	mg/L	0.23 (1)	20		
8153786	Total Potassium (K)	2022/08/10	NC	80 - 120	102	80 - 120	<0.2	mg/L				
8153786	Total Sodium (Na)	2022/08/10	NC	80 - 120	98	80 - 120	<0.1	mg/L				
8153786	Total Zinc (Zn)	2022/08/10	96	80 - 120	99	80 - 120	<0.01	mg/L	NC (1)	20		
8154291	Total Dissolved Solids	2022/08/09					<10	mg/L	1.9 (10)	25	95	90 - 110
8154302	Total Suspended Solids	2022/08/09					<1	mg/L	NC (1)	25	102	85 - 115

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8155091	Total Phosphorus	2022/08/09	97	80 - 120	100	80 - 120	<0.004	mg/L	14 (1)	20	102	80 - 120
8155169	Total Phosphorus	2022/08/09	96	80 - 120	99	80 - 120	<0.004	mg/L	NC (1)	20	102	80 - 120
8155185	Total Chemical Oxygen Demand (COD)	2022/08/09	87	80 - 120	95	80 - 120	<4.0	mg/L	9.0 (1)	20		
8155196	Total Ammonia-N	2022/08/10	104 (11)	75 - 125	102	80 - 120	<0.15	mg/L	NC (12)	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8155206	Total Kjeldahl Nitrogen (TKN)	2022/08/10	103	80 - 120	102	80 - 120	<0.7	mg/L	NC (1)	20	100	80 - 120

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [TIW159-04]

(3) Duplicate Parent ID [TIW159-04]

(4) Matrix Spike Parent ID [TIW157-11]

(5) Duplicate Parent ID [TIW157-11]

(6) Matrix Spike Parent ID [TIW158-01]

(7) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(8) Matrix Spike Parent ID [TIW158-09]

(9) Duplicate Parent ID [TIW158-09]

(10) Duplicate Parent ID [TIW157-03]

(11) Matrix Spike Parent ID [TIW158-10]

(12) Duplicate Parent ID [TIW158-10]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

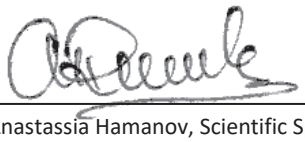
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2L8814
Report Date: 2022/08/11

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-AUG

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/08/12
Report #: R7250824
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2M0329
Received: 2022/08/05, 09:53

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	2	2022/08/07	2022/08/09	CAM SOP-00301	EPA 8270 m
Alkalinity	2	N/A	2022/08/08	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	2	2022/08/07	2022/08/12	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	2	N/A	2022/08/08	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	2	N/A	2022/08/10	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	2	N/A	2022/08/11		
Conductivity	2	N/A	2022/08/08	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	2	N/A	2022/08/11		
Dissolved Mercury in Water by CVAA	1	2022/08/08	2022/08/09	CAM SOP-00453	EPA 7470A m
Dissolved Mercury in Water by CVAA	1	2022/08/09	2022/08/09	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	2	N/A	2022/08/10	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2022/08/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2022/08/09	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2022/08/06	2022/08/08	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2022/08/10	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	2	N/A	2022/08/11		Field pH Meter
Sulphate by Automated Colourimetry	2	N/A	2022/08/08	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	2	2022/08/09	2022/08/10	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	2	N/A	2022/08/11		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2022/08/09	2022/08/10	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2022/08/09	2022/08/10	CAM SOP-00407	SM 23 4500-P I
Low Level Total Suspended Solids	2	2022/08/09	2022/08/10	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	2	N/A	2022/08/11		
Un-ionized Ammonia (3)	2	2022/08/05	2022/08/11	Auto Calc.	PWQO
Volatile Organic Compounds in Water	2	N/A	2022/08/09	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-AUG

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/08/12
Report #: R7250824
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2M0329
Received: 2022/08/05, 09:53

using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(3) Un-ionized ammonia is calculated using the total ammonia result and field data provided by the client for pH and temperature.

Encryption Key

Patricia Legette
Project Manager
12 Aug 2022 15:51:37

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C2M0329
Report Date: 2022/08/12

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		TJE047			TJE048		
Sampling Date		2022/08/04			2022/08/04		
COC Number		TCEC-SWCM-AUG			TCEC-SWCM-AUG		
	UNITS	SS1	RDL	QC Batch	SSDUP1	RDL	QC Batch
Calculated Parameters							
Total Un-ionized Ammonia	mg/L	<0.0074	0.0074	8149338	<0.0074	0.0074	8149338
Field Measurements							
Field Conductivity	uS/cm	922	N/A	ONSITE	922	N/A	ONSITE
Field Dissolved Oxygen	mg/L	8.22	N/A	ONSITE	8.22	N/A	ONSITE
Field Temperature	Celsius	24.1	N/A	ONSITE	24.1	N/A	ONSITE
Field Turbidity	NTU	82.8	N/A	ONSITE	82.8	N/A	ONSITE
Field Measured pH	pH	7.9		ONSITE	7.9		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	0.15	8156134	<0.15	0.15	8156134
Total BOD	mg/L	<2	2	8152368	<2	2	8152368
Total Chemical Oxygen Demand (COD)	mg/L	11	4.0	8157619	12	4.0	8157619
Conductivity	umho/cm	1100	1.0	8151583	1100	1.0	8151583
Total Dissolved Solids	mg/L	715	10	8157070	760	10	8157070
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8156349	<0.7	0.7	8156349
pH	pH	8.08		8151576	8.10		8151576
Phenols-4AAP	mg/L	<0.0010	0.0010	8158331	<0.0010	0.0010	8158331
Total Phosphorus	mg/L	0.054	0.030	8155213	0.057	0.030	8155213
Total Suspended Solids	mg/L	98	2	8155006	48	1	8155006
Dissolved Sulphate (SO4)	mg/L	390	2.0	8151550	390	2.0	8151550
Alkalinity (Total as CaCO3)	mg/L	110	1.0	8151585	110	1.0	8151585
Dissolved Chloride (Cl-)	mg/L	18	1.0	8151543	18	1.0	8151543
Nitrite (N)	mg/L	0.043	0.010	8151511	0.044	0.010	8151523
Nitrate (N)	mg/L	1.07	0.10	8151511	1.07	0.10	8151523

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2M0329
Report Date: 2022/08/12

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		TJE047		TJE048		
Sampling Date		2022/08/04		2022/08/04		
COC Number		TCEC-SWCM-AUG		TCEC-SWCM-AUG		
	UNITS	SS1	QC Batch	SSDUP1	RDL	QC Batch
Metals						
Dissolved Mercury (Hg)	ug/L	<0.10	8155093	<0.10	0.10	8153749
Total Arsenic (As)	mg/L	0.002	8153786	0.002	0.001	8153786
Total Barium (Ba)	mg/L	0.038	8153786	0.036	0.005	8153786
Total Boron (B)	mg/L	0.11	8153786	0.11	0.02	8153786
Total Cadmium (Cd)	mg/L	<0.0001	8153786	<0.0001	0.0001	8153786
Total Calcium (Ca)	mg/L	140	8153786	140	0.2	8153786
Total Chromium (Cr)	mg/L	<0.005	8153786	<0.005	0.005	8153786
Total Copper (Cu)	mg/L	0.007	8153786	0.006	0.002	8153786
Total Iron (Fe)	mg/L	3.1	8153786	3.2	0.1	8153786
Total Lead (Pb)	mg/L	0.0012	8153786	0.0012	0.0005	8153786
Total Magnesium (Mg)	mg/L	51	8153786	51	0.05	8153786
Total Nickel (Ni)	mg/L	0.006	8153786	0.006	0.001	8153786
Total Potassium (K)	mg/L	5.0	8153786	5.0	0.2	8153786
Total Sodium (Na)	mg/L	26	8153786	26	0.1	8153786
Total Zinc (Zn)	mg/L	0.01	8153786	0.01	0.01	8153786

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		TJE047	TJE048		
Sampling Date		2022/08/04	2022/08/04		
COC Number		TCEC-SWCM-AUG	TCEC-SWCM-AUG		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Semivolatile Organics					
Benzo(a)pyrene	ug/L	<0.20	<0.20	0.20	8152388
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	8152388
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	8152388
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	8152388
Hexachlorobenzene	ug/L	<0.50	<0.50	0.50	8152388
1,2,4-Trichlorobenzene	ug/L	<0.50	<0.50	0.50	8152388
2,4-Dichlorophenol	ug/L	<0.30	<0.30	0.30	8152388
Pentachlorophenol	ug/L	<1.0	<1.0	1.0	8152388
Phenol	ug/L	<0.50	<0.50	0.50	8152388
2,4,6-Trichlorophenol	ug/L	<0.50	<0.50	0.50	8152388
Di-N-butyl phthalate	ug/L	<2.0	<2.0	2.0	8152388
Diethyl phthalate	ug/L	<1.0	<1.0	1.0	8152388
Dimethyl phthalate	ug/L	<1.0	<1.0	1.0	8152388
Surrogate Recovery (%)					
2,4,6-Tribromophenol	%	57	56		8152388
2-Fluorobiphenyl	%	38	33		8152388
2-Fluorophenol	%	21	17		8152388
D14-Terphenyl	%	82	77		8152388
D5-Nitrobenzene	%	43	35		8152388
D5-Phenol	%	14	12		8152388

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Job #: C2M0329
Report Date: 2022/08/12

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		TJE047	TJE048		
Sampling Date		2022/08/04	2022/08/04		
COC Number		TCEC-SWCM-AUG	TCEC-SWCM-AUG		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	8152314
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	8152314
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8152314
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	8152314
Toluene	ug/L	<0.20	<0.20	0.20	8152314
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	8152314
p+m-Xylene	ug/L	<0.20	<0.20	0.20	8152314
o-Xylene	ug/L	<0.20	<0.20	0.20	8152314
Total Xylenes	ug/L	<0.20	<0.20	0.20	8152314
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	93	92		8152314
D4-1,2-Dichloroethane	%	123	121		8152314
D8-Toluene	%	87	88		8152314

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8152314	4-Bromofluorobenzene	2022/08/09	104	70 - 130	104	70 - 130	96	%				
8152314	D4-1,2-Dichloroethane	2022/08/09	111	70 - 130	105	70 - 130	116	%				
8152314	D8-Toluene	2022/08/09	102	70 - 130	105	70 - 130	91	%				
8152388	2,4,6-Tribromophenol	2022/08/09	50	10 - 130	76	10 - 130	41	%				
8152388	2-Fluorobiphenyl	2022/08/09	41	30 - 130	57	30 - 130	30	%				
8152388	2-Fluorophenol	2022/08/09	19	10 - 130	41	10 - 130	22	%				
8152388	D14-Terphenyl	2022/08/09	69	30 - 130	86	30 - 130	75	%				
8152388	D5-Nitrobenzene	2022/08/09	45	30 - 130	70	30 - 130	34	%				
8152388	D5-Phenol	2022/08/09	16	10 - 130	27	10 - 130	15	%				
8151511	Nitrate (N)	2022/08/09	108	80 - 120	108	80 - 120	<0.10	mg/L	NC (1)	20		
8151511	Nitrite (N)	2022/08/09	106	80 - 120	107	80 - 120	<0.010	mg/L	NC (1)	20		
8151523	Nitrate (N)	2022/08/09	106	80 - 120	108	80 - 120	<0.10	mg/L	2.5 (1)	20		
8151523	Nitrite (N)	2022/08/09	101	80 - 120	107	80 - 120	<0.010	mg/L	NC (1)	20		
8151543	Dissolved Chloride (Cl-)	2022/08/08	NC	80 - 120	104	80 - 120	<1.0	mg/L	0.74 (1)	20		
8151550	Dissolved Sulphate (SO4)	2022/08/08	116	75 - 125	108	80 - 120	<1.0	mg/L	0.11 (1)	20		
8151576	pH	2022/08/08			102	98 - 103			0.30 (1)	N/A		
8151583	Conductivity	2022/08/08			100	85 - 115	<1.0	umho/cm	1.3 (1)	25		
8151585	Alkalinity (Total as CaCO3)	2022/08/08			95	85 - 115	<1.0	mg/L	2.2 (1)	20		
8152314	1,4-Dichlorobenzene	2022/08/09	107	70 - 130	103	70 - 130	<0.40	ug/L				
8152314	Benzene	2022/08/09	98	70 - 130	92	70 - 130	<0.20	ug/L				
8152314	Ethylbenzene	2022/08/09	88	70 - 130	86	70 - 130	<0.20	ug/L				
8152314	Methylene Chloride(Dichloromethane)	2022/08/09	109	70 - 130	100	70 - 130	<2.0	ug/L				
8152314	o-Xylene	2022/08/09	88	70 - 130	89	70 - 130	<0.20	ug/L				
8152314	p+m-Xylene	2022/08/09	94	70 - 130	92	70 - 130	<0.20	ug/L				
8152314	Toluene	2022/08/09	98	70 - 130	95	70 - 130	<0.20	ug/L				
8152314	Total Xylenes	2022/08/09					<0.20	ug/L				
8152314	Vinyl Chloride	2022/08/09	92	70 - 130	88	70 - 130	<0.20	ug/L	NC (1)	30		
8152368	Total BOD	2022/08/12					<2	mg/L	9.8 (1)	30	95	80 - 120
8152388	1,2,4-Trichlorobenzene	2022/08/09	31	30 - 130	39	30 - 130	<0.50	ug/L	NC (1)	40		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8152388	1,2-Dichlorobenzene	2022/08/09	30 (2)	30 - 130	40	30 - 130	<0.50	ug/L	NC (1)	40		
8152388	1,3-Dichlorobenzene	2022/08/09	29 (2)	30 - 130	36	30 - 130	<0.50	ug/L	NC (1)	40		
8152388	1,4-Dichlorobenzene	2022/08/09	28 (2)	30 - 130	37	30 - 130	<0.50	ug/L	NC (1)	40		
8152388	2,4,6-Trichlorophenol	2022/08/09	48	10 - 130	86	10 - 130	<0.50	ug/L	NC (1)	40		
8152388	2,4-Dichlorophenol	2022/08/09	42	10 - 130	81	10 - 130	<0.30	ug/L	NC (1)	40		
8152388	Benzo(a)pyrene	2022/08/09	73	30 - 130	94	30 - 130	<0.20	ug/L	NC (1)	40		
8152388	Diethyl phthalate	2022/08/09	58	30 - 130	82	30 - 130	<1.0	ug/L	NC (1)	40		
8152388	Dimethyl phthalate	2022/08/09	56	30 - 130	80	30 - 130	<1.0	ug/L	NC (1)	40		
8152388	Di-N-butyl phthalate	2022/08/09	73	30 - 130	92	30 - 130	<2.0	ug/L	NC (1)	40		
8152388	Hexachlorobenzene	2022/08/09	52	30 - 130	77	30 - 130	<0.50	ug/L	NC (1)	40		
8152388	Pentachlorophenol	2022/08/09	60	10 - 130	79	10 - 130	<1.0	ug/L	NC (1)	40		
8152388	Phenol	2022/08/09	17	10 - 130	31	10 - 130	<0.50	ug/L	NC (1)	40		
8153749	Dissolved Mercury (Hg)	2022/08/09	101	75 - 125	106	80 - 120	<0.10	ug/L	NC (1)	20		
8153786	Total Arsenic (As)	2022/08/10	99	80 - 120	99	80 - 120	<0.001	mg/L	0.37 (1)	20		
8153786	Total Barium (Ba)	2022/08/10	97	80 - 120	96	80 - 120	<0.005	mg/L				
8153786	Total Boron (B)	2022/08/10	NC	80 - 120	94	80 - 120	<0.02	mg/L				
8153786	Total Cadmium (Cd)	2022/08/10	102	80 - 120	101	80 - 120	<0.0001	mg/L	NC (1)	20		
8153786	Total Calcium (Ca)	2022/08/10	NC	80 - 120	100	80 - 120	<0.2	mg/L				
8153786	Total Chromium (Cr)	2022/08/10	98	80 - 120	96	80 - 120	<0.005	mg/L	NC (1)	20		
8153786	Total Copper (Cu)	2022/08/10	103	80 - 120	100	80 - 120	<0.002	mg/L	4.7 (1)	20		
8153786	Total Iron (Fe)	2022/08/10	97	80 - 120	98	80 - 120	<0.1	mg/L				
8153786	Total Lead (Pb)	2022/08/10	95	80 - 120	96	80 - 120	<0.0005	mg/L	NC (1)	20		
8153786	Total Magnesium (Mg)	2022/08/10	NC	80 - 120	98	80 - 120	<0.05	mg/L				
8153786	Total Nickel (Ni)	2022/08/10	95	80 - 120	97	80 - 120	<0.001	mg/L	0.23 (1)	20		
8153786	Total Potassium (K)	2022/08/10	NC	80 - 120	102	80 - 120	<0.2	mg/L				
8153786	Total Sodium (Na)	2022/08/10	NC	80 - 120	98	80 - 120	<0.1	mg/L				
8153786	Total Zinc (Zn)	2022/08/10	96	80 - 120	99	80 - 120	<0.01	mg/L	NC (1)	20		
8155006	Total Suspended Solids	2022/08/10					<1	mg/L	NC (1)	25	95	85 - 115
8155093	Dissolved Mercury (Hg)	2022/08/09	102	75 - 125	104	80 - 120	<0.10	ug/L	NC (1)	20		
8155213	Total Phosphorus	2022/08/10	92	80 - 120	95	80 - 120	<0.030	mg/L	9.2 (1)	25	96	80 - 120

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8156134	Total Ammonia-N	2022/08/10	102	75 - 125	103	80 - 120	<0.15	mg/L	NC (1)	20		
8156349	Total Kjeldahl Nitrogen (TKN)	2022/08/10	97	80 - 120	97	80 - 120	<0.7	mg/L	NC (1)	20	99	80 - 120
8157070	Total Dissolved Solids	2022/08/10					<10	mg/L	2.6 (3)	25	97	90 - 110
8157619	Total Chemical Oxygen Demand (COD)	2022/08/10	83	80 - 120	94	80 - 120	<4.0	mg/L	0 (1)	20		
8158331	Phenols-4AAP	2022/08/10	100	80 - 120	99	80 - 120	<0.0010	mg/L	12 (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(3) Duplicate Parent ID [TJE048-03]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2M0329
Report Date: 2022/08/12

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-OCT

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/01
Report #: R7366953
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2U5923
Received: 2022/10/20, 09:37

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	2	2022/10/26	2022/10/29	CAM SOP-00301	EPA 8270 m
Alkalinity	2	N/A	2022/10/21	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	2	2022/10/22	2022/10/27	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	2	N/A	2022/10/21	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	2	N/A	2022/10/26	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	2	N/A	2022/10/31		
Conductivity	2	N/A	2022/10/21	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	2	N/A	2022/10/31		
Dissolved Mercury in Water by CVAA	2	2022/10/25	2022/10/25	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	2	N/A	2022/10/25	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2022/10/30	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2022/10/21	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2022/10/21	2022/10/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2022/10/27	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	2	N/A	2022/10/31		Field pH Meter
Sulphate by Automated Colourimetry	2	N/A	2022/10/24	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	2	2022/10/24	2022/10/25	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	2	N/A	2022/10/31		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2022/10/25	2022/10/25	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2022/10/25	2022/10/27	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	2	2022/10/25	2022/10/25	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	2	N/A	2022/10/31		
Un-ionized Ammonia (3)	2	2022/10/20	2022/10/31	Auto Calc.	PWQO
Volatile Organic Compounds in Water	2	N/A	2022/10/23	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-OCT

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/01
Report #: R7366953
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2U5923
Received: 2022/10/20, 09:37

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(3) Un-ionized ammonia is calculated using the total ammonia result and field data provided by the client for pH and temperature.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C2U5923
Report Date: 2022/11/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UBI354	UBI355		
Sampling Date		2022/10/18	2022/10/18		
COC Number		TCEC-SWCM-OCT	TCEC-SWCM-OCT		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Calculated Parameters					
Total Un-ionized Ammonia	mg/L	0.017	0.016	0.0053	8294692
Field Measurements					
Field Conductivity	uS/cm	811	811	N/A	ONSITE
Field Dissolved Oxygen	mg/L	11.5	11.5	N/A	ONSITE
Field Temperature	Celsius	7.3	7.3	N/A	ONSITE
Field Turbidity	NTU	451	451	N/A	ONSITE
Field Measured pH	pH	8.3	8.3		ONSITE
Inorganics					
Total Ammonia-N	mg/L	0.47	0.44	0.15	8304620
Total BOD	mg/L	5	5	2	8299692
Total Chemical Oxygen Demand (COD)	mg/L	16	15	4.0	8304219
Conductivity	umho/cm	700	700	1.0	8297805
Total Dissolved Solids	mg/L	390	415	10	8301611
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	<0.7	0.7	8304213
pH	pH	7.86	7.86		8297786
Phenols-4AAP	mg/L	<0.0010	<0.0010	0.0010	8310820
Total Phosphorus	mg/L	0.94	0.98	0.030	8304160
Total Suspended Solids	mg/L	1400	1300	50	8303537
Dissolved Sulphate (SO4)	mg/L	290	290	1.0	8297732
Alkalinity (Total as CaCO3)	mg/L	55	54	1.0	8297803
Dissolved Chloride (Cl-)	mg/L	23	23	1.0	8297716
Nitrite (N)	mg/L	0.037	0.057	0.010	8297709
Nitrate (N)	mg/L	0.41	0.39	0.10	8297709

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2U5923
Report Date: 2022/11/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		UBI354	UBI355		
Sampling Date		2022/10/18	2022/10/18		
COC Number		TCEC-SWCM-OCT	TCEC-SWCM-OCT		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Metals					
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	0.10	8303850
Total Arsenic (As)	mg/L	0.016	0.016	0.001	8301044
Total Barium (Ba)	mg/L	0.19	0.18	0.005	8301044
Total Boron (B)	mg/L	0.13	0.12	0.02	8301044
Total Cadmium (Cd)	mg/L	0.0003	0.0002	0.0001	8301044
Total Calcium (Ca)	mg/L	270	250	0.2	8301044
Total Chromium (Cr)	mg/L	0.062	0.060	0.005	8301044
Total Copper (Cu)	mg/L	0.053	0.052	0.002	8301044
Total Iron (Fe)	mg/L	64	62	0.1	8301044
Total Lead (Pb)	mg/L	0.026	0.025	0.0005	8301044
Total Magnesium (Mg)	mg/L	61	59	0.05	8301044
Total Nickel (Ni)	mg/L	0.092	0.090	0.001	8301044
Total Potassium (K)	mg/L	12	11	0.2	8301044
Total Sodium (Na)	mg/L	15	15	0.1	8301044
Total Zinc (Zn)	mg/L	0.17	0.17	0.01	8301044

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		UBI354		UBI355		
Sampling Date		2022/10/18		2022/10/18		
COC Number		TCEC-SWCM-OCT		TCEC-SWCM-OCT		
	UNITS	SS1	RDL	SSDUP1	RDL	QC Batch
Semivolatile Organics						
Benzo(a)pyrene	ug/L	<0.80	0.80	<3.2	3.2	8306833
1,2-Dichlorobenzene	ug/L	<2.0	2.0	<8.0	8.0	8306833
1,3-Dichlorobenzene	ug/L	<2.0	2.0	<8.0	8.0	8306833
1,4-Dichlorobenzene	ug/L	<2.0	2.0	<8.0	8.0	8306833
Hexachlorobenzene	ug/L	<2.0	2.0	<8.0	8.0	8306833
1,2,4-Trichlorobenzene	ug/L	<2.0	2.0	<8.0	8.0	8306833
2,4-Dichlorophenol	ug/L	<1.2	1.2	<4.8	4.8	8306833
Pentachlorophenol	ug/L	<4.0	4.0	<16	16	8306833
Phenol	ug/L	<2.0	2.0	<8.0	8.0	8306833
2,4,6-Trichlorophenol	ug/L	<2.0	2.0	<8.0	8.0	8306833
Di-N-butyl phthalate	ug/L	<8.0	8.0	<32	32	8306833
Diethyl phthalate	ug/L	<4.0	4.0	<16	16	8306833
Dimethyl phthalate	ug/L	<4.0	4.0	<16	16	8306833
Surrogate Recovery (%)						
2,4,6-Tribromophenol	%	35		80		8306833
2-Fluorobiphenyl	%	87		78		8306833
2-Fluorophenol	%	20		44		8306833
D14-Terphenyl	%	86		81		8306833
D5-Nitrobenzene	%	113		96		8306833
D5-Phenol	%	24		34		8306833

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		UBI354	UBI355		
Sampling Date		2022/10/18	2022/10/18		
COC Number		TCEC-SWCM-OCT	TCEC-SWCM-OCT		
	UNITS	SS1	SSDUP1	RDL	QC Batch
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	8297551
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	8297551
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8297551
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	8297551
Toluene	ug/L	<0.20	<0.20	0.20	8297551
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	8297551
p+m-Xylene	ug/L	<0.20	<0.20	0.20	8297551
o-Xylene	ug/L	<0.20	<0.20	0.20	8297551
Total Xylenes	ug/L	<0.20	<0.20	0.20	8297551
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	96	96		8297551
D4-1,2-Dichloroethane	%	102	102		8297551
D8-Toluene	%	88	88		8297551

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Sample UBI354 [SS1] : ABN analysis: Due to the nature of the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample UBI355 [SSDUP1] : ABN analysis: Due to the nature of the sample matrix, a smaller than usual portion of the sample was used for extraction and a further dilution was required. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2U5923
Report Date: 2022/11/01

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8297551	4-Bromofluorobenzene	2022/10/23	108	70 - 130	108	70 - 130	102	%				
8297551	D4-1,2-Dichloroethane	2022/10/23	94	70 - 130	91	70 - 130	97	%				
8297551	D8-Toluene	2022/10/23	102	70 - 130	104	70 - 130	90	%				
8306833	2,4,6-Tribromophenol	2022/10/29	115	10 - 130	96	10 - 130	52	%				
8306833	2-Fluorobiphenyl	2022/10/29	84	30 - 130	69	30 - 130	82	%				
8306833	2-Fluorophenol	2022/10/29	63	10 - 130	53	10 - 130	32	%				
8306833	D14-Terphenyl	2022/10/29	107	30 - 130	97	30 - 130	94	%				
8306833	D5-Nitrobenzene	2022/10/29	116	30 - 130	110	30 - 130	114	%				
8306833	D5-Phenol	2022/10/29	42	10 - 130	36	10 - 130	27	%				
8297551	1,4-Dichlorobenzene	2022/10/23	113	70 - 130	113	70 - 130	<0.40	ug/L	NC (1)	30		
8297551	Benzene	2022/10/23	95	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30		
8297551	Ethylbenzene	2022/10/23	91	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
8297551	Methylene Chloride(Dichloromethane)	2022/10/23	106	70 - 130	103	70 - 130	<2.0	ug/L	NC (1)	30		
8297551	o-Xylene	2022/10/23	91	70 - 130	97	70 - 130	<0.20	ug/L	NC (1)	30		
8297551	p+m-Xylene	2022/10/23	99	70 - 130	100	70 - 130	<0.20	ug/L	NC (1)	30		
8297551	Toluene	2022/10/23	99	70 - 130	100	70 - 130	<0.20	ug/L	3.6 (1)	30		
8297551	Total Xylenes	2022/10/23					<0.20	ug/L	NC (1)	30		
8297551	Vinyl Chloride	2022/10/23	95	70 - 130	94	70 - 130	<0.20	ug/L				
8297709	Nitrate (N)	2022/10/21	NC	80 - 120	96	80 - 120	<0.10	mg/L	8.8 (1)	20		
8297709	Nitrite (N)	2022/10/21	105	80 - 120	110	80 - 120	<0.010	mg/L	NC (1)	20		
8297716	Dissolved Chloride (Cl-)	2022/10/21	NC	80 - 120	105	80 - 120	<1.0	mg/L	1.8 (1)	20		
8297732	Dissolved Sulphate (SO4)	2022/10/24	NC	75 - 125	105	80 - 120	<1.0	mg/L	0.12 (1)	20		
8297786	pH	2022/10/21			102	98 - 103			0.33 (1)	N/A		
8297803	Alkalinity (Total as CaCO3)	2022/10/21			98	85 - 115	<1.0	mg/L	2.0 (1)	20		
8297805	Conductivity	2022/10/21			100	85 - 115	<1.0	umho/cm	1.0 (1)	25		
8299692	Total BOD	2022/10/27					<2	mg/L	NC (1)	30	91	80 - 120
8301044	Total Arsenic (As)	2022/10/25	102	80 - 120	99	80 - 120	<0.001	mg/L				
8301044	Total Barium (Ba)	2022/10/25	102	80 - 120	96	80 - 120	<0.005	mg/L				
8301044	Total Boron (B)	2022/10/25	NC	80 - 120	95	80 - 120	<0.02	mg/L				

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8301044	Total Cadmium (Cd)	2022/10/25	97	80 - 120	100	80 - 120	<0.0001	mg/L				
8301044	Total Calcium (Ca)	2022/10/25	NC	80 - 120	98	80 - 120	<0.2	mg/L				
8301044	Total Chromium (Cr)	2022/10/25	100	80 - 120	95	80 - 120	<0.005	mg/L	2.3 (1)	20		
8301044	Total Copper (Cu)	2022/10/25	103	80 - 120	97	80 - 120	<0.002	mg/L	3.3 (1)	20		
8301044	Total Iron (Fe)	2022/10/25	100	80 - 120	96	80 - 120	<0.1	mg/L				
8301044	Total Lead (Pb)	2022/10/25	87	80 - 120	96	80 - 120	<0.0005	mg/L				
8301044	Total Magnesium (Mg)	2022/10/25	NC	80 - 120	96	80 - 120	<0.05	mg/L				
8301044	Total Nickel (Ni)	2022/10/25	NC	80 - 120	95	80 - 120	<0.001	mg/L	1.7 (1)	20		
8301044	Total Potassium (K)	2022/10/25	106	80 - 120	96	80 - 120	<0.2	mg/L				
8301044	Total Sodium (Na)	2022/10/25	NC	80 - 120	97	80 - 120	<0.1	mg/L				
8301044	Total Zinc (Zn)	2022/10/25	NC	80 - 120	102	80 - 120	<0.01	mg/L	11 (1)	20		
8301611	Total Dissolved Solids	2022/10/25					<10	mg/L	1.9 (1)	25	97	90 - 110
8303537	Total Suspended Solids	2022/10/25					<10	mg/L	10 (1)	25	98	85 - 115
8303850	Dissolved Mercury (Hg)	2022/10/25	101	75 - 125	100	80 - 120	<0.10	ug/L	NC (1)	20		
8304160	Total Phosphorus	2022/10/27	124 (2)	80 - 120	103	80 - 120	<0.030	mg/L	2.1 (1)	25	113	80 - 120
8304213	Total Kjeldahl Nitrogen (TKN)	2022/10/25	107	80 - 120	99	80 - 120	<0.7	mg/L	NC (1)	20	104	80 - 120
8304219	Total Chemical Oxygen Demand (COD)	2022/10/26	93	80 - 120	98	80 - 120	<4.0	mg/L	0.75 (1)	20		
8304620	Total Ammonia-N	2022/10/30	105	75 - 125	104	80 - 120	<0.15	mg/L	NC (1)	20		
8306833	1,2,4-Trichlorobenzene	2022/10/29	68	30 - 130	62	30 - 130	<0.50	ug/L	NC (1)	40		
8306833	1,2-Dichlorobenzene	2022/10/29	67	30 - 130	62	30 - 130	<0.50	ug/L	NC (1)	40		
8306833	1,3-Dichlorobenzene	2022/10/29	66	30 - 130	59	30 - 130	<0.50	ug/L	NC (1)	40		
8306833	1,4-Dichlorobenzene	2022/10/29	68	30 - 130	63	30 - 130	<0.50	ug/L	NC (1)	40		
8306833	2,4,6-Trichlorophenol	2022/10/29	94	10 - 130	88	10 - 130	<0.50	ug/L	NC (1)	40		
8306833	2,4-Dichlorophenol	2022/10/29	106	10 - 130	100	10 - 130	<0.30	ug/L	NC (1)	40		
8306833	Benzo(a)pyrene	2022/10/29	109	30 - 130	103	30 - 130	<0.20	ug/L	NC (1)	40		
8306833	Diethyl phthalate	2022/10/29	110	30 - 130	109	30 - 130	<1.0	ug/L	NC (1)	40		
8306833	Dimethyl phthalate	2022/10/29	101	30 - 130	98	30 - 130	<1.0	ug/L	NC (1)	40		
8306833	Di-N-butyl phthalate	2022/10/29	99	30 - 130	102	30 - 130	<2.0	ug/L	NC (1)	40		
8306833	Hexachlorobenzene	2022/10/29	108	30 - 130	101	30 - 130	<0.50	ug/L	NC (1)	40		
8306833	Pentachlorophenol	2022/10/29	88	10 - 130	72	10 - 130	<1.0	ug/L	NC (1)	40		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8306833	Phenol	2022/10/29	56	10 - 130	41	10 - 130	<0.50	ug/L	NC (1)	40		
8310820	Phenols-4AAP	2022/10/27	98	80 - 120	96	80 - 120	<0.0010	mg/L	NC (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

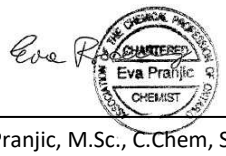
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2U5923
Report Date: 2022/11/01

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-OCT

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/02
Report #: R7369549
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2U5994
Received: 2022/10/20, 09:37

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	2	2022/10/26	2022/10/29	CAM SOP-00301	EPA 8270 m
ABN Compounds in Water by GC/MS	3	2022/10/31	2022/11/01	CAM SOP-00301	EPA 8270 m
Alkalinity	5	N/A	2022/10/21	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	5	2022/10/22	2022/10/27	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	5	N/A	2022/10/21	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	5	N/A	2022/10/26	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	5	N/A	2022/10/31		
Conductivity	5	N/A	2022/10/21	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	5	N/A	2022/10/31		
Dissolved Mercury in Water by CVAA	5	2022/10/25	2022/10/25	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	5	N/A	2022/10/25	CAM SOP-00447	EPA 6020B m
Ammonia-N	5	N/A	2022/10/30	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	5	N/A	2022/10/21	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2022/10/21	2022/10/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	5	N/A	2022/10/27	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	5	N/A	2022/10/31		Field pH Meter
Sulphate by Automated Colourimetry	5	N/A	2022/10/24	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	5	2022/10/24	2022/10/25	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	5	N/A	2022/10/31		Field Thermometer
Total Kjeldahl Nitrogen in Water	5	2022/10/25	2022/10/25	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	5	2022/10/25	2022/10/26	CAM SOP-00407	SM 23 4500-P I
Low Level Total Suspended Solids	5	2022/10/24	2022/10/25	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	5	N/A	2022/10/31		
Un-ionized Ammonia (3)	5	2022/10/20	2022/10/31	Auto Calc.	PWQO
Volatile Organic Compounds in Water	3	N/A	2022/10/25	CAM SOP-00228	EPA 8260C m
Volatile Organic Compounds in Water	2	N/A	2022/10/26	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-OCT

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/11/02
Report #: R7369549
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2U5994
Received: 2022/10/20, 09:37

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(3) Un-ionized ammonia is calculated using the total ammonia result and field data provided by the client for pH and temperature.

Encryption Key

Patricia Legette
Project Manager
02 Nov 2022 17:14:45

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2U5994
Report Date: 2022/11/02

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UBI739		UBI740		UBI741		
Sampling Date		2022/10/18		2022/10/18		2022/10/18		
COC Number		TCEC-SWCM-OCT		TCEC-SWCM-OCT		TCEC-SWCM-OCT		
	UNITS	SP1	RDL	SP2	RDL	SP3	RDL	QC Batch
Calculated Parameters								
Total Un-ionized Ammonia	mg/L	<0.0067	0.0067	0.035	0.0062	<0.06	0.06	8294692
Field Measurements								
Field Conductivity	uS/cm	802	N/A	701	N/A	809	N/A	ONSITE
Field Dissolved Oxygen	mg/L	11.3	N/A	11.1	N/A	11.7	N/A	ONSITE
Field Temperature	Celsius	7.4	N/A	6.4	N/A	7.8	N/A	ONSITE
Field Turbidity	NTU	14.8	N/A	830	N/A	6.48	N/A	ONSITE
Field Measured pH	pH	8.4		8.4		9.5		ONSITE
Inorganics								
Total Ammonia-N	mg/L	<0.15	0.15	0.84	0.15	<0.15	0.15	8304620
Total BOD	mg/L	<2	2	2	2	<2	2	8299692
Total Chemical Oxygen Demand (COD)	mg/L	9.3	4.0	11	4.0	16	4.0	8304219
Conductivity	umho/cm	810	1.0	740	1.0	840	1.0	8297805
Total Dissolved Solids	mg/L	510	10	375	10	525	10	8301611
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	1.2	0.7	<0.7	0.7	8304213
pH	pH	8.08		8.08		8.83		8297786
Phenols-4AAP	mg/L	<0.0010	0.0010	<0.0010	0.0010	<0.0010	0.0010	8310820
Total Phosphorus	mg/L	0.006	0.004	0.27	0.004	0.008	0.004	8304294
Total Suspended Solids	mg/L	9	1	440	5	2	1	8302647
Dissolved Sulphate (SO4)	mg/L	320	1.0	210	1.0	340	1.0	8297732
Alkalinity (Total as CaCO3)	mg/L	65	1.0	140	1.0	44	1.0	8297803
Dissolved Chloride (Cl-)	mg/L	24	1.0	34	1.0	33	1.0	8297716
Nitrite (N)	mg/L	<0.010	0.010	0.012	0.010	<0.010	0.010	8297709
Nitrate (N)	mg/L	<0.10	0.10	<0.10	0.10	<0.10	0.10	8297709

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2U5994
Report Date: 2022/11/02

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UBI742		UBI743		
Sampling Date		2022/10/18		2022/10/18		
COC Number		TCEC-SWCM-OCT		TCEC-SWCM-OCT		
	UNITS	SP4	RDL	SPDUP	RDL	QC Batch
Calculated Parameters						
Total Un-ionized Ammonia	mg/L	<0.0034	0.0034	<0.0067	0.0067	8294692
Field Measurements						
Field Conductivity	uS/cm	560	N/A	802	N/A	ONSITE
Field Dissolved Oxygen	mg/L	10.9	N/A	11.3	N/A	ONSITE
Field Temperature	Celsius	7.5	N/A	7.4	N/A	ONSITE
Field Turbidity	NTU	69.7	N/A	14.8	N/A	ONSITE
Field Measured pH	pH	8.1		8.4		ONSITE
Inorganics						
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	0.15	8304620
Total BOD	mg/L	3	2	<2	2	8299692
Total Chemical Oxygen Demand (COD)	mg/L	5.1	4.0	6.1	4.0	8304219
Conductivity	umho/cm	570	1.0	820	1.0	8297805
Total Dissolved Solids	mg/L	305	10	505	10	8301611
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	<0.7	0.7	8304213
pH	pH	8.11		8.08		8297786
Phenols-4AAP	mg/L	<0.0010	0.0010	<0.0010	0.0010	8310820
Total Phosphorus	mg/L	0.047	0.004	0.008	0.004	8304294
Total Suspended Solids	mg/L	32	1	11	1	8302647
Dissolved Sulphate (SO4)	mg/L	110	1.0	330	1.0	8297732
Alkalinity (Total as CaCO3)	mg/L	140	1.0	65	1.0	8297803
Dissolved Chloride (Cl-)	mg/L	29	1.0	24	1.0	8297716
Nitrite (N)	mg/L	<0.010	0.010	<0.010	0.010	8297709
Nitrate (N)	mg/L	<0.10	0.10	<0.10	0.10	8297709

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2U5994
Report Date: 2022/11/02

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		UBI739		UBI740	UBI741		UBI742		
Sampling Date		2022/10/18		2022/10/18	2022/10/18		2022/10/18		
COC Number		TCEC-SWCM-OCT		TCEC-SWCM-OCT	TCEC-SWCM-OCT		TCEC-SWCM-OCT		
	UNITS	SP1	QC Batch	SP2	SP3	QC Batch	SP4	RDL	QC Batch
Metals									
Dissolved Mercury (Hg)	ug/L	<0.10	8303850	<0.10	<0.10	8303752	<0.10	0.10	8303850
Total Arsenic (As)	mg/L	<0.001	8301044	0.005	0.001	8301044	0.003	0.001	8301044
Total Barium (Ba)	mg/L	0.022	8301044	0.14	0.023	8301044	0.041	0.005	8301044
Total Boron (B)	mg/L	0.33	8301044	0.18	0.15	8301044	0.07	0.02	8301044
Total Cadmium (Cd)	mg/L	<0.0001	8301044	<0.0001	<0.0001	8301044	<0.0001	0.0001	8301044
Total Calcium (Ca)	mg/L	65	8301044	99	73	8301044	65	0.2	8301044
Total Chromium (Cr)	mg/L	<0.005	8301044	0.016	<0.005	8301044	<0.005	0.005	8301044
Total Copper (Cu)	mg/L	<0.002	8301044	0.013	<0.002	8301044	<0.002	0.002	8301044
Total Iron (Fe)	mg/L	0.3	8301044	15	0.1	8301044	1.8	0.1	8301044
Total Lead (Pb)	mg/L	<0.0005	8301044	0.0063	<0.0005	8301044	0.0011	0.0005	8301044
Total Magnesium (Mg)	mg/L	50	8301044	43	46	8301044	20	0.05	8301044
Total Nickel (Ni)	mg/L	0.002	8301044	0.025	0.001	8301044	0.004	0.001	8301044
Total Potassium (K)	mg/L	3.5	8301044	8.4	4.9	8301044	4.1	0.2	8301044
Total Sodium (Na)	mg/L	30	8301044	30	33	8301044	20	0.1	8301044
Total Zinc (Zn)	mg/L	<0.01	8301044	0.04	<0.01	8301044	<0.01	0.01	8301044

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		UBI743		
Sampling Date		2022/10/18		
COC Number		TCEC-SWCM-OCT		
	UNITS	SPDUP	RDL	QC Batch
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8303752
Total Arsenic (As)	mg/L	<0.001	0.001	8301044
Total Barium (Ba)	mg/L	0.022	0.005	8301044
Total Boron (B)	mg/L	0.33	0.02	8301044
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8301044
Total Calcium (Ca)	mg/L	64	0.2	8301044
Total Chromium (Cr)	mg/L	<0.005	0.005	8301044
Total Copper (Cu)	mg/L	<0.002	0.002	8301044
Total Iron (Fe)	mg/L	0.3	0.1	8301044
Total Lead (Pb)	mg/L	<0.0005	0.0005	8301044
Total Magnesium (Mg)	mg/L	49	0.05	8301044
Total Nickel (Ni)	mg/L	0.002	0.001	8301044
Total Potassium (K)	mg/L	3.4	0.2	8301044
Total Sodium (Na)	mg/L	29	0.1	8301044
Total Zinc (Zn)	mg/L	<0.01	0.01	8301044

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2U5994
Report Date: 2022/11/02

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		UBI739			UBI740			UBI741		
Sampling Date		2022/10/18			2022/10/18			2022/10/18		
COC Number		TCEC-SWCM-OCT			TCEC-SWCM-OCT			TCEC-SWCM-OCT		
	UNITS	SP1	RDL	QC Batch	SP2	RDL	QC Batch	SP3	RDL	QC Batch
Semivolatile Organics										
Benzo(a)pyrene	ug/L	<0.20	0.20	8316914	<0.80	0.80	8306833	<0.20	0.20	8316914
1,2-Dichlorobenzene	ug/L	<0.50	0.50	8316914	<2.0	2.0	8306833	<0.50	0.50	8316914
1,3-Dichlorobenzene	ug/L	<0.50	0.50	8316914	<2.0	2.0	8306833	<0.50	0.50	8316914
1,4-Dichlorobenzene	ug/L	<0.50	0.50	8316914	<2.0	2.0	8306833	<0.50	0.50	8316914
Hexachlorobenzene	ug/L	<0.50	0.50	8316914	<2.0	2.0	8306833	<0.50	0.50	8316914
1,2,4-Trichlorobenzene	ug/L	<0.50	0.50	8316914	<2.0	2.0	8306833	<0.50	0.50	8316914
2,4-Dichlorophenol	ug/L	<0.30	0.30	8316914	<1.2	1.2	8306833	<0.30	0.30	8316914
Pentachlorophenol	ug/L	<1.0	1.0	8316914	<4.0	4.0	8306833	<1.0	1.0	8316914
Phenol	ug/L	<0.50	0.50	8316914	<2.0	2.0	8306833	<0.50	0.50	8316914
2,4,6-Trichlorophenol	ug/L	<0.50	0.50	8316914	<2.0	2.0	8306833	<0.50	0.50	8316914
Di-N-butyl phthalate	ug/L	<2.0	2.0	8316914	<8.0	8.0	8306833	<2.0	2.0	8316914
Diethyl phthalate	ug/L	<1.0	1.0	8316914	<4.0	4.0	8306833	<1.0	1.0	8316914
Dimethyl phthalate	ug/L	<1.0	1.0	8316914	<4.0	4.0	8306833	<1.0	1.0	8316914
Surrogate Recovery (%)										
2,4,6-Tribromophenol	%	54		8316914	37		8306833	76		8316914
2-Fluorobiphenyl	%	62		8316914	107		8306833	58		8316914
2-Fluorophenol	%	26		8316914	19		8306833	40		8316914
D14-Terphenyl	%	94		8316914	99		8306833	92		8316914
D5-Nitrobenzene	%	92		8316914	128		8306833	86		8316914
D5-Phenol	%	29		8316914	28		8306833	34		8316914

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		UBI742			UBI743		
Sampling Date		2022/10/18			2022/10/18		
COC Number		TCEC-SWCM-OCT			TCEC-SWCM-OCT		
	UNITS	SP4	RDL	QC Batch	SPDUP	RDL	QC Batch
Semivolatile Organics							
Benzo(a)pyrene	ug/L	<0.80	0.80	8306833	<0.20	0.20	8316914
1,2-Dichlorobenzene	ug/L	<2.0	2.0	8306833	<0.50	0.50	8316914
1,3-Dichlorobenzene	ug/L	<2.0	2.0	8306833	<0.50	0.50	8316914
1,4-Dichlorobenzene	ug/L	<2.0	2.0	8306833	<0.50	0.50	8316914
Hexachlorobenzene	ug/L	<2.0	2.0	8306833	<0.50	0.50	8316914
1,2,4-Trichlorobenzene	ug/L	<2.0	2.0	8306833	<0.50	0.50	8316914
2,4-Dichlorophenol	ug/L	<1.2	1.2	8306833	<0.30	0.30	8316914
Pentachlorophenol	ug/L	<4.0	4.0	8306833	<1.0	1.0	8316914
Phenol	ug/L	<2.0	2.0	8306833	<0.50	0.50	8316914
2,4,6-Trichlorophenol	ug/L	<2.0	2.0	8306833	<0.50	0.50	8316914
Di-N-butyl phthalate	ug/L	<8.0	8.0	8306833	<2.0	2.0	8316914
Diethyl phthalate	ug/L	<4.0	4.0	8306833	<1.0	1.0	8316914
Dimethyl phthalate	ug/L	<4.0	4.0	8306833	<1.0	1.0	8316914
Surrogate Recovery (%)							
2,4,6-Tribromophenol	%	13		8306833	18		8316914
2-Fluorobiphenyl	%	109		8306833	67		8316914
2-Fluorophenol	%	6.4 (1)		8306833	9.7 (1)		8316914
D14-Terphenyl	%	120		8306833	93		8316914
D5-Nitrobenzene	%	129		8306833	97		8316914
D5-Phenol	%	15		8306833	19		8316914

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Surrogate recovery was below the lower control limit due to matrix interference. This may represent a low bias in some results.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2U5994
Report Date: 2022/11/02

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		UBI739	UBI740	UBI741	UBI742		
Sampling Date		2022/10/18	2022/10/18	2022/10/18	2022/10/18		
COC Number		TCEC-SWCM-OCT	TCEC-SWCM-OCT	TCEC-SWCM-OCT	TCEC-SWCM-OCT		
	UNITS	SP1	SP2	SP3	SP4	RDL	QC Batch
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8298496
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8298496
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8298496
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8298496
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8298496
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8298496
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8298496
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8298496
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8298496
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	96	97	97	97		8298496
D4-1,2-Dichloroethane	%	111	113	110	111		8298496
D8-Toluene	%	96	94	93	94		8298496

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		UBI743		
Sampling Date		2022/10/18		
COC Number		TCEC-SWCM-OCT		
	UNITS	SPDUP	RDL	QC Batch
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8298496
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8298496
Ethylbenzene	ug/L	<0.20	0.20	8298496
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8298496
Toluene	ug/L	<0.20	0.20	8298496
Vinyl Chloride	ug/L	<0.20	0.20	8298496
p+m-Xylene	ug/L	<0.20	0.20	8298496
o-Xylene	ug/L	<0.20	0.20	8298496
Total Xylenes	ug/L	<0.20	0.20	8298496
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	95		8298496
D4-1,2-Dichloroethane	%	110		8298496
D8-Toluene	%	96		8298496

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Sample UBI740 [SP2] : ABN analysis: Due to the nature of the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample UBI742 [SP4] : ABN analysis: Due to the nature of the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8298496	4-Bromofluorobenzene	2022/10/25	99 (2)	70 - 130	97	70 - 130	98	%				
8298496	D4-1,2-Dichloroethane	2022/10/25	105 (2)	70 - 130	108	70 - 130	108	%				
8298496	D8-Toluene	2022/10/25	101 (2)	70 - 130	102	70 - 130	95	%				
8306833	2,4,6-Tribromophenol	2022/10/29	115	10 - 130	96	10 - 130	52	%				
8306833	2-Fluorobiphenyl	2022/10/29	84	30 - 130	69	30 - 130	82	%				
8306833	2-Fluorophenol	2022/10/29	63	10 - 130	53	10 - 130	32	%				
8306833	D14-Terphenyl	2022/10/29	107	30 - 130	97	30 - 130	94	%				
8306833	D5-Nitrobenzene	2022/10/29	116	30 - 130	110	30 - 130	114	%				
8306833	D5-Phenol	2022/10/29	42	10 - 130	36	10 - 130	27	%				
8316914	2,4,6-Tribromophenol	2022/11/01	98	10 - 130	95	10 - 130	67	%				
8316914	2-Fluorobiphenyl	2022/11/01	71	30 - 130	63	30 - 130	69	%				
8316914	2-Fluorophenol	2022/11/01	62	10 - 130	51	10 - 130	43	%				
8316914	D14-Terphenyl	2022/11/01	98	30 - 130	93	30 - 130	85	%				
8316914	D5-Nitrobenzene	2022/11/01	105	30 - 130	83	30 - 130	80	%				
8316914	D5-Phenol	2022/11/01	43	10 - 130	34	10 - 130	29	%				
8297709	Nitrate (N)	2022/10/21	NC	80 - 120	96	80 - 120	<0.10	mg/L	8.8 (1)	20		
8297709	Nitrite (N)	2022/10/21	105	80 - 120	110	80 - 120	<0.010	mg/L	NC (1)	20		
8297716	Dissolved Chloride (Cl-)	2022/10/21	NC	80 - 120	105	80 - 120	<1.0	mg/L	1.8 (1)	20		
8297732	Dissolved Sulphate (SO4)	2022/10/24	NC	75 - 125	105	80 - 120	<1.0	mg/L	0.12 (1)	20		
8297786	pH	2022/10/21			102	98 - 103			0.33 (1)	N/A		
8297803	Alkalinity (Total as CaCO3)	2022/10/21			98	85 - 115	<1.0	mg/L	2.0 (1)	20		
8297805	Conductivity	2022/10/21			100	85 - 115	<1.0	umho/cm	1.0 (1)	25		
8298496	1,4-Dichlorobenzene	2022/10/25	117 (2)	70 - 130	117	70 - 130	<0.40	ug/L	NC (3)	30		
8298496	Benzene	2022/10/25	103 (2)	70 - 130	97	70 - 130	<0.20	ug/L	NC (3)	30		
8298496	Ethylbenzene	2022/10/25	95 (2)	70 - 130	93	70 - 130	<0.20	ug/L	NC (3)	30		
8298496	Methylene Chloride(Dichloromethane)	2022/10/25	110 (2)	70 - 130	105	70 - 130	<2.0	ug/L	NC (3)	30		
8298496	o-Xylene	2022/10/25	93 (2)	70 - 130	94	70 - 130	<0.20	ug/L	NC (3)	30		
8298496	p+m-Xylene	2022/10/25	98 (2)	70 - 130	97	70 - 130	<0.20	ug/L	NC (3)	30		
8298496	Toluene	2022/10/25	97 (2)	70 - 130	97	70 - 130	<0.20	ug/L	NC (3)	30		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8298496	Total Xylenes	2022/10/25					<0.20	ug/L	NC (3)	30		
8298496	Vinyl Chloride	2022/10/25	104 (2)	70 - 130	97	70 - 130	<0.20	ug/L	NC (3)	30		
8299692	Total BOD	2022/10/27					<2	mg/L	NC (1)	30	91	80 - 120
8301044	Total Arsenic (As)	2022/10/25	102	80 - 120	99	80 - 120	<0.001	mg/L				
8301044	Total Barium (Ba)	2022/10/25	102	80 - 120	96	80 - 120	<0.005	mg/L				
8301044	Total Boron (B)	2022/10/25	NC	80 - 120	95	80 - 120	<0.02	mg/L				
8301044	Total Cadmium (Cd)	2022/10/25	97	80 - 120	100	80 - 120	<0.0001	mg/L				
8301044	Total Calcium (Ca)	2022/10/25	NC	80 - 120	98	80 - 120	<0.2	mg/L				
8301044	Total Chromium (Cr)	2022/10/25	100	80 - 120	95	80 - 120	<0.005	mg/L	2.3 (1)	20		
8301044	Total Copper (Cu)	2022/10/25	103	80 - 120	97	80 - 120	<0.002	mg/L	3.3 (1)	20		
8301044	Total Iron (Fe)	2022/10/25	100	80 - 120	96	80 - 120	<0.1	mg/L				
8301044	Total Lead (Pb)	2022/10/25	87	80 - 120	96	80 - 120	<0.0005	mg/L				
8301044	Total Magnesium (Mg)	2022/10/25	NC	80 - 120	96	80 - 120	<0.05	mg/L				
8301044	Total Nickel (Ni)	2022/10/25	NC	80 - 120	95	80 - 120	<0.001	mg/L	1.7 (1)	20		
8301044	Total Potassium (K)	2022/10/25	106	80 - 120	96	80 - 120	<0.2	mg/L				
8301044	Total Sodium (Na)	2022/10/25	NC	80 - 120	97	80 - 120	<0.1	mg/L				
8301044	Total Zinc (Zn)	2022/10/25	NC	80 - 120	102	80 - 120	<0.01	mg/L	11 (1)	20		
8301611	Total Dissolved Solids	2022/10/25					<10	mg/L	1.9 (4)	25	97	90 - 110
8302647	Total Suspended Solids	2022/10/25					<1	mg/L	14 (1)	25	100	85 - 115
8303752	Dissolved Mercury (Hg)	2022/10/25	102	75 - 125	104	80 - 120	<0.10	ug/L	NC (1)	20		
8303850	Dissolved Mercury (Hg)	2022/10/25	101 (5)	75 - 125	100	80 - 120	<0.10	ug/L	NC (6)	20		
8304213	Total Kjeldahl Nitrogen (TKN)	2022/10/25	107 (7)	80 - 120	99	80 - 120	<0.7	mg/L	NC (8)	20	104	80 - 120
8304219	Total Chemical Oxygen Demand (COD)	2022/10/26	93 (7)	80 - 120	98	80 - 120	<4.0	mg/L	0.75 (8)	20		
8304294	Total Phosphorus	2022/10/26	109	80 - 120	96	80 - 120	<0.004	mg/L	2.5 (1)	20	113	80 - 120
8304620	Total Ammonia-N	2022/10/30	105 (9)	75 - 125	104	80 - 120	<0.15	mg/L	NC (10)	20		
8306833	1,2,4-Trichlorobenzene	2022/10/29	68	30 - 130	62	30 - 130	<0.50	ug/L	NC (1)	40		
8306833	1,2-Dichlorobenzene	2022/10/29	67	30 - 130	62	30 - 130	<0.50	ug/L	NC (1)	40		
8306833	1,3-Dichlorobenzene	2022/10/29	66	30 - 130	59	30 - 130	<0.50	ug/L	NC (1)	40		
8306833	1,4-Dichlorobenzene	2022/10/29	68	30 - 130	63	30 - 130	<0.50	ug/L	NC (1)	40		
8306833	2,4,6-Trichlorophenol	2022/10/29	94	10 - 130	88	10 - 130	<0.50	ug/L	NC (1)	40		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8306833	2,4-Dichlorophenol	2022/10/29	106	10 - 130	100	10 - 130	<0.30	ug/L	NC (1)	40		
8306833	Benzo(a)pyrene	2022/10/29	109	30 - 130	103	30 - 130	<0.20	ug/L	NC (1)	40		
8306833	Diethyl phthalate	2022/10/29	110	30 - 130	109	30 - 130	<1.0	ug/L	NC (1)	40		
8306833	Dimethyl phthalate	2022/10/29	101	30 - 130	98	30 - 130	<1.0	ug/L	NC (1)	40		
8306833	Di-N-butyl phthalate	2022/10/29	99	30 - 130	102	30 - 130	<2.0	ug/L	NC (1)	40		
8306833	Hexachlorobenzene	2022/10/29	108	30 - 130	101	30 - 130	<0.50	ug/L	NC (1)	40		
8306833	Pentachlorophenol	2022/10/29	88	10 - 130	72	10 - 130	<1.0	ug/L	NC (1)	40		
8306833	Phenol	2022/10/29	56	10 - 130	41	10 - 130	<0.50	ug/L	NC (1)	40		
8310820	Phenols-4AAP	2022/10/27	98	80 - 120	96	80 - 120	<0.0010	mg/L	NC (1)	20		
8316914	1,2,4-Trichlorobenzene	2022/11/01	59	30 - 130	49	30 - 130	<0.50	ug/L	NC (1)	40		
8316914	1,2-Dichlorobenzene	2022/11/01	60	30 - 130	50	30 - 130	<0.50	ug/L	NC (1)	40		
8316914	1,3-Dichlorobenzene	2022/11/01	57	30 - 130	43	30 - 130	<0.50	ug/L	NC (1)	40		
8316914	1,4-Dichlorobenzene	2022/11/01	59	30 - 130	45	30 - 130	<0.50	ug/L	NC (1)	40		
8316914	2,4,6-Trichlorophenol	2022/11/01	100	10 - 130	95	10 - 130	<0.50	ug/L	NC (1)	40		
8316914	2,4-Dichlorophenol	2022/11/01	99	10 - 130	85	10 - 130	<0.30	ug/L	NC (1)	40		
8316914	Benzo(a)pyrene	2022/11/01	101	30 - 130	103	30 - 130	<0.20	ug/L	NC (1)	40		
8316914	Diethyl phthalate	2022/11/01	105	30 - 130	100	30 - 130	<1.0	ug/L	NC (1)	40		
8316914	Dimethyl phthalate	2022/11/01	94	30 - 130	100	30 - 130	<1.0	ug/L	NC (1)	40		
8316914	Di-N-butyl phthalate	2022/11/01	101	30 - 130	107	30 - 130	<2.0	ug/L	NC (1)	40		
8316914	Hexachlorobenzene	2022/11/01	95	30 - 130	98	30 - 130	<0.50	ug/L	NC (1)	40		
8316914	Pentachlorophenol	2022/11/01	79	10 - 130	67	10 - 130	<1.0	ug/L	NC (1)	40		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8316914	Phenol	2022/11/01	49	10 - 130	40	10 - 130	<0.50	ug/L	NC (1)	40		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [UBI739-10]

(3) Duplicate Parent ID [UBI739-10]

(4) Duplicate Parent ID [UBI741-03]

(5) Matrix Spike Parent ID [UBI739-09]

(6) Duplicate Parent ID [UBI739-09]

(7) Matrix Spike Parent ID [UBI741-07]

(8) Duplicate Parent ID [UBI741-07]

(9) Matrix Spike Parent ID [UBI739-11]

(10) Duplicate Parent ID [UBI739-11]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2U5994
Report Date: 2022/11/02

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JCL

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-NOV

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/12/06
Report #: R7418989
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2Y9565
Received: 2022/11/29, 08:30

Sample Matrix: Surface Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2022/12/04	2022/12/05	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2022/11/30	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	1	2022/11/30	2022/12/05	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2022/11/30	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2022/12/01	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	1	N/A	2022/12/01		
Conductivity	1	N/A	2022/11/30	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2022/12/01		
Dissolved Mercury in Water by CVAA	1	2022/12/01	2022/12/01	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	1	N/A	2022/12/01	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2022/12/02	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2022/12/01	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2022/11/29	2022/11/30	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/12/01	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2022/11/29		Field pH Meter
Sulphate by Automated Colourimetry	1	N/A	2022/11/30	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	1	2022/12/03	2022/12/05	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2022/11/29		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2022/11/30	2022/12/02	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2022/11/30	2022/12/05	CAM SOP-00407	SM 23 4500-P I
Low Level Total Suspended Solids	1	2022/12/02	2022/12/03	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	1	N/A	2022/12/01		
Un-ionized Ammonia (3)	1	2022/11/29	2022/12/02	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2022/12/02	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-NOV

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2022/12/06
Report #: R7418989
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2Y9565
Received: 2022/11/29, 08:30

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(3) Un-ionized ammonia is calculated using the total ammonia result and field data provided by the client for pH and temperature.

Encryption Key

Patricia Legette
Project Manager
06 Dec 2022 16:47:14

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2Y9565
Report Date: 2022/12/06

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		UKY877		
Sampling Date		2022/11/28		
COC Number		TCEC-SWCM-NOV		
	UNITS	**SS1**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.00051	0.00051	8373239
Field Measurements				
Field Conductivity	uS/cm	1351	N/A	ONSITE
Field Dissolved Oxygen	mg/L	11.0	N/A	ONSITE
Field Temperature	Celsius	6.4	N/A	ONSITE
Field Turbidity	NTU	172	N/A	ONSITE
Field Measured pH	pH	7.3		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8379746
Total BOD	mg/L	2	2	8375459
Total Chemical Oxygen Demand (COD)	mg/L	19	4.0	8376797
Conductivity	umho/cm	1500	1.0	8374626
Total Dissolved Solids	mg/L	1020	10	8381294
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8376871
pH	pH	7.93		8374614
Phenols-4AAP	mg/L	<0.0010	0.0010	8379603
Total Phosphorus	mg/L	0.048	0.030	8376866
Total Suspended Solids	mg/L	70	3	8380454
Dissolved Sulphate (SO4)	mg/L	660	5.0	8374499
Alkalinity (Total as CaCO3)	mg/L	110	1.0	8374632
Dissolved Chloride (Cl-)	mg/L	29	1.0	8374513
Nitrite (N)	mg/L	0.022	0.010	8373957
Nitrate (N)	mg/L	2.06	0.10	8373957

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2Y9565
Report Date: 2022/12/06

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		UKY877		
Sampling Date		2022/11/28		
COC Number		TCEC-SWCM-NOV		
	UNITS	SS1	RDL	QC Batch
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8377892
Total Arsenic (As)	mg/L	0.001	0.001	8378177
Total Barium (Ba)	mg/L	0.043	0.005	8378177
Total Boron (B)	mg/L	0.08	0.02	8378177
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8378177
Total Calcium (Ca)	mg/L	160	0.2	8378177
Total Chromium (Cr)	mg/L	<0.005	0.005	8378177
Total Copper (Cu)	mg/L	0.006	0.002	8378177
Total Iron (Fe)	mg/L	3.0	0.1	8378177
Total Lead (Pb)	mg/L	0.0010	0.0005	8378177
Total Magnesium (Mg)	mg/L	85	0.05	8378177
Total Nickel (Ni)	mg/L	0.005	0.001	8378177
Total Potassium (K)	mg/L	8.6	0.2	8378177
Total Sodium (Na)	mg/L	39	0.1	8378177
Total Zinc (Zn)	mg/L	<0.01	0.01	8378177

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

SEMI-VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		UKY877		
Sampling Date		2022/11/28		
COC Number		TCEC-SWCM-NOV		
	UNITS	SS1	RDL	QC Batch
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.80	0.80	8383763
1,2-Dichlorobenzene	ug/L	<2.0	2.0	8383763
1,3-Dichlorobenzene	ug/L	<2.0	2.0	8383763
1,4-Dichlorobenzene	ug/L	<2.0	2.0	8383763
Hexachlorobenzene	ug/L	<2.0	2.0	8383763
1,2,4-Trichlorobenzene	ug/L	<2.0	2.0	8383763
2,4-Dichlorophenol	ug/L	<1.2	1.2	8383763
Pentachlorophenol	ug/L	<4.0	4.0	8383763
Phenol	ug/L	<2.0	2.0	8383763
2,4,6-Trichlorophenol	ug/L	<2.0	2.0	8383763
Di-N-butyl phthalate	ug/L	<8.0	8.0	8383763
Diethyl phthalate	ug/L	<4.0	4.0	8383763
Dimethyl phthalate	ug/L	<4.0	4.0	8383763
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	0.00 (1)		8383763
2-Fluorobiphenyl	%	60		8383763
2-Fluorophenol	%	2.8 (1)		8383763
D14-Terphenyl	%	96		8383763
D5-Nitrobenzene	%	75		8383763
D5-Phenol	%	2.8 (1)		8383763

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Surrogate recovery was below the lower control limit due to matrix interference. This may represent a low bias in some results.

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2Y9565
Report Date: 2022/12/06

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		UKY877		
Sampling Date		2022/11/28		
COC Number		TCEC-SWCM-NOV		
	UNITS	SS1	RDL	QC Batch
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8376586
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8376586
Ethylbenzene	ug/L	<0.20	0.20	8376586
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8376586
Toluene	ug/L	<0.20	0.20	8376586
Vinyl Chloride	ug/L	<0.20	0.20	8376586
p+m-Xylene	ug/L	<0.20	0.20	8376586
o-Xylene	ug/L	<0.20	0.20	8376586
Total Xylenes	ug/L	<0.20	0.20	8376586
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	89		8376586
D4-1,2-Dichloroethane	%	116		8376586
D8-Toluene	%	87		8376586

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Sample UKY877 [SS1] : ABN analysis: Due to the nature of the sample matrix, a smaller than usual portion of the sample was used for extraction. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2Y9565
Report Date: 2022/12/06

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8376586	4-Bromofluorobenzene	2022/12/02	105 (2)	70 - 130	106	70 - 130	94	%				
8376586	D4-1,2-Dichloroethane	2022/12/02	106 (2)	70 - 130	103	70 - 130	100	%				
8376586	D8-Toluene	2022/12/02	106 (2)	70 - 130	104	70 - 130	91	%				
8383763	2,4,6-Tribromophenol	2022/12/05	66	10 - 130	91	10 - 130	48	%				
8383763	2-Fluorobiphenyl	2022/12/05	46	30 - 130	64	30 - 130	72	%				
8383763	2-Fluorophenol	2022/12/05	28	10 - 130	50	10 - 130	24	%				
8383763	D14-Terphenyl	2022/12/05	95	30 - 130	96	30 - 130	98	%				
8383763	D5-Nitrobenzene	2022/12/05	48	30 - 130	75	30 - 130	74	%				
8383763	D5-Phenol	2022/12/05	20	10 - 130	34	10 - 130	22	%				
8373957	Nitrate (N)	2022/12/01	89	80 - 120	95	80 - 120	<0.10	mg/L	NC (1)	20		
8373957	Nitrite (N)	2022/12/01	110	80 - 120	106	80 - 120	<0.010	mg/L	NC (1)	20		
8374499	Dissolved Sulphate (SO4)	2022/11/30	NC	75 - 125	104	80 - 120	<1.0	mg/L	0.15 (1)	20		
8374513	Dissolved Chloride (Cl-)	2022/11/30	NC	80 - 120	102	80 - 120	<1.0	mg/L	4.0 (1)	20		
8374614	pH	2022/11/30			102	98 - 103			0.11 (1)	N/A		
8374626	Conductivity	2022/11/30			100	85 - 115	<1.0	umho/cm	0 (1)	25		
8374632	Alkalinity (Total as CaCO3)	2022/11/30			98	85 - 115	<1.0	mg/L	1.4 (1)	20		
8375459	Total BOD	2022/12/05					<2	mg/L	10 (1)	30	91	80 - 120
8376586	1,4-Dichlorobenzene	2022/12/02	108 (2)	70 - 130	107	70 - 130	<0.40	ug/L	NC (3)	30		
8376586	Benzene	2022/12/02	87 (2)	70 - 130	88	70 - 130	<0.20	ug/L	NC (3)	30		
8376586	Ethylbenzene	2022/12/02	85 (2)	70 - 130	86	70 - 130	<0.20	ug/L	NC (3)	30		
8376586	Methylene Chloride(Dichloromethane)	2022/12/02	100 (2)	70 - 130	99	70 - 130	<2.0	ug/L	NC (3)	30		
8376586	o-Xylene	2022/12/02	85 (2)	70 - 130	90	70 - 130	<0.20	ug/L	NC (3)	30		
8376586	p+m-Xylene	2022/12/02	92 (2)	70 - 130	94	70 - 130	<0.20	ug/L	NC (3)	30		
8376586	Toluene	2022/12/02	95 (2)	70 - 130	94	70 - 130	<0.20	ug/L	NC (3)	30		
8376586	Total Xylenes	2022/12/02					<0.20	ug/L	NC (3)	30		
8376586	Vinyl Chloride	2022/12/02	83 (2)	70 - 130	87	70 - 130	<0.20	ug/L	NC (3)	30		
8376797	Total Chemical Oxygen Demand (COD)	2022/12/01	104	80 - 120	107	80 - 120	<4.0	mg/L	6.4 (1)	20		
8376866	Total Phosphorus	2022/12/05	103	80 - 120	99	80 - 120	<0.030	mg/L	NC (1)	25	113	80 - 120
8376871	Total Kjeldahl Nitrogen (TKN)	2022/12/02	105 (4)	80 - 120	103	80 - 120	<0.7	mg/L	NC (5)	20	97	80 - 120

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8377892	Dissolved Mercury (Hg)	2022/12/01	100	75 - 125	103	80 - 120	<0.10	ug/L	NC (1)	20		
8378177	Total Arsenic (As)	2022/12/01	99 (6)	80 - 120	99	80 - 120	<0.001	mg/L	4.4 (7)	20		
8378177	Total Barium (Ba)	2022/12/01	100 (6)	80 - 120	99	80 - 120	<0.005	mg/L	0.13 (7)	20		
8378177	Total Boron (B)	2022/12/01	105 (6)	80 - 120	104	80 - 120	<0.02	mg/L	1.3 (7)	20		
8378177	Total Cadmium (Cd)	2022/12/01	100 (6)	80 - 120	101	80 - 120	<0.0001	mg/L	NC (7)	20		
8378177	Total Calcium (Ca)	2022/12/01	NC (6)	80 - 120	100	80 - 120	<0.2	mg/L	0.68 (7)	20		
8378177	Total Chromium (Cr)	2022/12/01	95 (6)	80 - 120	96	80 - 120	<0.005	mg/L	NC (7)	20		
8378177	Total Copper (Cu)	2022/12/01	96 (6)	80 - 120	98	80 - 120	<0.002	mg/L	1.1 (7)	20		
8378177	Total Iron (Fe)	2022/12/01	98 (6)	80 - 120	101	80 - 120	<0.1	mg/L	6.3 (7)	20		
8378177	Total Lead (Pb)	2022/12/01	94 (6)	80 - 120	95	80 - 120	<0.0005	mg/L	1.3 (7)	20		
8378177	Total Magnesium (Mg)	2022/12/01	NC (6)	80 - 120	99	80 - 120	<0.05	mg/L	0.070 (7)	20		
8378177	Total Nickel (Ni)	2022/12/01	96 (6)	80 - 120	99	80 - 120	<0.001	mg/L	5.8 (7)	20		
8378177	Total Potassium (K)	2022/12/01	99 (6)	80 - 120	102	80 - 120	<0.2	mg/L	2.4 (7)	20		
8378177	Total Sodium (Na)	2022/12/01	NC (6)	80 - 120	99	80 - 120	<0.1	mg/L	2.0 (7)	20		
8378177	Total Zinc (Zn)	2022/12/01	99 (6)	80 - 120	102	80 - 120	<0.01	mg/L	NC (7)	20		
8379603	Phenols-4AAP	2022/12/01	101	80 - 120	100	80 - 120	<0.0010	mg/L	NC (1)	20		
8379746	Total Ammonia-N	2022/12/02	113	75 - 125	102	80 - 120	<0.15	mg/L	NC (1)	20		
8380454	Total Suspended Solids	2022/12/03					<1	mg/L	0 (1)	20	97	85 - 115
8381294	Total Dissolved Solids	2022/12/05					<10	mg/L	4.7 (1)	20	97	90 - 110
8383763	1,2,4-Trichlorobenzene	2022/12/05	43	30 - 130	57	30 - 130	<0.50	ug/L	NC (8)	40		
8383763	1,2-Dichlorobenzene	2022/12/05	39	30 - 130	53	30 - 130	<0.50	ug/L	NC (8)	40		
8383763	1,3-Dichlorobenzene	2022/12/05	32	30 - 130	51	30 - 130	<0.50	ug/L	NC (8)	40		
8383763	1,4-Dichlorobenzene	2022/12/05	40	30 - 130	55	30 - 130	<0.50	ug/L	NC (8)	40		
8383763	2,4,6-Trichlorophenol	2022/12/05	57	10 - 130	96	10 - 130	<0.50	ug/L	NC (8)	40		
8383763	2,4-Dichlorophenol	2022/12/05	56	10 - 130	96	10 - 130	<0.30	ug/L	NC (8)	40		
8383763	Benzo(a)pyrene	2022/12/05	100	30 - 130	99	30 - 130	<0.20	ug/L	NC (8)	40		
8383763	Diethyl phthalate	2022/12/05	80	30 - 130	104	30 - 130	<1.0	ug/L	NC (8)	40		
8383763	Dimethyl phthalate	2022/12/05	62	30 - 130	95	30 - 130	<1.0	ug/L	NC (8)	40		
8383763	Di-N-butyl phthalate	2022/12/05	90	30 - 130	93	30 - 130	<2.0	ug/L	NC (8)	40		
8383763	Hexachlorobenzene	2022/12/05	73	30 - 130	93	30 - 130	<0.50	ug/L	NC (8)	40		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8383763	Pentachlorophenol	2022/12/05	71	10 - 130	75	10 - 130	<1.0	ug/L	NC (8)	40		
8383763	Phenol	2022/12/05	20	10 - 130	36	10 - 130	<0.50	ug/L	NC (8)	40		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [UKY877-11]

(3) Duplicate Parent ID [UKY877-11]

(4) Matrix Spike Parent ID [UKY877-07]

(5) Duplicate Parent ID [UKY877-07]

(6) Matrix Spike Parent ID [UKY877-05]

(7) Duplicate Parent ID [UKY877-05]

(8) Duplicate Parent ID [UKY877-01]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

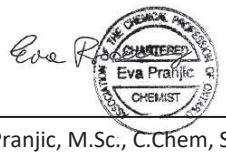
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C2Y9565
Report Date: 2022/12/06

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-JAN

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/01/23
Report #: R7480370
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C312861
Received: 2023/01/14, 14:30

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2023/01/16	2023/01/17	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2023/01/16	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	1	2023/01/16	2023/01/21	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2023/01/17	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2023/01/17	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	1	N/A	2023/01/18		
Conductivity	1	N/A	2023/01/16	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2023/01/18		
Mercury in Water by CVAA	1	2023/01/18	2023/01/19	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	1	N/A	2023/01/19	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/01/18	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/01/16	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/01/14	2023/01/16	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/01/17	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2023/01/18		Field pH Meter
Sulphate by Automated Colourimetry	1	N/A	2023/01/16	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	1	2023/01/18	2023/01/19	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2023/01/18		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/01/16	2023/01/18	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2023/01/16	2023/01/17	CAM SOP-00407	SM 23 4500-P I
Low Level Total Suspended Solids	1	2023/01/18	2023/01/19	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	1	N/A	2023/01/18		
Un-ionized Ammonia (3)	1	2023/01/14	2023/01/18	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2023/01/16	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

Your P.O. #: 11082034
Your Project #: 2202861-1000
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-JAN

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/01/23
Report #: R7480370
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C312861
Received: 2023/01/14, 14:30

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(2) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(3) Un-ionized ammonia is calculated using the total ammonia result and field data provided by the client for pH and temperature.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C312861
Report Date: 2023/01/23

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UUQ243		
Sampling Date		2023/01/13		
COC Number		TCEC-SWCM-JAN		
	UNITS	SP2	RDL	QC Batch
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.0057	0.0057	8450304
Field Measurements				
Field Conductivity	uS/cm	1140	N/A	ONSITE
Field Dissolved Oxygen	mg/L	11.9	N/A	ONSITE
Field Temperature	Celsius	2.5	N/A	ONSITE
Field Turbidity	NTU	188	N/A	ONSITE
Field Measured pH	pH	8.5		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8453417
Total BOD	mg/L	<2	2	8452141
Total Chemical Oxygen Demand (COD)	mg/L	20	4.0	8451723
Conductivity	umho/cm	980	1.0	8450312
Total Dissolved Solids	mg/L	620	10	8455850
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8451081
pH	pH	8.04		8450311
Phenols-4AAP	mg/L	<0.0010	0.0010	8453668
Total Phosphorus	mg/L	0.081	0.030	8451061
Total Suspended Solids	mg/L	160	3	8455342
Dissolved Sulphate (SO4)	mg/L	320	1.0	8450319
Alkalinity (Total as CaCO3)	mg/L	120	1.0	8450310
Dissolved Chloride (Cl-)	mg/L	56	1.0	8450316
Nitrite (N)	mg/L	0.052	0.010	8449976
Nitrate (N)	mg/L	3.65	0.10	8449976

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C312861
Report Date: 2023/01/23

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		UUQ243		
Sampling Date		2023/01/13		
COC Number		TCEC-SWCM-JAN		
	UNITS	SP2	RDL	QC Batch
Metals				
Mercury (Hg)	mg/L	<0.00010	0.00010	8455830
Total Arsenic (As)	mg/L	0.002	0.001	8457569
Total Barium (Ba)	mg/L	0.049	0.005	8457569
Total Boron (B)	mg/L	0.28	0.02	8457569
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8457569
Total Calcium (Ca)	mg/L	120	0.2	8457569
Total Chromium (Cr)	mg/L	<0.005	0.005	8457569
Total Copper (Cu)	mg/L	0.008	0.002	8457569
Total Iron (Fe)	mg/L	3.3	0.1	8457569
Total Lead (Pb)	mg/L	0.0018	0.0005	8457569
Total Magnesium (Mg)	mg/L	38	0.05	8457569
Total Nickel (Ni)	mg/L	0.008	0.001	8457569
Total Potassium (K)	mg/L	6.6	0.2	8457569
Total Sodium (Na)	mg/L	44	0.1	8457569
Total Zinc (Zn)	mg/L	0.01	0.01	8457569

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		UUQ243		
Sampling Date		2023/01/13		
COC Number		TCEC-SWCM-JAN		
	UNITS	SP2	RDL	QC Batch
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.80	0.80	8450789
1,2-Dichlorobenzene	ug/L	<2.0	2.0	8450789
1,3-Dichlorobenzene	ug/L	<2.0	2.0	8450789
1,4-Dichlorobenzene	ug/L	<2.0	2.0	8450789
Hexachlorobenzene	ug/L	<2.0	2.0	8450789
1,2,4-Trichlorobenzene	ug/L	<2.0	2.0	8450789
2,4-Dichlorophenol	ug/L	<1.2	1.2	8450789
Pentachlorophenol	ug/L	<4.0	4.0	8450789
Phenol	ug/L	<2.0	2.0	8450789
2,4,6-Trichlorophenol	ug/L	<2.0	2.0	8450789
Di-N-butyl phthalate	ug/L	<8.0	8.0	8450789
Diethyl phthalate	ug/L	<4.0	4.0	8450789
Dimethyl phthalate	ug/L	<4.0	4.0	8450789
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	15		8450789
2-Fluorobiphenyl	%	85		8450789
2-Fluorophenol	%	7.2 (1)		8450789
D14-Terphenyl	%	100		8450789
D5-Nitrobenzene	%	86		8450789
D5-Phenol	%	13		8450789

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Surrogate recovery was below the lower control limit. This may represent a low bias in some results.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		UUQ243		
Sampling Date		2023/01/13		
COC Number		TCEC-SWCM-JAN		
	UNITS	SP2	RDL	QC Batch
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8450631
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8450631
Ethylbenzene	ug/L	<0.20	0.20	8450631
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8450631
Toluene	ug/L	<0.20	0.20	8450631
Vinyl Chloride	ug/L	<0.20	0.20	8450631
p+m-Xylene	ug/L	<0.20	0.20	8450631
o-Xylene	ug/L	<0.20	0.20	8450631
Total Xylenes	ug/L	<0.20	0.20	8450631
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	95		8450631
D4-1,2-Dichloroethane	%	105		8450631
D8-Toluene	%	96		8450631

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Sample UUQ243 [SP2] : ABN analysis: Due to the nature of the sample matrix, a smaller than usual portion of the sample was used for extraction. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8450631	4-Bromofluorobenzene	2023/01/16	95	70 - 130	122	70 - 130	94	%				
8450631	D4-1,2-Dichloroethane	2023/01/16	100	70 - 130	100	70 - 130	101	%				
8450631	D8-Toluene	2023/01/16	98	70 - 130	100	70 - 130	99	%				
8450789	2,4,6-Tribromophenol	2023/01/17	71	10 - 130	91	10 - 130	41	%				
8450789	2-Fluorobiphenyl	2023/01/17	87	30 - 130	76	30 - 130	84	%				
8450789	2-Fluorophenol	2023/01/17	41	10 - 130	47	10 - 130	22	%				
8450789	D14-Terphenyl	2023/01/17	103	30 - 130	111	30 - 130	105	%				
8450789	D5-Nitrobenzene	2023/01/17	90	30 - 130	94	30 - 130	93	%				
8450789	D5-Phenol	2023/01/17	29	10 - 130	30	10 - 130	23	%				
8449976	Nitrate (N)	2023/01/16	104	80 - 120	105	80 - 120	<0.10	mg/L	NC (1)	20		
8449976	Nitrite (N)	2023/01/16	105	80 - 120	106	80 - 120	<0.010	mg/L				
8450310	Alkalinity (Total as CaCO3)	2023/01/16			97	85 - 115	<1.0	mg/L	1.0 (1)	20		
8450311	pH	2023/01/16			101	98 - 103			0.49 (1)	N/A		
8450312	Conductivity	2023/01/16			100	85 - 115	<1.0	umho/cm	0.23 (1)	25		
8450316	Dissolved Chloride (Cl-)	2023/01/17	NC (2)	80 - 120	104	80 - 120	<1.0	mg/L	1.9 (3)	20		
8450319	Dissolved Sulphate (SO4)	2023/01/16	NC (2)	75 - 125	100	80 - 120	<1.0	mg/L	1.5 (3)	20		
8450631	1,4-Dichlorobenzene	2023/01/16	108	70 - 130	114	70 - 130	<0.40	ug/L	NC (1)	30		
8450631	Benzene	2023/01/16	89	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
8450631	Ethylbenzene	2023/01/16	88	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
8450631	Methylene Chloride(Dichloromethane)	2023/01/16	99	70 - 130	102	70 - 130	<2.0	ug/L	NC (1)	30		
8450631	o-Xylene	2023/01/16	86	70 - 130	91	70 - 130	<0.20	ug/L	NC (1)	30		
8450631	p+m-Xylene	2023/01/16	91	70 - 130	95	70 - 130	<0.20	ug/L	NC (1)	30		
8450631	Toluene	2023/01/16	89	70 - 130	95	70 - 130	<0.20	ug/L	NC (1)	30		
8450631	Total Xylenes	2023/01/16					<0.20	ug/L	NC (1)	30		
8450631	Vinyl Chloride	2023/01/16	87	70 - 130	90	70 - 130	<0.20	ug/L				
8450789	1,2,4-Trichlorobenzene	2023/01/17	77	30 - 130	71	30 - 130	<0.50	ug/L				
8450789	1,2-Dichlorobenzene	2023/01/17	69	30 - 130	60	30 - 130	<0.50	ug/L				
8450789	1,3-Dichlorobenzene	2023/01/17	64	30 - 130	54	30 - 130	<0.50	ug/L				
8450789	1,4-Dichlorobenzene	2023/01/17	65	30 - 130	60	30 - 130	<0.50	ug/L				

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8450789	2,4,6-Trichlorophenol	2023/01/17	94	10 - 130	84	10 - 130	<0.50	ug/L				
8450789	2,4-Dichlorophenol	2023/01/17	89	10 - 130	94	10 - 130	<0.30	ug/L				
8450789	Benzo(a)pyrene	2023/01/17	103	30 - 130	99	30 - 130	<0.20	ug/L				
8450789	Diethyl phthalate	2023/01/17	109	30 - 130	107	30 - 130	<1.0	ug/L				
8450789	Dimethyl phthalate	2023/01/17	95	30 - 130	96	30 - 130	<1.0	ug/L				
8450789	Di-N-butyl phthalate	2023/01/17	91	30 - 130	91	30 - 130	<2.0	ug/L	5.6 (1)	40		
8450789	Hexachlorobenzene	2023/01/17	89	30 - 130	90	30 - 130	<0.50	ug/L				
8450789	Pentachlorophenol	2023/01/17	78	10 - 130	77	10 - 130	<1.0	ug/L				
8450789	Phenol	2023/01/17	31	10 - 130	37	10 - 130	<0.50	ug/L				
8451061	Total Phosphorus	2023/01/17	101 (4)	80 - 120	103	80 - 120	<0.030	mg/L	15 (5)	25	100	80 - 120
8451081	Total Kjeldahl Nitrogen (TKN)	2023/01/18	99 (4)	80 - 120	103	80 - 120	<0.7	mg/L	NC (5)	20	96	80 - 120
8451723	Total Chemical Oxygen Demand (COD)	2023/01/17	NC	80 - 120	97	80 - 120	<4.0	mg/L	0.40 (1)	20		
8452141	Total BOD	2023/01/21					<2	mg/L	NC (1)	30	97	80 - 120
8453417	Total Ammonia-N	2023/01/18	98 (6)	75 - 125	98	80 - 120	<0.15	mg/L	NC (7)	20		
8453668	Phenols-4AAP	2023/01/17	106	80 - 120	105	80 - 120	<0.0010	mg/L	NC (1)	20		
8455342	Total Suspended Solids	2023/01/19					<1	mg/L	0 (1)	20	95	85 - 115
8455830	Mercury (Hg)	2023/01/19	103	75 - 125	104	80 - 120	<0.00010	mg/L	NC (1)	20		
8455850	Total Dissolved Solids	2023/01/19					<10	mg/L	2.7 (1)	20	100	90 - 110
8457569	Total Arsenic (As)	2023/01/19	105	80 - 120	100	80 - 120	<0.001	mg/L				
8457569	Total Barium (Ba)	2023/01/19	100	80 - 120	97	80 - 120	<0.005	mg/L				
8457569	Total Boron (B)	2023/01/19	103	80 - 120	100	80 - 120	<0.02	mg/L				
8457569	Total Cadmium (Cd)	2023/01/19	101	80 - 120	100	80 - 120	<0.0001	mg/L				
8457569	Total Calcium (Ca)	2023/01/19	NC	80 - 120	99	80 - 120	<0.2	mg/L				
8457569	Total Chromium (Cr)	2023/01/19	100	80 - 120	95	80 - 120	<0.005	mg/L	2.1 (1)	20		
8457569	Total Copper (Cu)	2023/01/19	100	80 - 120	96	80 - 120	<0.002	mg/L	0.41 (1)	20		
8457569	Total Iron (Fe)	2023/01/19	101	80 - 120	98	80 - 120	<0.1	mg/L				
8457569	Total Lead (Pb)	2023/01/19	95	80 - 120	94	80 - 120	<0.0005	mg/L				
8457569	Total Magnesium (Mg)	2023/01/19	NC	80 - 120	95	80 - 120	<0.05	mg/L				
8457569	Total Nickel (Ni)	2023/01/19	NC	80 - 120	96	80 - 120	<0.001	mg/L	0.99 (1)	20		
8457569	Total Potassium (K)	2023/01/19	101	80 - 120	97	80 - 120	<0.2	mg/L				

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8457569	Total Sodium (Na)	2023/01/19	NC	80 - 120	97	80 - 120	<0.1	mg/L				
8457569	Total Zinc (Zn)	2023/01/19	99	80 - 120	101	80 - 120	<0.01	mg/L	0.26 (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [UUQ243-04]

(3) Duplicate Parent ID [UUQ243-04]

(4) Matrix Spike Parent ID [UUQ243-09]

(5) Duplicate Parent ID [UUQ243-09]

(6) Matrix Spike Parent ID [UUQ243-10]

(7) Duplicate Parent ID [UUQ243-10]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C312861
Report Date: 2023/01/23

RWDI Inc.
Client Project #: 2202861-1000
Site Location: ON07
Your P.O. #: 11082034
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

APPENDIX I6:

Biological Laboratory Reports

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SS1	9830-0012201	04-May-22	05-May-22	06-May-22 05-May-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 31-Mar-22 **Reference Chemical:** Phenol **Fish Lot #:** LF040322
96-Hour LC50: 9.33 mg/L **95% Confidence Limits:** 7.53 mg/L; 11.57 mg/L
Historic Geometric Mean LC50: 8.93 mg/L **Historic Warning Limits (± 2 SD):** 6.39 mg/L; 12.48 mg/L

Daphnia magna

Date Reference Test Initiated: 02-May-22 **Reference Chemical:** Phenol
48-Hour LC50: 6.25 mg/L **95% Confidence Limits:** N/A mg/L; N/A mg/L
Historic Geometric Mean LC50: 14.84 mg/L **Historic Warning Limits (± 2 SD):** 6.72 mg/L; 32.77 mg/L
Historic 99% Warning Limits: 4.52 mg/L; 48.7 mg/L

*****Outside Historic 95% Warning Limits, inside 99% Warning Limits

TEST RESULTS APPROVED BY:

Date: May 17, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012201 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information			
Account 9830.001	Sample Number 9830.001 2701	Date/Time Started	06-05-22 / 0950	Analyst Starting Test	JM
Client RWDI	Sample Name SS1	Date/Time Ended	10/05/22 / 0935	Fish Lot #	LF040322
Person Collecting Sample JL	Temperature Upon Receipt 12.5 °C	Test Volume	30 L Per Vessel	Number of Fish Per Vessel	10
Date/Time Collected	04-05-22 / —	Pre-Aeration	No (Yes)	Pre-Aeration Duration	30 min
Date/Time Received in Lab	05-05-22 / 1500	Rate of Aeration During Test	6.5 ±0.26 ml/min·L⁻¹	Dilution Water	Dechlor
Sample Description	cloudy, grey	Sample Type Description	Effluent	Sample Point Description: MISA	(Other:)

Test Type: (Single Concentration) LC50 TIE Screen

Number of Vessels Per Conc. (1) 2

Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹

Sample pH Adjustment (No) Yes

Storage Temperature 15 ± 1 °C

Initial Sample Measurements Before Aeration - Cond.: 599 µmhos D.O: 9.7 mg/L 97 % Temp: 15.7 °C pH: 7.7

Instrument Identification- M/P #: 6/7 M/P #: 515 M/P #: 12/29

Air Flow Meter Reading: 1225 L/min. Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration					Meter/Probe			Initials	Final Measurements					Meter/Probe		Initials
		—	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./ Temp	pH		Date	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./ Temp	pH	
Control			0	0	0	1	0945	178	10.0	99	15.4	8.0	6/7	5/5	12/89	JM	10/05/22	0935	15.3	9.1	91	7.5	5/5	12/89	50
(1)	100%		0	0	0	0	↓	596	9.6	96	15.6	7.7	↓	↓	↓	↓	10/05/22	0935	15.2	9.1	91	8.1	↓	↓	50
Time Initials			0935 SO	0925 SO	0930 LT	0935 SO	Number of Control Fish Showing Atypical Behaviour: <24h: ____ 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	0 %	LENGTH (mm)		WEIGHT (g)	Initials: SO	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 797
LC50 (Lower; Upper Limit)	—	Mean (SD)	44.7 (3.9)	Mean (SD)	0.99 (0.26)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	40 / 52	Min/Max	0.69 / 1.51	0 + 0 + 0 + 0 + 1 + 0 + 0	= 1
Verified By (initials)	QD	Sample Size	9	Loading Density	0.30 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	0.13%

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information		Test Information			
Sample Method: Composite (Grab) Other		Test Type: (Single Concentration) LC50 TIE Screen			
Account Number 9830-001	Sample # 9830001220	Date Started/Time	05.05.22	1520 / 1720	Analyst Starting Test SO
Client RWDI	Sample Name SS1	Date Ended/Time	07/05/22	1650	#Neonates/Vessel 10
Person Collecting Sample JC	Temperature Upon Receipt 12.5 °C	Test Volume	250 mL/Vessel		mL Solution/Daphnid 25 mL
Date/Time Sampled	04/05/22 / — (AM)	Pre-aeration	no (yes)		Pre-aeration Duration 30 min
Date/Time Received	05/05/22 / 1500	Pre-aeration Rate	33 ±2 mL/min L⁻¹		Sample Hardness Adjustment (no) yes
Sample Description	cloudy grey	Dilution H_2O #	DW2230		Sample pH Adjustment (no) yes
Sample Type Description	Effluent	Sample Point Description: MISA (other)			Storage Temperature — °C
LC50 Randomization Template: —		Test Row(s): 26			

Initial Sample Measurements: pH 7.9 Dissolved O_2 9.4 mg/L 102 % Conductivity 652 µmhos Temperature 20.0 °C
Instrument Identification: Meter/Probe # 12/89 Meter/Probe # 5/5 Meter/Probe # 6/7 Meter/Probe # 5/5

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	8.0	13/88 ↓	7.7	90	8.2	92	6/4 ↓	182 SO 574	182	21.4	21.4	6/4 ↓
100	8.0	8.3	↓	8.8	97	7.5	86	↓	665	316	20.6	21.4	↓
Initials	SO	SO		SO		SO			SO	SO	SO	SO	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	91C2				
Culture age (days)	23				
Days to 1st Brood (≤12)	8				
Average # of Neonates/Brood (≥15)	48				
Previous 7 Days Mortality in Culture (≤25%)	0				

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	91C2	→	→		91C2	→	→										50
24-Hr. # Immobile	0	0	0		0	0	0										50
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										50
Total # Immobile		0				0											
Total # Dead		0				0											

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) AD Notes

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SS10	9830-0012202	04-May-22	05-May-22	06-May-22 05-May-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 31-Mar-22 **Reference Chemical:** Phenol **Fish Lot #:** LF040322
96-Hour LC50: 9.33 mg/L **95% Confidence Limits:** 7.53 mg/L; 11.57 mg/L
Historic Geometric Mean LC50: 8.93 mg/L **Historic Warning Limits (± 2 SD):** 6.39 mg/L; 12.48 mg/L

Daphnia magna

Date Reference Test Initiated: 02-May-22 **Reference Chemical:** Phenol
48-Hour LC50: 6.25 mg/L **95% Confidence Limits:** N/A mg/L; N/A mg/L
Historic Geometric Mean LC50: 14.84 mg/L **Historic Warning Limits (± 2 SD):** 6.72 mg/L; 32.77 mg/L
Historic 99% Warning Limits: 4.52 mg/L; 48.7 mg/L
***Outside Historic 95% Warning Limits, inside 99% Warning Limits

TEST RESULTS APPROVED BY:

Date: May 17, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012202 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information				
Account 9830-001	Sam Method: Composite (Grab) Other	Test Type: (Single Concentration) LC50 TIE Screen				
Client RWDI	Sample Number 9830.001 22 02	Date/Time Started 06-05-22 / 0950			Analyst Starting Test JM	
Person Collecting Sample JL	Sample Name 5510	Date/Time Ended 10/05/22 / 0935			Fish Lot # LF040322	
Date/Time Collected 04-05-22 / —	Temperature Upon Receipt 13.4 °C	Test Volume 30 L Per Vessel	Number of Fish Per Vessel 10		Number of Vessels Per Conc. (1) 2	
Date/Time Received in Lab 05-05-22 / 1500		Pre-Aeration No (Yes)	Pre-Aeration Duration 30 min		Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹	
Sample Description cloudy, brown	Sample Type Description Effluent	Rate of Aeration During Test 6.5 ±0.26 ml/min·L⁻¹	Dilution Water Dechlor		Sample pH Adjustment (No) Yes	
		Sample Point Description: MISA (Other)			Storage Temperature 15±1 °C	

Initial Sample Measurements Before Aeration - Cond.: 163 µmhos D.O: 9.3 mg/L 94 % Temp: 15.9 °C pH: 7.9 Air Flow Meter Reading: 1225 L/min.
Instrument Identification- M/P #: 6/7 M/P #: 5/5 M/P #: 12/29 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration					Meter/Probe			Initials	Final Measurements					Meter/Probe		Initials
		—	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./ Temp	pH		Date	Time	°C	D.O. (mg/L)/%	pH (units)	D.O./ Temp	pH	
Control			0	0	0	0	0946	177	9.7	97	15.2	7.9	6/7	5/5	12/29	JM	10/05/22	0935	15.7	9.0	7.7	5/5	12/89	SO
(1)	100%		0	0	0	0	↓	163	9.4	94	15.9	7.9	↓	↓	↓	↓	10/05/22	0935	15.7	8.9 (50) 9.2	7.9	↓	↓	SO
Time Initials			0940 SO	0930 SO	0930 LJ	0935 SO	Number of Control Fish Showing Atypical Behaviour: <24h: ____ 24h: 0 48h: 0 72h: 0 96h: 0																	

Percent Mortality	0 %	LENGTH (mm)		WEIGHT (g)	Initials: SO	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 797
LC50 (Lower; Upper Limit)	—	Mean (SD)	44.6 (3.3)	Mean (SD)	1.00 (0.23)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	39 / 49	Min/Max	0.66 / 1.34	0 + 0 + 0 + 0 + 1 + 0 + 0	= 1
Verified By (initials)	SO	Sample Size	10	Loading Density	0.33 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	0.13%

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information		Test Information			
Sample Method: Composite (Grab) Other		Test Type: (Single Concentration) LC50 TIE Screen			
Account Number 9830-001	Sample # 9830-001/2202	Date Started/Time 05-05-22 / ~~1545~~ 1745		Analyst Starting Test	SO
Client RWDI	Sample Name 5510	Date Ended/Time 07~~05~~/05/~~22~~22 / 1715		#Neonates/Vessel	~~2~~ SO 10
Person Collecting Sample JC	Temperature Upon Receipt 13.4 °C	Test Volume 250 mL/Vessel		mL Solution/Daphnid	25 mL
Date/Time Sampled 04/05/22 / — (PM)		Pre-aeration (no) yes		Pre-aeration Duration	— min
Date/Time Received 05/05/22 / 1500		Pre-aeration Rate — ±2 mL/min L⁻¹		Sample Hardness Adjustment (no) yes	
Sample Description dark brown		Dilution H_2O # DW2230		Sample pH Adjustment (no) yes	
Sample Type Description surface water		Sample Point Description: MISA (other)		Storage Temperature	— °C
LC50 Randomization Template: —		Test Row(s): 28			

Initial Sample Measurements: pH 8.3 Dissolved O_2 9.1 mg/L 98 % Conductivity 178 µmhos Temperature 19.9 °C

Instrument Identification: Meter/Probe # ~~5/5~~ 13/88 Meter/Probe # 5/5 Meter/Probe # 6/7 Meter/Probe # 5/5

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	8.0	13/88	7.7	90	8.5	96	6/4	574	182	21.4	21.0	6/4
100	8.3	8.1	↓	9.1	98	~~9.8~~ 8.3	96	↓	178	102	19.9	21.4	↓
Initials	SO	SO		SO		SO			SO	SO	SO	SO	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	92^{R}_{A}	91^{R}_{B}			
Culture age (days)	23	23			
Days to 1st Brood (≤12)	8	8			
Average # of Neonates/Brood (≥15)	43	33			
Previous 7 Days Mortality in Culture (≤25%)	0	0			

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	92^{R}_{A}→7		91^{R}_{B}		92^{R}_{A}→7		91^{R}_{B}										50
24-Hr. # Immobile	0	0	0		0	0	0										50
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										50
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) CO Notes

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SS16	9830-0012203	04-May-22	05-May-22	06-May-22 05-May-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 31-Mar-22 **Reference Chemical:** Phenol **Fish Lot #:** LF040322
96-Hour LC50: 9.33 mg/L **95% Confidence Limits:** 7.53 mg/L; 11.57 mg/L
Historic Geometric Mean LC50: 8.93 mg/L **Historic Warning Limits (± 2 SD):** 6.39 mg/L; 12.48 mg/L

Daphnia magna

Date Reference Test Initiated: 02-May-22 **Reference Chemical:** Phenol
48-Hour LC50: 6.25 mg/L **95% Confidence Limits:** N/A mg/L; N/A mg/L
Historic Geometric Mean LC50: 14.84 mg/L **Historic Warning Limits (± 2 SD):** 6.72 mg/L; 32.77 mg/L
Historic 99% Warning Limits: 4.52 mg/L; 48.7 mg/L

*****Outside Historic 95% Warning Limits, inside 99% Warning Limits

TEST RESULTS APPROVED BY:

Date: May 17, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012203 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information					
Sam	Method: Composite Grab Other	T	Type: Single Concentration LC50 TIE			Analyst Starting Test	JM
Account 9830.001	Sample Number 9830.0012203	Date/Time Started	06.05.22 / 0950			Fish Lot #	LF040322
Client RWDI	Sample Name SS16	Date/Time Ended	10/05/22 / 0935			Number of Vessels Per Conc.	(1) 2
Person Collecting Sample JC	Temperature Upon Receipt 12.7 °C	Test Volume	30 L Per Vessel	Number of Fish Per Vessel 10		Pre-Aeration Rate	6.5 ±0.26 ml/min·L⁻¹
Date/Time Collected	04.05.22 / —	Pre-Aeration	No (Yes)	Pre-Aeration Duration 30 min		Sample pH Adjustment	(No) Yes
Date/Time Received in Lab	05.05.22 / 1500	Rate of Aeration During Test	6.5 ±0.26 ml/min·L⁻¹	Dilution Water Dechlor		Storage Temperature	15±1 °C
Sample Description	cloudy, grey	Sample Type Description	Effluent	Sample Point Description: MISA (Other:			

Initial Sample Measurements Before Aeration - Cond.: 319 µmhos D.O: 9.5 mg/L 96 % Temp: 15.9 °C pH: 7.5
Instrument Identification- M/P #: 6/7 M/P #: 5/5 M/P #: 12/29 Air Flow Meter Reading: 1225 L/min. Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration					Meter/Probe			Initials	Final Measurements						Meter/ Probe		Initials
		—	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./ Temp	pH		Date	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./ Temp	pH	
Control			0	0	0	0	0946	178	9.6	96	15.5	7.9	6/7	5/5	12/29	JM	10/05/22	0935	16.1	8.3	84	7.5	5/5	12/89	SO
①	100%		0	0	0	0	↓	317	9.5	96	15.8	7.16	↓	↓	↓	↓	10/05/22	0935	16.0	9.1	92	8.2	↓	↓	SO
Time Initials			0935 SO	0930 SO	0930 CG	0935 SO	Number of Control Fish Showing Atypical Behaviour: <24h:____ 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	6 %	LENGTH (mm)		WEIGHT (g)	Initials: SO	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 797
LC50 (Lower; Upper Limit)	—	Mean (SD)	44.4 (3.6)	Mean (SD)	1.04 (0.30)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	40 / 52	Min/Max	0.74 / 1.68	0 + 0 + 0 + 0 + 1 + 0 + 0	= 1
Verified By (initials)	GD	Sample Size	10	Loading Density	0.35 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	0.15%

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information		Test Information		
Sample Method: Composite (Grab) Other		Test Type: Single Concentration	LC50 TIE Screen	
Account Number 9830-001	Sample # 9830-0012203	Date Started/Time	05/05/22 1145	Analyst Starting Test 50
Client RVDI	Sample Name 5516	Date Ended/Time	07/05/22 1115	#Neonates/Vessel 10 ✓
Person Collecting Sample JC	Temperature Upon Receipt 12.7 °C	Test Volume	250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled	04/05/22 1 – (PM)	Pre-aeration	no (yes)	Pre-aeration Duration 30 min
Date/Time Received	05/05/22 1 1500	Pre-aeration Rate	37 ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes
Sample Description	cloudy grey	Dilution H_2O #	DW2230	Sample pH Adjustment (no) yes
Sample Type Description	surface water	Sample Point Description: MISA (other)		Storage Temperature — °C
LC50 Randomization Template: —		Test Row(s): 29		

Initial Sample Measurements: pH 7.7 Meter/Probe # 13/88 Dissolved O_2 9.3 mg/L 102 % Meter/Probe # 5/5 Conductivity 349 µmhos Meter/Probe # 6/7 Temperature 19.7 °C Meter/Probe # 5/5

Instrument Identification:

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
				Initial		Final							
	Initial	Final	Final M/P	(mg/L)	(%)	(mg/L)	(%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	8.0	13/88 ↓	7.7 ~~8.4~~	~~90~~ 96	8.4	96	6/4 ↓	574	182	21.4	20.4	6/4 ↓
100	7.8	8.3	↓	8.6	97	8.3	94	↓	362	192	21.3	20.5	↓
Initials	SO	SO		SO		SO			SO	SO	SO	SO	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	72 R E				
Culture age (days)	30				
Days to 1st Brood (≤12)	8				
Average # of Neonates/Brood (≥15)	46				
Previous 7 Days Mortality in Culture (≤25%)	0				

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	72 R E	→			72 R E	→	91 R E										50
24-Hr. # Immobile	0	0	0		0	0	0										50
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										50
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) AD Notes

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SP1	9830-0012204	04-May-22	05-May-22	06-May-22 05-May-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 31-Mar-22 **Reference Chemical:** Phenol **Fish Lot #:** LF040322
96-Hour LC50: 9.33 mg/L **95% Confidence Limits:** 7.53 mg/L; 11.57 mg/L
Historic Geometric Mean LC50: 8.93 mg/L **Historic Warning Limits (± 2 SD):** 6.39 mg/L; 12.48 mg/L

Daphnia magna

Date Reference Test Initiated: 02-May-22 **Reference Chemical:** Phenol
48-Hour LC50: 6.25 mg/L **95% Confidence Limits:** N/A mg/L; N/A mg/L
Historic Geometric Mean LC50: 14.84 mg/L **Historic Warning Limits (± 2 SD):** 6.72 mg/L; 32.77 mg/L
Historic 99% Warning Limits: 4.52 mg/L; 48.7 mg/L

*****Outside Historic 95% Warning Limits, inside 99% Warning Limits

TEST RESULTS APPROVED BY:

Date: May 17, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012204 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information				Test Information				
Account 9830.001	Sample Number 9870.0012204	Method: Composite (Grab) Other		Test Type: (Single Concentration) LC50 TIE Screen				
Client RW01	Sample Name SP1	Date/Time Started 04-05-22 / 0950		Analyst Starting Test JM				
Person Collecting Sample JC	Temperature Upon Receipt 13.0 °C	Date/Time Ended 10/05/22 / 0935		Fish Lot # LF040322				
Date/Time Collected 04-05-22 / —		Test Volume 30 L Per Vessel	Number of Fish Per Vessel 10	Number of Vessels Per Conc. (1) 2				
Date/Time Received in Lab 05-08-22 / 1500		Pre-Aeration No (Yes)	Pre-Aeration Duration 30 min	Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹				
Sample Description cloudy, light green	Sample Type Description Effluent	Rate of Aeration During Test 6.5 ±0.26 ml/min·L⁻¹	Dilution Water Dechlor	Sample pH Adjustment (No) Yes				
		Sample Point Description: MISA (Other:		Storage Temperature 15±1 °C				

Initial Sample Measurements Before Aeration - Cond.: 611 µmhos D.O: 9.4 mg/L 94 % Temp: 15.7 °C pH: 7.7 Air Flow Meter Reading: 1225 L/min.
Instrument Identification- M/P #: 6/7 M/P #: 5/5 M/P #: 12/09 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration						Meter/Probe			Initials	Final Measurements						Meter/Probe		Initials
		—	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./ Temp	pH		Date	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./ Temp	pH	
Control			0	0	0	1	0945	178	9.7	96	15.2	7.9	6/7	5/5	12/09	JM	10/05/22	0935	15.2	9.2	92	7.6	5/5	12/89	50
(1)	100%		0	0	0	0	↓	607	9.4	95	15.6	7.7	↓	↓	↓	↓	10/05/22	0935	15.3	9.4	94	8.1	↓	↓	50
Time Initials			0935 50	0930 50	0930 CM	0935 50	Number of Control Fish Showing Atypical Behaviour: <24h: ____ 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	0 %	LENGTH (mm)		WEIGHT (g)	Initials: 50	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 797
LC50 (Lower; Upper Limit)	—	Mean (SD)	47.8 (3.6)	Mean (SD)	1.27 (0.29)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	43 / 54	Min/Max	0.91 / 1.75	0 + 0 + 0 + 0 + 1 + 0 + 0	= 1
Verified By (initials)	GO	Sample Size	9	Loading Density	0.38 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	0.13%

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information				Test Information			
Sample Method: Composite (Grab) Other				Test Type: (Single Concentration) LC50 TIE Screen			
Account Number 9830-001	Sample # 9830.00/22204			Date Started/Time	05.05.22	1655	Analyst Starting Test SO/CS
Client RWDI	Sample Name SP1			Date Ended/Time	07/05/22	1625	#Neonates/Vessel 10
Person Collecting Sample JC	Temperature Upon Receipt 13.0 °C			Test Volume	250 mL/Vessel		mL Solution/Daphnid 25 mL
Date/Time Sampled	04.05.22	1 ~~NA~~ PM		Pre-aeration	(no) yes		Pre-aeration Duration — min
Date/Time Received	05.05.22	1 15:00		Pre-aeration Rate	— ±2 mL/min L⁻¹		Sample Hardness Adjustment (no) yes
Sample Description	cloudy, light green			Dilution H_2O # DW2230			Sample pH Adjustment (no) yes
Sample Type Description	surface water			Sample Point Description: MISA (other)			Storage Temperature none °C
LC50 Randomization Template:	NA			Test Row(s):	1H		

Initial Sample Measurements: pH 7.9 Meter/Probe # ; Dissolved O_2 8.7 mg/L 95 % Meter/Probe # ; Conductivity 670 µmhos Meter/Probe # ; Temperature 20.1 °C Meter/Probe #

Instrument Identification:

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	8.0	13/88 ↓	7.7	90	8.3	96	6/4 ↓	574	182	21.4	21.4	6/4 ↓
	7.9	8.3	↓	8.7	95	8.2	94	↓	670	318	20.1	21.3	↓
Initials	CS	SO		CS		SO			CS	SO	CS	SO	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	9[A,C]				
Culture age (days)	23				
Days to 1st Brood (≤12)	8				
Average # of Neonates/Brood (≥15)	48				
Previous 7 Days Mortality in Culture (≤25%)	0				

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	9[A,C]	→	→		9[A,C]	→	→										50
24-Hr. # Immobile	0	0	0		0	0	0										50
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										50
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) CS Notes

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SP2	9830-0012205	04-May-22	05-May-22	06-May-22 05-May-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 31-Mar-22 **Reference Chemical:** Phenol **Fish Lot #:** LF040322
96-Hour LC50: 9.33 mg/L **95% Confidence Limits:** 7.53 mg/L; 11.57 mg/L
Historic Geometric Mean LC50: 8.93 mg/L **Historic Warning Limits (± 2 SD):** 6.39 mg/L; 12.48 mg/L

Daphnia magna

Date Reference Test Initiated: 02-May-22 **Reference Chemical:** Phenol
48-Hour LC50: 6.25 mg/L **95% Confidence Limits:** N/A mg/L; N/A mg/L
Historic Geometric Mean LC50: 14.84 mg/L **Historic Warning Limits (± 2 SD):** 6.72 mg/L; 32.77 mg/L
Historic 99% Warning Limits: 4.52 mg/L; 48.7 mg/L

*****Outside Historic 95% Warning Limits, inside 99% Warning Limits

TEST RESULTS APPROVED BY:

Date: May 17, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012205 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information				
Account 9830.001	Sample Number 9930.001 2205	Test Type: (Single Concentration) LC50 TIE Screen				
Client RWDI	Sample Name SP2	Date/Time Started 06.05.22 / 0950			Analyst Starting Test JM	
Person Collecting Sample JC	Temperature Upon Receipt 12.7 °C	Date/Time Ended 10/05/22 / 0935			Fish Lot # LF040322	
Date/Time Collected 04.05.22 / —		Test Volume 30 L Per Vessel	Number of Fish Per Vessel 10		Number of Vessels Per Conc. (1) 2	
Date/Time Received in Lab 05.05.22 / 17/~~500~~ 1500		Pre-Aeration No (Yes)	Pre-Aeration Duration 30 min		Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹	
Sample Description Cloudy, light green	Sample Type Description Effluent	Rate of Aeration During Test 6.5 ±0.26 ml/min·L⁻¹	Dilution Water Reehler		Sample pH Adjustment (No) Yes	
		Sample Point Description: MISA (Other)			Storage Temperature 15±1 °C	

Initial Sample Measurements Before Aeration - Cond.: 814 µmhos D.O: 9.6 mg/L 98 % Temp: 16.2 °C pH: 7.4 Air Flow Meter Reading: 1225 L/min.
Instrument Identification- M/P #: 67 M/P #: 515 M/P #: 12/29 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration					Meter/Probe			Initials	Final Measurements					Meter/Probe		Initials
		—	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./ Temp	pH		Date	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./ Temp	pH	
Control			0	0	0	0	0945	179	9.6	97	15.7	7.4	6/7	5/5	12/29	JM	10/05/22	0935	15.9	9.5	97	7.8	5/5	12/89	SO
(1)	100%		0	0	0	0	1	812	9.6	97	15.9	7.4	1	1	1	1	10/05/22	0935	15.6	9.4	94	7.8			SO
Time Initials			0930 SO	0925 SO	0930 (5	0935 SO	Number of Control Fish Showing Atypical Behaviour: <24h:_____ 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality 0 %	LENGTH (mm)	WEIGHT (g) Initials: SO	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 797
LC50 (Lower; Upper Limit) —	Mean (SD) 43.3 (3.5)	Mean (SD) 0.88 (0.20)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method —	Min/Max 38 / 48	Min/Max 0.65 / 1.18	0 + 0 + 0 + 0 + 1 + 0 + 0	= 1
Verified By (initials) QO	Sample Size 10	Loading Density 0.29 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100) 0.13%	

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information		Test Information		
Sample Method: Composite (Grab) Other		Test Type: (Single Concentration) LC50 TIE Screen		
Account Number 9830-001	Sample # 9830-0012205	Date Started/Time 05.05.22 1109	Analyst Starting Test SO	
Client RDWI	Sample Name SP2	Date Ended/Time 07/05/22 1140	#Neonates/Vessel 10	
Person Collecting Sample JC	Temperature Upon Receipt 12.7 °C	Test Volume 250 mL/Vessel	mL Solution/Daphnid 25 mL	
Date/Time Sampled 04.05.22 1 PM		Pre-aeration no (yes)	Pre-aeration Duration 30 min	
Date/Time Received 05.05.22 1 15:00		Pre-aeration Rate 37 ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes	
Sample Description cloudy light green		Dilution H_2O # DW2230	Sample pH Adjustment (no) yes	
Sample Type Description surface water		Sample Point Description: MISA (other)	Storage Temperature none °C	
LC50 Randomization Template: NA		Test Row(s): 16		

Initial Sample Measurements: pH 8.0 Meter/Probe # 12/89 Dissolved O_2 9.6 mg/L 104 % Meter/Probe # 5/5 Conductivity 862 µmhos Meter/Probe # 6/7 Temperature 18.9 °C Meter/Probe # 5/5

Instrument Identification:

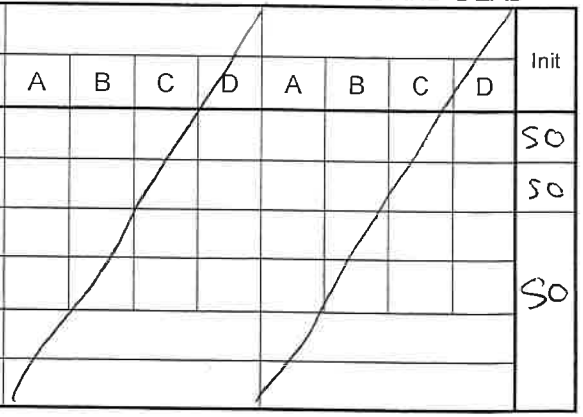
Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	8.0	6/7 SO (3/8)	7.7	90	8.4	96	6/4	574	182	21.4	21.3	6/4
100	8.0	8.1	↓	9.1	100	8.3	94	↓	886	356	20.1	21.2	↓
Initials	SO	SO		SO		SO			SO	SO	SO	SO	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	71 R A				
Culture age (days)	30				
Days to 1st Brood (≤12)	8				
Average # of Neonates/Brood (≥15)	46				
Previous 7 Days Mortality in Culture (≤25%)	0				

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	71 R A	→			71 R A												SO
24-Hr. # Immobile	0	0	0		0	0	0										SO
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										SO
Total # Immobile	0				0												
Total # Dead	0				0												



Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) CO Notes

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SP3	9830-0012206	04-May-22	05-May-22	06-May-22 05-May-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 31-Mar-22 **Reference Chemical:** Phenol **Fish Lot #:** LF040322
96-Hour LC50: 9.33 mg/L **95% Confidence Limits:** 7.53 mg/L; 11.57 mg/L
Historic Geometric Mean LC50: 8.93 mg/L **Historic Warning Limits (± 2 SD):** 6.39 mg/L; 12.48 mg/L

Daphnia magna

Date Reference Test Initiated: 02-May-22 **Reference Chemical:** Phenol
48-Hour LC50: 6.25 mg/L **95% Confidence Limits:** N/A mg/L; N/A mg/L
Historic Geometric Mean LC50: 14.84 mg/L **Historic Warning Limits (± 2 SD):** 6.72 mg/L; 32.77 mg/L
Historic 99% Warning Limits: 4.52 mg/L; 48.7 mg/L

*****Outside Historic 95% Warning Limits, inside 99% Warning Limits

TEST RESULTS APPROVED BY:

Date: May 17, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012206 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Sar	Method: Composite (Grab) Other	Test Information	T	Type: (Single Concentration) LC50 TIE Screen
Account	9830·001	Sample Number	9830·0012206	Date/Time Started	06-05-22 / ~~0945~~ 0950	Analyst Starting Test JM
Client	RWDI	Sample Name	SP3	Date/Time Ended	10/05/22 / 0935	Fish Lot # LF040322
Person Collecting Sample	JC	Temperature Upon Receipt	12.8 °C	Test Volume	30 L Per Vessel	Number of Fish Per Vessel 10
Date/Time Collected	04·05·22 / —			Pre-Aeration	No (Yes)	Pre-Aeration Duration 30 min
Date/Time Received in Lab	05·05·22 / 1500			Rate of Aeration During Test	6.5 ±0.26 ml/min·L⁻¹	Dilution Water Dechlor
Sample Description	Cloudy, light green	Sample Type Description	Effluent	Sample Point Description: MISA (Other)		Sample pH Adjustment (No) Yes
						Storage Temperature 15±1 °C

Initial Sample Measurements Before Aeration - Cond.: 618 µmhos D.O: 10.6 mg/L 106 % Temp: 15.9 °C pH: 7.8 Air Flow Meter Reading: .225 L/min.
Instrument Identification- M/P #: 6/7 M/P #: 5/5 M/P #: 12/89 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration						Meter/Probe			Initials	Final Measurements						Meter/Probe		Initials
		—	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./Temp	pH		Date	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./Temp	pH	
Control			0	0	0	0	0945	178	9.9	99	15.2	7.7	6/7	5/5	12/89	JM	10/05/22	0935	15.4	9.2	92	7.6	5/5	12/89	50
1	100%		0	0	0	0	↓	618	10.0	100	15.7	7.8	↓	↓	↓	↓	10/05/22	0935	15.4	9.3	93	7.7	↓	↓	50
Time Initials			0930 50	0925 50	0970 15	0935 50	Number of Control Fish Showing Atypical Behaviour: <24h: ____ 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	0 %	LENGTH (mm)		WEIGHT (g)	Initials: 50	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 797
LC50 (Lower; Upper Limit)	—	Mean (SD)	44.9 (2.0)	Mean (SD)	1.02 (0.11)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	42 / 47	Min/Max	0.85 / 1.15	0 + 0 + 0 + 0 + 1 + 0 + 0	= 1
Verified By (initials)	QP	Sample Size	9	Loading Density	0.31 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	0.13%

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information			Test Information			
Sample Method: Composite (Grab) Other			Test Type: Single (Concentration) LC50 TIE Screen			
Account Number 9830-001	Sample # 9830-0012206		Date Started/Time	05.05.22	1515 1715	Analyst Starting Test SO
Client RWDI	Sample Name SP3		Date Ended/Time	07/05/22	1645	#Neonates/Vessel 10
Person Collecting Sample JC	Temperature Upon Receipt 12.8 °C		Test Volume	250 mL/Vessel		mL Solution/Daphnid 25 mL
Date/Time Sampled	04.05.22 1 PM		Pre-aeration	no (yes)		Pre-aeration Duration 30 min
Date/Time Received	05.05.22 1 15:00		Pre-aeration Rate	33 ±2 mL/min L⁻¹		Sample Hardness Adjustment (no) yes
Sample Description	cloudy light green		Dilution H_2O #	DW2230		Sample pH Adjustment (no) yes
Sample Type Description	surface water		Sample Point Description: MISA (other)			Storage Temperature none °C
LC50 Randomization Template:	NA		Test Row(s): 17			

Initial Sample Measurements: pH 8.5 Dissolved O_2 11.2 mg/L 121 % Conductivity 664 µmhos Temperature 19.3 °C
Instrument Identification: Meter/Probe # 12/87 Meter/Probe # 515 Meter/Probe # 617 Meter/Probe # 515

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	8.1	13/88 ↓	7.7	90	8.4	96	6/4 ↓	574	182	21.4	21.2	6/4 ↓
100	8.5	8.0		10.3	113	8.1	94		678	288	20.2	21.3	
Initials	SO	SO		SO		SO			SO	SO	SO	SO	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	91c				
Culture age (days)	23				
Days to 1st Brood (≤12)	8				
Average # of Neonates/Brood (≥15)	48				
Previous 7 Days Mortality in Culture (≤25%)	0				

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	91c	→			91c	→											50
24-Hr. # Immobile	0	0	0		0	0	0										50
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										50
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) _____ Notes _____

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SP4	9830-0012207	04-May-22	05-May-22	06-May-22 05-May-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 31-Mar-22 **Reference Chemical:** Phenol **Fish Lot #:** LF040322
96-Hour LC50: 9.33 mg/L **95% Confidence Limits:** 7.53 mg/L; 11.57 mg/L
Historic Geometric Mean LC50: 8.93 mg/L **Historic Warning Limits (± 2 SD):** 6.39 mg/L; 12.48 mg/L

Daphnia magna

Date Reference Test Initiated: 02-May-22 **Reference Chemical:** Phenol
48-Hour LC50: 6.25 mg/L **95% Confidence Limits:** N/A mg/L; N/A mg/L
Historic Geometric Mean LC50: 14.84 mg/L **Historic Warning Limits (± 2 SD):** 6.72 mg/L; 32.77 mg/L
Historic 99% Warning Limits: 4.52 mg/L; 48.7 mg/L

*****Outside Historic 95% Warning Limits, inside 99% Warning Limits

TEST RESULTS APPROVED BY:

Date: May 17, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012207 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information			
Sam	Method: Composite Grab Other	Test Type:	Single Concentration	LC50	TIE Screen
Account 9830-001	Sample Number 9830-001 22207	Date/Time Started	06-05-22 / 0950	Analyst Starting Test	JM
Client RWDI	Sample Name SP4	Date/Time Ended	10/05/22 / 0935	Fish Lot #	LF040322
Person Collecting Sample JE	Temperature Upon Receipt 13.0 °C	Test Volume	30 L Per Vessel	Number of Fish Per Vessel 10	Number of Vessels Per Conc. (1) 2
Date/Time Collected	04-05-22 / —	Pre-Aeration	No (Yes)	Pre-Aeration Duration 30 min	Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹
Date/Time Received in Lab	05-05-22 / 1500	Rate of Aeration During Test	6.5 ±0.26 ml/min·L⁻¹	Dilution Water Dechlor	Sample pH Adjustment (No) Yes
Sample Description	cloudy, brown	Sample Type Description	Effluent	Sample Point Description: MISA (Other:)	Storage Temperature 15±1 °C

Initial Sample Measurements Before Aeration - Cond.: 551 µmhos D.O: 9.0 mg/L 91 % Temp: 15.3 °C pH: 7.5
Instrument Identification- M/P #: 617 M/P #: 515 M/P #: 12/89 Air Flow Meter Reading: 1225 L/min. Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration					Meter/Probe			Initials	Final Measurements					Meter/Probe		Initials
		—	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%	°C	pH (units)	Cond	D.O./ Temp	pH		Date	Time	°C	D.O. (mg/L)/%	pH (units)	D.O./ Temp	pH	
Control			0	0	0	0	0946	177	9.8	97	15.2	7.9	6/7	5/5	12/89	JM	10/05/22	0935	15.8	9.0	91	7.7	5/5	12/89	SO
(1)	100%		0	0	0	0	↓	549	9.3	94	15.8	7.6	↓	↓	↓	↓	10/05/22	0935	15.7	9.2	93	8.0	↓	↓	SO
Time Initials			0940 SO	0930 SO	0930 17	0935 SO	Number of Control Fish Showing Atypical Behaviour: <24h: ____ 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	0 %	LENGTH (mm)		WEIGHT (g) Initials: SO	Holding Mortalities 7-days Preceding Test
LC50 (Lower; Upper Limit)	—	Mean (SD)	45.6 (2.6)	Mean (SD) 1.03 (0.18)	Number Dead (recorded daily for 7 days) 0+0+0+0+1+0+0
Method	—	Min/Max	42 / 49	Min/Max 0.74 / 1.29	Number of Fish in Batch at Day (-)7 797
Verified By (initials)	GD	Sample Size	10	Loading Density 0.34 g/L	Total Number Dead for 7 days Preceding Test = 1
					7-Day Holding Mortality ([total number dead/number of fish in batch] x 100) 0.13%

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information		Test Information			
Sample Method: Composite (Grab) Other		Test Type: Single Concentration	LC50	TIE	Screen
Account Number 9830-001	Sample # 9830-001 22207	Date Started/Time 05/05/22 1730		Analyst Starting Test 50	
Client RWDI	Sample Name SP4	Date Ended/Time 07/05/22 1700		#Neonates/Vessel 10	
Person Collecting Sample JC	Temperature Upon Receipt 13.0 °C	Test Volume 250 mL/Vessel		mL Solution/Daphnid 25 mL	
Date/Time Sampled 04/05/22	/ — (PM)	Pre-aeration (no) yes		Pre-aeration Duration — min	
Date/Time Received 05/05/22	/ 1500	Pre-aeration Rate — ±2 mL/min L⁻¹		Sample Hardness Adjustment (no) yes	
Sample Description cloudy brown		Dilution H_2O # DW2230		Sample pH Adjustment (no) yes	
Sample Type Description surface water		Sample Point Description: MISA (other)		Storage Temperature — °C	
LC50 Randomization Template: —		Test Row(s): 27			

Initial Sample Measurements: pH 7.8 Meter/Probe # 13/89 Dissolved O_2 8.7 mg/L 94 % Meter/Probe # 5/5 Conductivity 590 µmhos Meter/Probe # 6/7 Temperature 19.2 °C Meter/Probe # 5/5

Instrument Identification:

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	8.0	13/88	7.7	90	8.5	95	6/4	~~182~~ 574	182	21.4	20.5	6/4
100	7.8	8.3	↓	8.7	94	8.4	95	↓	590	268	19.2	20.5	↓
Initials	SO	SO		SO		SO			SO	SO	SO	SO	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	71 R A				
Culture age (days)	30				
Days to 1st Brood (≤12)	8				
Average # of Neonates/Brood (≥15)	46				
Previous 7 Days Mortality in Culture (≤25%)	0				

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	71 R A	→			71 R A	→											50
24-Hr. # Immobile	0	0	0		0	0	0										50
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										50
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) [illegible] Notes

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SS1	9830-0012208	16-May-22	17-May-22	20-May-22 17-May-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 21-Apr-22 **Reference Chemical:** Zinc **Fish Lot #:** LF290322
96-Hour LC50: 0.16 mg/L **95% Confidence Limits:** 0.14 mg/L; 0.18 mg/L
Historic Geometric Mean LC50: 0.31 mg/L **Historic Warning Limits (± 2 SD):** 0.14 mg/L; 0.66 mg/L

Daphnia magna

Date Reference Test Initiated: 16-May-22 **Reference Chemical:** Zinc
48-Hour LC50: 0.92 mg/L **95% Confidence Limits:** 0.66 mg/L; 1.27 mg/L
Historic Geometric Mean LC50: 1.34 mg/L **Historic Warning Limits (± 2 SD):** 0.57 mg/L; 3.15 mg/L

TEST RESULTS APPROVED BY:

Date: May 26, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012208 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information				Test Information				
Account 9830.001	Sample Number 983000012208	Method: Composite (Grab) Other	San	Type: Single Concentration LC50 TIE Screen				
Client RWDI	Sample Name SS1	Date/Time Started 20.05.22 / 1515					Analyst Starting Test CS	
Person Collecting Sample –	Temperature Upon Receipt 16.8 °C	Date/Time Ended 24.05.22 / 1535					Fish Lot # LF2403 22	
Date/Time Collected 16.05.22 / –		Test Volume 30 L Per Vessel		Number of Fish Per Vessel 10			Number of Vessels Per Conc. (1) 2	
Date/Time Received in Lab 17.05.22 / 0950		Pre-Aeration No (Yes)		Pre-Aeration Duration 30 min			Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹	
Sample Description clear light brown	Sample Type Description surface water	Rate of Aeration During Test 6.5 ±0.26 ml/min·L⁻¹		Dilution Water Dechlor			Sample pH Adjustment (No) Yes	
		Sample Point Description: MISA (Other)					Storage Temperature 4 ± 2 °C	

Initial Sample Measurements Before Aeration - Cond.: 700 µmhos D.O: 9.5 mg/L 94 % Temp: 17.9 °C pH: 7.7 Air Flow Meter Reading: 0.225 L/min.
Instrument Identification- M/P #: 617 M/P #: 515 M/P #: 12189 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration						Meter/Probe			Initials	Final Measurements						Meter/ Probe		Initials
		—	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./ Temp	pH		Date 2022	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./ Temp	pH	
Control		0	0	0	0	0	1430	176	9.6	96	14.8	7.9	6/7	5/5	12/89	CS	24.05	1520	14.5	7.3	71	7.4	5/5	12/89	WL
(1)	100	0	0	0	0	0	1	700	9.5	94	14.8	7.7	1	1	1	CS	↓	1520	14.4	9.1	89	7.9	↓	↓	↓
Time Initials		1745 KK	1400 S	11:30 D	1320 S	1520 WL	Number of Control Fish Showing Atypical Behaviour: <24h: 0 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	0 %	LENGTH (mm)		WEIGHT (g)	Initials: WL	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 659
LC50 (Lower; Upper Limit)	–	Mean (SD)	49.7 (WL 49.7 / 3.2)	Mean (SD)	1.09 (WL 1.09 / 0.23)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	–	Min/Max	46 / 55	Min/Max	0.85 / 1.57	0 + 0 + 0 + 0 + 0 + 0 + 0	= 0
Verified By (initials)	DO	Sample Size	10	Loading Density	0.36 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	0

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information		Test Information	
Sample Method: Composite (Grab) Other		Test Type: Single Concentration LC50 Screen	
Account Number 9830.001	Sample # 9830.0012208	Date Started/Time 17.05.22 / 1335	Analyst Starting Test WL
Client RWDI	Sample Name SS1	Date Ended/Time 19.05.22 / 1335	#Neonates/Vessel 10
Person Collecting Sample N/A	Temperature Upon Receipt 16.8 °C	Test Volume 250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled 16.05.22 / —		Pre-aeration (no) yes	Pre-aeration Duration — min
Date/Time Received 17.05.22 / WL ~~1050~~ 0950		Pre-aeration Rate — ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes
Sample Description cloudy light brown		Dilution H_2O # DW 2234	Sample pH Adjustment (no) yes
Sample Type Description surface water		Sample Point Description: MISA other	Storage Temperature — °C
LC50 Randomization Template: —		Test Row(s): 15	

Initial Sample Measurements: pH 7.6 Dissolved O_2 7.9 mg/L 88 % Conductivity WL ~~1~~ 916 µmhos Temperature 20.6 °C
Instrument Identification: Meter/Probe # 12/89 Meter/Probe # 515 Meter/Probe # 6/7 Meter/Probe # 515

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	WL ~~7~~ 8.1	12/89	8.1	90	8.3	96	6/4	606	184	20.6	21.4	6/4
100	7.6	8.2	↓	7.9	88	8.1	94	↓	916	470	20.6	21.4	↓
Initials	WL	WL		WL		WL			WL	WL	WL	WL	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	21^{S}_{A}					
Culture age (days)	26					
Days to 1st Brood (≤12)	8					
Average # of Neonates/Brood (≥15)	48					
Previous 7 Days Mortality in Culture (≤25%)	0					

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	21^{S}_{A}	→			21^{S}_{A}	→											WL
24-Hr. # Immobile	0	0	0		0	0	0										WL
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										WL
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) _____ Notes _____

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SP2	9830-0012209	16-May-22	17-May-22	20-May-22 17-May-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 21-Apr-22 **Reference Chemical:** Zinc **Fish Lot #:** LF290322
96-Hour LC50: 0.16 mg/L **95% Confidence Limits:** 0.14 mg/L; 0.18 mg/L
Historic Geometric Mean LC50: 0.31 mg/L **Historic Warning Limits (± 2 SD):** 0.14 mg/L; 0.66 mg/L

Daphnia magna

Date Reference Test Initiated: 16-May-22 **Reference Chemical:** Zinc
48-Hour LC50: 0.92 mg/L **95% Confidence Limits:** 0.66 mg/L; 1.27 mg/L
Historic Geometric Mean LC50: 1.34 mg/L **Historic Warning Limits (± 2 SD):** 0.57 mg/L; 3.15 mg/L

TEST RESULTS APPROVED BY:

Date: May 26, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012209 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information			
Sar	Method: Composite Grab Other	T	Type: Single Concentration LC50 >C> TIE		Screen
Account 9830.001	Sample Number 983000122209	Date/Time Started	20.05.22 / 1520	Analyst Starting Test	CS
Client RWQI	Sample Name SP2	Date/Time Ended	24.05.22 / 1535	Fish Lot #	LK290322
Person Collecting Sample -	Temperature Upon Receipt 16.7 °C	Test Volume	30 L Per Vessel	Number of Fish Per Vessel 10	Number of Vessels Per Conc. (1) 2
Date/Time Collected	16.05.22 / -	Pre-Aeration	No (Yes)	Pre-Aeration Duration 30 min	Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹
Date/Time Received in Lab	17.05.22 / 0950	Rate of Aeration During Test 6.5 ±0.26 ml/min·L⁻¹	Dilution Water Dechlor		Sample pH Adjustment (No) Yes
Sample Description	clear colorless	Sample Type Description	Surface water	Sample Point Description: MISA (Other):	Storage Temperature 7 ± 2 °C

Initial Sample Measurements Before Aeration - Cond.: 791 µmhos D.O: 8.7 mg/L 86 % Temp: 14.9 °C pH: 7.7 Air Flow Meter Reading: 0.225 L/min.
Instrument Identification- M/P #: 617 M/P #: 515 M/P #: 12189 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration						Meter/Probe			Initials	Final Measurements						Meter/ Probe		Initials
		___	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./ Temp	pH		Date 2022	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./ Temp	pH	
Control		0	0	0	0	0	1435	179	9.7	95	14.7	7.9	6/7	5/5	12/89	CS	24.05	1535	14.3	8.9	87	7.7	5/5	12/89	WL
(1)	100	0	0	0	0	0	1	771	9.4	91	14.8	7.6	1	1	1	CS	↓	1535	14.4	8.7	85	7.9	↓	↓	↓
Time Initials		1745 KC	1400 S	11:30 D	1320 S	1535 WL	Number of Control Fish Showing Atypical Behaviour: <24h: 0 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	%	LENGTH (mm)		WEIGHT (g)	Initials: WL	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7
LC50 (Lower; Upper Limit)	—	Mean (SD)	47.5 (~~47.5~~ WL 4.7)	Mean (SD)	0.97 (~~0.97~~ WL 0.25)	Number Dead (recorded daily for 7 days)	659
Method	—	Min/Max	41 / 57	Min/Max	0.63 / 1.42	0 + 0 + 0 + 0 + 0 + 0 + 0	Total Number Dead for 7 days Preceding Test = 0
Verified By (initials)	CO	Sample Size	10	Loading Density	0.32 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	0

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information	Sample Method: Composite (Grab) Other	Test Information	Test Type: Single (Concentration) LC50 Screen
Account Number ~~RWDI~~ WL 9830.101	Sample # 9830.00122709	Date Started/Time 17.05.22 / ~~1335~~ 1350	Analyst Starting Test WL
Client RWDI	Sample Name SP 2	Date Ended/Time 19.05.22 / 1340	#Neonates/Vessel 10
Person Collecting Sample N/A	Temperature Upon Receipt 16.7 °C	Test Volume 250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled 16.05.22 / —		Pre-aeration (no) yes	Pre-aeration Duration — min
Date/Time Received 17.05.22 / 0950		Pre-aeration Rate — ±2 mL/min L^{-1}	Sample Hardness Adjustment (no) yes
Sample Description clear colorless		Dilution H_2O # DW 2234	Sample pH Adjustment (no) yes
Sample Type Description surface water		Sample Point Description: MISA other	Storage Temperature — °C
LC50 Randomization Template: —		Test Row(s): 16	

Initial Sample Measurements: pH 7.7 Meter/Probe # 12/89 Dissolved O_2 7.4 mg/L 82 % Conductivity 1035 µmhos Meter/Probe # 6/7 Temperature 20.6 °C Meter/Probe # 5/5

Instrument Identification:

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	8.1	12/89	8.1	90	8.2	95	6/4	606	184	20.6	21.5	6/4
100	7.7	8.2	↓	7.4	82	8.0	93	↓	1035	390	20.6	21.4	↓
Initials	WL	WL		WL		WL			WL	WL	WL	WL	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	21^{S}_{A}					
Culture age (days)	26					
Days to 1st Brood (≤12)	8					
Average # of Neonates/Brood (≥15)	48					
Previous 7 Days Mortality in Culture (≤25%)	0					

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	21^{S}_{A}	→			21^{S}_{A}	→											WL
24-Hr. # Immobile	0	0	0		0	0	0										WL
48-Hr. # Immobile	0	0	0		0	0	0										WL
48-Hr. # Dead	0	0	0		0	0	0										WL
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) WL Notes

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SP1	9830-0012211	02-Aug-22	03-Aug-22	04-Aug-22 04-Aug-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 23-Jun-22 **Reference Chemical:** Zinc **Fish Lot #:** LF030622
96-Hour LC50: 0.21 mg/L **95% Confidence Limits:** 0.17 mg/L; 0.26 mg/L
Historic Geometric Mean LC50: 0.30 mg/L **Historic Warning Limits (± 2 SD):** 0.13 mg/L; 0.68 mg/L

Daphnia magna

Date Reference Test Initiated: 28-Jul-22 **Reference Chemical:** Phenol
48-Hour LC50: 8.84 mg/L **95% Confidence Limits:** 6.25 mg/L; 12.50 mg/L
Historic Geometric Mean LC50: 13.43 mg/L **Historic Warning Limits (± 2 SD):** 5.91 mg/L; 30.49 mg/L

TEST RESULTS APPROVED BY:

Date: August 15, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012211 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information				
Account 9830.001	Sample Number 9830.001 2211	Date/Time Started	04.08.22 / 1045	Analyst Starting Test	WL	
Client RWDI	Sample Name SP1	Date/Time Ended	08/08/22 / 1045	Fish Lot #	T3/LF030622-1	
Person Collecting Sample BG	Temperature Upon Receipt 22.0 °C	Test Volume 35 L Per Vessel	Number of Fish Per Vessel 10	Number of Vessels Per Conc.	(1) 2	
Date/Time Collected 02.08.22 / PM		Pre-Aeration No (Yes)	Pre-Aeration Duration 30 min	Pre-Aeration Rate	6.5 ±0.26 ml/min·L⁻¹	
Date/Time Received in Lab 03.08.22 / 0940		Rate of Aeration During Test 6.5 ±0.26 ml/min·L⁻¹	Dilution Water deechlor	Sample pH Adjustment	(No) Yes	
Sample Description clear light grey	Sample Type Description N/A	Sample Point Description: MISA	Other: N/A	Storage Temperature	15±1 °C	

Initial Sample Measurements Before Aeration - Cond.: 957 µmhos D.O: 8.5 mg/L 86 % Temp: 16.1 °C pH: 8.4 Air Flow Meter Reading: 0.263 L/min.
Instrument Identification- M/P #: 718 M/P #: 515 M/P #: 12/89 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration						Meter/Probe			Initials	Final Measurements					Meter/Probe		Initials
		___	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./ Temp	pH		Date	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./ Temp	pH	
Control		0	0	0	0	0	1035	254	9.7	97	15.4	7.7	7/8	5/5	12/89	WL	08/08/22	1045	15.4	8.8	88	7.6	5/5	12/89	SO
(1)	100%	0	0	0	0	0	↓	977	8.5	85	16.0	8.3	↓	↓	↓	↓	↓	1045	15.2	8.1	81	7.2	↓	↓	↓
Time Initials		1700 WL	1220 WL	1200 ✓	0910 ✓	1045 SO	Number of Control Fish Showing Atypical Behaviour: <24h: 0 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	0 %	LENGTH (mm)		WEIGHT (g)	Initials: ET	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 752
LC50 (Lower; Upper Limit)	—	Mean (SD)	42.4 (2.5)	Mean (SD)	0.76 (0.17)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	38mm / 47mm	Min/Max	0.53g / 0.99g	0+0+0+0+0+0+0	=0
Verified By (initials)		Sample Size	10	Loading Density	0.22 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	0

Observations and notes:

Nautilus *Daphnia magna* xicity Test Bench Sheet

Sample Information		Test Information			
Sample Method: Composite (Grab) Other		Test Type: (Single Concentration) LC50 TIE Screen			
Account Number 9830-001	Sample # 9830-00122211	Date Started/Time	04/08/22 1110	Analyst Starting Test	SO
Client RWDI	Sample Name SP1	Date Ended/Time	06/08/22 1055	#Neonates/Vessel	10
Person Collecting Sample BG	Temperature Upon Receipt 22.0°C	Test Volume	250 mL/Vessel	mL Solution/Daphnid	25 mL
Date/Time Sampled	02/08/22 1 PM	Pre-aeration	no (yes)	Pre-aeration Duration	30 min
Date/Time Received	03/08/22 1 0940	Pre-aeration Rate	33 ±2 mL/min L⁻¹	Sample Hardness Adjustment	(no) yes
Sample Description	clear light grey	Dilution H_2O #	DW2252	Sample pH Adjustment	(no) yes
Sample Type Description	other	Sample Point Description: MISA	(other)	Storage Temperature	4±2 °C
LC50 Randomization Template:	—	Test Row(s):	21		

Initial Sample Measurements: pH 8.4 Dissolved O_2 8.8 mg/L 101 % Conductivity 925 µmhos Temperature 21.3 °C
Instrument Identification: Meter/Probe # 13/88 Meter/Probe # 6/4 Meter/Probe # 5/6 Meter/Probe # 6/4

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.1	8.0	13/88 ↓	8.4	98	8.3	95	6/4 ↓	698	186	21.4	21.4	6/4
100	8.4	7.8	↓	8.8	102	8.2	95	↓	933	332	21.4	21.4	↓
Initials	SO	SO		SO		SO			SO	SO	SO	SO	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	53 4/c				
Culture age (days)	28				
Days to 1st Brood (≤12)	10				
Average # of Neonates/Brood (≥15)	51				
Previous 7 Days Mortality in Culture (≤25%)	0				

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	53 4/c →				53 4/c →												50
24-Hr. # Immobile	0	0	0		0	0	0										50
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										50
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) AP Notes _____

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

Brent Langille, RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SP2	9830-0012212	02-Aug-22	03-Aug-22	04-Aug-22 04-Aug-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 23-Jun-22 **Reference Chemical:** Zinc **Fish Lot #:** LF030622
96-Hour LC50: 0.21 mg/L **95% Confidence Limits:** 0.17 mg/L; 0.26 mg/L
Historic Geometric Mean LC50: 0.30 mg/L **Historic Warning Limits (± 2 SD):** 0.13 mg/L; 0.68 mg/L

Daphnia magna

Date Reference Test Initiated: 28-Jul-22 **Reference Chemical:** Phenol
48-Hour LC50: 8.84 mg/L **95% Confidence Limits:** 6.25 mg/L; 12.50 mg/L
Historic Geometric Mean LC50: 13.43 mg/L **Historic Warning Limits (± 2 SD):** 5.91 mg/L; 30.49 mg/L

TEST RESULTS APPROVED BY:

Date: August 15, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012212 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information	Sa. Method: Composite Grab Other	Test Information	Type: Single Concentration LC50 TIE Screen
Account 9830.001	Sample Number 9830.0012212 ✓	Date/Time Started 04.08.22 / 1045	Analyst Starting Test WL
Client 8 WL RWD1	Sample Name SP 2	Date/Time Ended 08/08/22 / 1050	Fish Lot # T3 / LF030622-1
Person Collecting Sample BG	Temperature Upon Receipt 22.3 °C	Test Volume 35 L Per Vessel	Number of Fish Per Vessel 10
Date/Time Collected 02.08.22 / AM		Pre-Aeration No Yes	Pre-Aeration Duration 30 min
Date/Time Received in Lab 03.08.22 / 0940		Rate of Aeration During Test 6.5 ±0.26 ml/min·L⁻¹	Dilution Water dechlor
Sample Description Clear light yellow	Sample Type Description N/A	Sample Point Description: MISA Other N/A	Storage Temperature 15±1 °C

Number of Vessels Per Conc. 1 2

Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹

Sample pH Adjustment No Yes

Initial Sample Measurements Before Aeration - Cond.: 1195 µmhos D.O: 7.1 mg/L 71 % Temp: 15.9 °C pH: 8.1 Air Flow Meter Reading: 0.263 L/min.

Instrument Identification- M/P #: 7/8 M/P #: 575 M/P #: 12/89 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration						Meter/Probe			Initials	Final Measurements						Meter/Probe		Initials
		___	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./Temp	pH		Date	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./Temp	pH	
Control		0	1	1	1	1	1035	263	9.8	97	15.0	7.8	7/8	5/5	12/89	WL	08/08/22	1050	15.0	7.8	77	7.5	5/5	12/89	SO
1	100%	0	0	0	0	0	↓	1216	7.1	71	15.7	8.0	↓	↓	↓	↓	↓	1050	14.9	8.1	80	7.3	↓	↓	↓
Time Initials		1700 WL	1220 WL	1200 ✓	0910 ✓	1050 SO	Number of Control Fish Showing Atypical Behaviour: <24h: 0 24h: 1A 48h: 1A 72h: 0 96h: 0																		

Percent Mortality 0 %	LENGTH (mm)	WEIGHT (g) Initials: ET	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 752
LC50 (Lower; Upper Limit) —	Mean (SD) 43.1mm (4.1)	Mean (SD) 0.83g (0.27)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method —	Min/Max 38mm / 52mm	Min/Max 0.61g / 1.03g	0 + 0 + 0 + 0 + 0 + 0 + 0	= 0
Verified By (initials)	Sample Size 9	Loading Density 0.24 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100) 0	

Observations and notes: 1A - ~~ta~~ swimming at bottom, brown residue stuck on fins

Nautilus *Daphnia magna* xicity Test Bench Sheet

Sample Information		Test Information			
Sample Method: Composite (Grab) Other		Test Type: Single Concentration LC50 TIE Screen			
Account Number 9830-001	Sample # 9830-0012212	Date Started/Time	04/08/22 / 1040	Analyst Starting Test	SO
Client RWDI	Sample Name SP2	Date Ended/Time	06/08/22 / 1055	#Neonates/Vessel	10
Person Collecting Sample BG	Temperature Upon Receipt 22.3 °C	Test Volume	250 mL/Vessel	mL Solution/Daphnid	25 mL
Date/Time Sampled	02/08/22 / AM	Pre-aeration	(no) yes	Pre-aeration Duration	— min
Date/Time Received	03/08/22 / 0940	Pre-aeration Rate	— ±2 mL/min L⁻¹	Sample Hardness Adjustment	(no) yes
Sample Description	Clear light yellow	Dilution H_2O #	DW2252	Sample pH Adjustment	(no) yes
Sample Type Description	other	Sample Point Description: MISA	(other)	Storage Temperature	4±2 °C
LC50 Randomization Template:	—	Test Row(s):	20		

Initial Sample Measurements: pH 8.4 Dissolved O_2 8.2 mg/L 94 % Conductivity 1138 µmhos Temperature 21.3 °C

Instrument Identification: Meter/Probe # 13/88 Meter/Probe # 6/4 Meter/Probe # 5/6 Meter/Probe # 6/4

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.1	8.0	13/88 ↓	8.4	98	8.3	96	6/4 ↓	698	186	21.4	21.4	6/4 ↓
100	8.4	7.8		8.2	94	8.0	92		1138	378	21.3	21.4	
Initials	SO	SO		SO		SO			SO	SO	SO	SO	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	52 uc				
Culture age (days)	28				
Days to 1st Brood (≤12)	10				
Average # of Neonates/Brood (≥15)	51				
Previous 7 Days Mortality in Culture (≤25%)	0				

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	52 uc →				52 uc →												SO
24-Hr. # Immobile	0	0	0		0	0	0										SO
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										50
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) BG Notes _____

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SS1	9830-0012214	28-Nov-22	28-Nov-22	01-Dec-22 28-Nov-22	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 03-Nov-22 **Reference Chemical:** Zinc **Fish Lot #:** LF121022
96-Hour LC50: 0.56 mg/L **95% Confidence Limits:** 0.42 mg/L; 0.74 mg/L
Historic Geometric Mean LC50: 0.33 mg/L **Historic Warning Limits (± 2 SD):** 0.14 mg/L; 0.78 mg/L

Daphnia magna

Date Reference Test Initiated: 29-Nov-22 **Reference Chemical:** Zinc
48-Hour LC50: 0.81 mg/L **95% Confidence Limits:** 0.62 mg/L; 1.08 mg/L
Historic Geometric Mean LC50: 1.17 mg/L **Historic Warning Limits (± 2 SD):** 0.39 mg/L; 3.51 mg/L

TEST RESULTS APPROVED BY:

Date: December 13, 2022

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2022\9000\9830-001\9830-0012214 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information				
Sam: Method: Composite (Grab) Other		T. Type: (Single Concentration) LC50 TIE Screen				
Account 9830.001	Sample Number 9830.001221 4	Date/Time Started 01.12.22 / 13:20			Analyst Starting Test MK / KP	
Client RDWI	Sample Name SS1	Date/Time Ended 05/12/22 / 1340			Fish Lot #TB LF 121022-1	
Person Collecting Sample A.W	Temperature Upon Receipt 7.0 °C	Test Volume 30 L Per Vessel	Number of Fish Per Vessel 10		Number of Vessels Per Conc. (1) 2	
Date/Time Collected 28.11.22	/ AM (Not specified)	Pre-Aeration No (Yes)	Pre-Aeration Duration 180 min		Pre-Aeration Rate 6.5 ±0.26 ml/min·L^{-1}	
Date/Time Received in Lab 28.11.22	/ 14:30	Rate of Aeration During Test 6.5 ±0.26 ml/min·L^{-1}	Dilution Water Dechlor		Sample pH Adjustment (No) Yes	
Sample Description Cloudy, light brown	Sample Type Description water, surface water	Sample Point Description: MISA (Other:)			Storage Temperature 4±2 °C	

Initial Sample Measurements Before Aeration - Cond.: 1469 µmhos D.O: 10.9 mg/L 107 % Temp: 14 °C pH: 7.6 Air Flow Meter Reading: 0.225 L/min.
Instrument Identification- M/P #: 7/8 M/P #: 5/5 M/P #: 13/88 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration						Meter/Probe			Initials	Final Measurements						Meter/Probe		Initials
		3	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./ Temp	pH		Date	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./ Temp	pH	
Control		0	0	0	0	1	13:15	214	9.10.0	97	14	7.9	7/8	5/5	13/88	MK	05/12/22	1340	15	9.7	97	7.7	7/5	13/88	50
	100%	0	0	0	0	0	↓	1506	10.4	102	14	7.7	↓	↓	↓	MK	↓	↓	15	9.0	90	7.6	↓	↓	↓
Time Initials		16:30 MK	09:00 MK	1450 SD	1430 SD	1340 SD	Number of Control Fish Showing Atypical Behaviour: <24h: 0 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	0 %	LENGTH (mm)		WEIGHT (g)	Initials: DS	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 638
LC50 (Lower; Upper Limit)	—	Mean (SD)	46.9 (3.6)	Mean (SD)	0.93 (0.23)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	41 / 51	Min/Max	0.63 / 1.20	0 + 0 + 0 + 0 + 0 + 0 + 0	= 0
Verified By (initials)	GO	Sample Size	9	Loading Density	0.31 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	0

Observations and notes: 30 min aeration: 10.8 / 105%
60m: 10.8/105

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information		Test Information		
Sample Method: Composite Grab Other		Test Type: Single Concentration LC50 TIE Screen		
Account Number 9830-001	Sample # 9830-001-2214	Date Started/Time 28/11/22 / 16:25	Analyst Starting Test KP/CS	
Client RDWI	Sample Name SS1	Date Ended/Time 30/11/22 /	#Neonates/Vessel 10	
Person Collecting Sample AW	Temperature Upon Receipt 7 °C	Test Volume 250 mL/Vessel	mL Solution/Daphnid 25 mL	
Date/Time Sampled 28/11/22 / —		Pre-aeration no (yes)	Pre-aeration Duration 30 min	
Date/Time Received 28/11/22 / 14:30		Pre-aeration Rate 28 ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes	
Sample Description LIGHT BROWN, CLOUDY		Dilution H_2O # DW2288	Sample pH Adjustment (no) yes	
Sample Type Description WATER		Sample Point Description: MISA (other)	Storage Temperature — °C	
LC50 Randomization Template: —		Test Row(s): 23		

Initial Sample Measurements: pH 7.7 Meter/Probe # 13/88; Dissolved O_2 11.6 mg/L 130 % Meter/Probe # 5/5; Conductivity 1521 µmhos Meter/Probe # 7/8; Temperature 21 °C Meter/Probe # 5/5

Instrument Identification:

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	7.9	13/88	8.0	91	8.1	90	5/5	632	180	22	21	5/5
100	7.8	8.0	13/88	10.6	120	7.9	88	5/5	1517	680	21	21	5/5
Initials	KP/CS			KP/CS		KP/CS			KP/CS	KP/CS	KP/CS	KP/CS	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	21^{Y}_{C}				
Culture age (days)	33				
Days to 1st Brood (≤12)	9				
Average # of Neonates/Brood (≥15)	63				
Previous 7 Days Mortality in Culture (≤25%)	0				

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	21^{Y}_{C}	21^{Y}_{C}	21^{Y}_{C}		21^{Y}_{C}	21^{Y}_{C}	21^{Y}_{C}										KP/CS
24-Hr. # Immobile	0	0	0		0	0	0										KK
48-Hr. # Immobile	0	0	0		0	0	0										KP/CS
48-Hr. # Dead	0	0	0		0	0	0										KP
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) KP Notes

NAUTILUS ENVIRONMENTAL

Certificate of Analysis

ACUTE LETHALITY BIOASSAY REPORT
(Single-Concentration Test)

CLIENT:

RWDI Air Inc., 4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5

TEST RESULTS:

Sample Name[1]	Sample Number	Date Collected	Date Received	Date Tested	Test Species[2]	Percent Mortality[3]	Method Deviations
SP2	9830-0012301	13-Jan-23	13-Jan-23	16-Jan-23 17-Jan-23	RBT DM	0% 0%	None None

1 - Results relate only to the sample tested. Tested as received from client.

2 - Test Type and Species RBT = Rainbow Trout 96-hour 100% Effluent Concentration Acute Lethality Test
DM = *Daphnia magna* 48-hour 100% Effluent Concentration Acute Lethality Test

3 - Most regulations regard ≤50% mortality to be a "pass". Check your applicable regulatory requirements.

TEST PROTOCOLS:

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/13 Second Edition - December 2000, including May 2007 and February 2016 Amendments. (Nautilus Test Method RT-SC-R1.7)

Environment Canada, "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*", Environmental Technology Centre, Ottawa, Ontario, Report EPS 1/RM/14 Second Edition - December 2000, including February 2016 Amendment. (Nautilus Test Method DM-SC-R1.7)

REFERENCE/HEALTH DATA:

Trout

Date Reference Test Initiated: 05-Jan-23 **Reference Chemical:** Phenol **Fish Lot #:** LF071222-01
96-Hour LC50: 8.12 mg/L **95% Confidence Limits:** 6.82 mg/L; 9.68 mg/L
Historic Geometric Mean LC50: 9.18 mg/L **Historic Warning Limits (± 2 SD):** 6.59 mg/L; 12.79 mg/L

Daphnia magna

Date Reference Test Initiated: 17-Jan-23 **Reference Chemical:** Phenol
48-Hour LC50: 14.87 mg/L **95% Confidence Limits:** 12.50 mg/L; 17.68 mg/L
Historic Geometric Mean LC50: 11.99 mg/L **Historic Warning Limits (± 2 SD):** 4.95 mg/L; 29.03 mg/L

TEST RESULTS APPROVED BY:

Date: January 24, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2023\9000\9830-001\9830-0012301 TD

704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information				
Sam. Method: Composite Grab (Other)		Test Type: (Single Concentration) LC50 TIE Screen				
Account 9830-001	Sample Number 9830-001-2301	Date/Time Started 16-01-23 / 12:05			Analyst Starting Test KP	
Client RWD1	Sample Name SP2	Date/Time Ended 20-01-23 / 11:45			Fish Lot # T3-LF07/222	
Person Collecting Sample	Temperature Upon Receipt 2.4 °C	Test Volume 35 L Per Vessel	Number of Fish Per Vessel 10		Number of Vessels Per Conc. (1) 2	
Date/Time Collected 13-01-23 / —		Pre-Aeration No (Yes)	Pre-Aeration Duration 120 min		Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹	
Date/Time Received in Lab 13-01-23 / 1415		Rate of Aeration During Test 6.5 ±0.26 ml/min·L⁻¹	Dilution Water DECHLOR		Sample pH Adjustment (No) Yes	
Sample Description CLOUDY, PALE BROWN	Sample Type Description SURFACE WATER	Sample Point Description: MISA (Other:)			Storage Temperature 4 ± 2 °C	

Initial Sample Measurements Before Aeration - Cond.: 1066 µmhos D.O: 11.9 mg/L 120.5% Temp: 15 °C pH: 7.7 Air Flow Meter Reading: 0.15 L/min.
Instrument Identification- M/P #: 7/8 M/P #: 7/5 M/P #: 13/88 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST					Initial Measurements After Pre-Aeration					Meter/Probe			Initials	Final Measurements					Meter/Probe		Initials
		4	24	48	72	96	Time	Cond (umhos)	D.O. (mg/L)/%		°C	pH (units)	Cond	D.O./ Temp	pH		Date	Time	°C	D.O. (mg/L)/%		pH (units)	D.O./ Temp	pH	
Control		0	0	0	0	0	11:50	244	9.9	100	15	7.7	7/8	7/5	13/88	KP	20-01-23	11:45	15	8.8	88.7	7.6	7/5	13/88	KP
(1)	100%	0	0	0	0	0	11:50	1055	10.6	107	15	7.8	↓	↓	↓	KP	↓	↓	15	9.2	92.4	7.7	↓	↓	↓
Time Initials		16:15 KP	11:50 KP	09:50 KP	10:18 KP	11:45 KP	Number of Control Fish Showing Atypical Behaviour: <24h: 0 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality 0 %	LENGTH (mm)		WEIGHT (g)	Initials: KP	Holding Mortalities 7-days Preceding Test
LC50 (Lower; Upper Limit) —	Mean (SD)	39.4 (2.6)	Mean (SD)	0.48 (0.10)	Number Dead (recorded daily for 7 days)
Method —	Min/Max	35 / 43	Min/Max	0.31 / 0.66	0 + 0 + 0 + 0 + 0 + 0 + 0
Verified By (initials) AD	Sample Size	10	Loading Density	0.14 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100) 0

Number of Fish in Batch at Day (-)7	927
Total Number Dead for 7 days Preceding Test	= 0

Observations and notes: DO @ 30 mins: 11.5 / 115.8 KP
DO @ 60 mins: 10.9 / 110 KP

Nautilus *Daphnia magna* oxicity Test Bench Sheet

Sample Information			Test Information			
Sample Method: Composite Grab (Other)			Test Type: (Single Concentration) LC50 TIE Screen			
Account Number 9830-001	Sample # 9830-00123001		Date Started/Time	17.01.23 / 1155	Analyst Starting Test	KP
Client RWDI	Sample Name SP2		Date Ended/Time	19.01.23 / 11:50	#Neonates/Vessel	10
Person Collecting Sample N/A	Temperature Upon Receipt 2.4 °C		Test Volume	250 mL/Vessel	mL Solution/Daphnid	25 mL
Date/Time Sampled 13/01/23	/ N/A		Pre-aeration	no (yes)	Pre-aeration Duration	30 min
Date/Time Received 13/01/23	/ 1415		Pre-aeration Rate	33.3 ±2 mL/min L⁻¹	Sample Hardness Adjustment	(no) yes
Sample Description	cloudy pale brown		Dilution H_2O #	DW2304	Sample pH Adjustment	(no) yes SC
Sample Type Description	surface water		Sample Point Description: MISA (other)		Storage Temperature	4±2 °C
LC50 Randomization Template: —			Test Row(s): 6			

Initial Sample Measurements: pH 7.7 Dissolved O_2 10.4 mg/L 123.4 % Conductivity 1082 µmhos Temperature 21 °C

Instrument Identification: Meter/Probe # 13/88 Meter/Probe # 7/5 Meter/Probe # 7/8 Meter/Probe # 7/5

Concentration (% Volume)	pH			Dissolved Oxygen					Cond. (µmhos)	Hard. (mg/L)	Temperature (°C)		
	Initial	Final	Final M/P	Initial (mg/L)	Initial (%)	Final (mg/L)	Final (%)	Final M/P	Initial	Initial	Initial	Final	Final M/P
Control	8.0	7.9	13/88	8.4	99.8	8.1	94	7/5	667	190 +8 KP	21	21	7/5
100	7.7	8.0	↓	8.2	94.2	8.3	96	↓	1080	370	21	21	↓
Initials	KP	KK		KP		KK			KP	KP	KP	KK	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	12 A B				
Culture age (days)	33				
Days to 1st Brood (≤12)	11				
Average # of Neonates/Brood (≥15)	41				
Previous 7 Days Mortality in Culture (≤25%)	0				

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control				100												Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	12 A B	→			12 A B	→											KP
24-Hr. # Immobile	0	0	0		0	0	0										KP
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										KK
Total # Immobile	0				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) KP Notes